

# Y&H PAEDIATRIC CRITICAL CARE OPERATIONAL DELIVERY NETWORK

## SERVICE SPECIFICATION

### LEVEL 2 PAEDIATRIC CRITICAL CARE OUTSIDE OF A LEVEL 3 PCC UNIT

#### 1. Population Needs

##### 1.1 National/local context and evidence base

Paediatric Critical Care (PCC) is the provision of close observation, monitoring and therapies to children who are, or have a significant potential to be, physiologically unstable which is beyond the capability of a general paediatric ward.

Entry into PCC is governed by the degree of physiological instability as much as by diagnosis.

Three levels of PCC units are defined:

- Level 1 paediatric Critical Care Units (PCCUs) will be located in all hospitals providing inpatient care to children and will deliver level 1 PCC care. (Provided in all district general hospitals which provide in-patient facilities. This level of activity is not specialised and is not commissioned directly by NHS England and is the responsibility of CCG's.
- Level 2 PCCUs may be specialist or non-specialist and are provided in tertiary hospitals and a limited number of DGHs and will deliver level 1 & 2 care. These were formerly classified as HDUs. (commissioned by NHS England, some local commissioning undertaken by CCGs)
- Level 3 PCCUs (LEVEL 3 PCCUs) are usually located in tertiary centres or specialist hospitals and can provide all 3 levels of PCC.(commissioned by NHS England)

This specification describes level 2 PCC outside of a Level 3 unit.

Children exit from Level 2 PCC either once 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 Level 3 PCCU.

Paediatric Critical Care is provided in an identified Paediatric CC setting, however in a DGH, Level 2 care may be provided on a general paediatric ward in an identified "Level 2" area. Level 2 PCC occurs in a number of locations:

- Within or alongside level 3 PCCUs, either as the highest level of care attained by some admissions or else as "step-down" care from an episode of Level 3 care.
- In defined Level 2 PCCUs, associated with other specialist services such as cardiology, burns or specialist surgery, usually in tertiary centres.
- In defined Level 2 PCCUs that are not associated with specialist services, usually outside tertiary centres.

Level 2 PCC will be provided in a manner in which it is under the clinical governance oversight arrangements of a designated Level 3 PCCU or through formal clinical network arrangements.

The Level 3 PCC service is under particular stress during the bronchiolitis season, which occurs November to January. During this period demand often exceeds capacity with the result that children are transferred long distances to access care. Adequate provision of Level 2 care will

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improve capacity in the system at this crucial time.

### 1.1.2. Evidence Base

National reference documents relating to the service standards for paediatric critical care services, and referenced in this specification are:

- Department of Health (2008) Commissioning Safe and Sustainable Paediatric Services: A Framework of Critical Interdependencies  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_088068](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088068)
- Department of Health (2006) Review of Commissioning Arrangements for Specialised Services (the Carter Review)  
[http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Managingyourorganisation/Commissioning/Commissioningspecialisedservices/DH\\_4135174](http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Managingyourorganisation/Commissioning/Commissioningspecialisedservices/DH_4135174)
- Department of Health (2006) The acutely or critically sick or injured child in the district general hospital  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_062668](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_062668)
- HSCIC PCC MDS – Overview 2014  
[http://www.datadictionary.nhs.uk/data\\_dictionary/messages/supporting\\_data\\_sets/data\\_sets/paediatric\\_critical\\_care\\_minimum\\_data\\_set\\_fr.asp?shownav=1](http://www.datadictionary.nhs.uk/data_dictionary/messages/supporting_data_sets/data_sets/paediatric_critical_care_minimum_data_set_fr.asp?shownav=1)
- Department of Health (2003) Getting the Right Start: National Service Framework for Children; Standards for Hospital Services  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4006182](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4006182)
- Department of Health (1997) A Bridge to the Future: nursing standards, education, workforce and planning in paediatric intensive care  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4005506](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005506)
- Department of Health/Health Services Directorate (1997) Paediatric Intensive Care: “A Framework for the Future”  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4005760](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005760)
- Healthcare Commission (2007) Improving Services for Children in Hospital  
[http://caredirectory.cqc.org.uk/db/documents/Improving\\_services\\_for\\_children\\_in\\_hospital.pdf](http://caredirectory.cqc.org.uk/db/documents/Improving_services_for_children_in_hospital.pdf)
- Paediatric Intensive Care Society (2010) Standards for the Care of Critically Ill Children (v.2, 4th ed.)  
[http://www.ukpics.org.uk/documents/PICS\\_standards.pdf](http://www.ukpics.org.uk/documents/PICS_standards.pdf)
- PICS – 2010 – Appendices to Standards For the Care of the Critically Ill Child (4th Edition)  
<http://www.ukpics.org.uk/documents/PICS%20Appx%204th%20Edn%20V2%2020100707.pdf>
- Royal College of Nursing (2011) Health care service standards in caring for neonates, children and young people  
[http://www.rcn.uk/\\_data/assets/pdf\\_file/0010/378091/003823.pdf](http://www.rcn.uk/_data/assets/pdf_file/0010/378091/003823.pdf)
- Safeguarding children and young people-roles and competencies for health care staff. Intercollegiate document, September 2010.  
<http://www.rcpch.ac.uk/safeguarding>
- Protecting children and young people: responsibilities of all doctors. GMC Sept 2012.

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## 2. Outcomes

### 2.1 NHS Outcomes Framework Domains & Indicators

Domain 1	Preventing people from dying prematurely	√
Domain 2	Enhancing quality of life for people with long-term conditions	√
Domain 3	Helping people to recover from episodes of ill-health or following injury	√
Domain 4	Ensuring people have a positive experience of care	√
Domain 5	Treating and caring for people in safe environment and protecting them from avoidable harm	√

Currently there are no outcome measures specifically for level 2 PCC. Key Outcomes:

## 3. Scope

### 3.1 Aims and objectives of service

This Service aims to provide high quality Paediatric Critical Care which meets the standards set out in national guidance as close to home as possible for:

- Critically ill children whose severity of illness does not require acute invasive ventilation or specialist care.
- The care of long term ventilated children, either while waiting for discharge to the community or during treatment of episodes of inter-current illness. (Note: once a patient has been medically stable on LTV (see LTV service specification for definition of medical stability) for a total of 90 days (i.e. including level 3 stay), commissioning responsibility and charges pass to local Clinical Commissioning Group commissioners.)

The Level 2 PCC Service will achieve these aims by:

- Admitting children for care in designated Level 2 PCC beds aligned to the Level 3 PCCU service or in designated local services outside of Level 3 PCCU centres. These limited Level 2 PCC facilities will operate as part of a Paediatric Critical Care Operational Delivery Network
- Facilitating both the avoidance of admission to Level 3 PCCU and rapid repatriation to a 'network' Level 2 PCC facility where that is safe and appropriate
- Avoiding unnecessary transfer for the child to a regional centre where appropriate care can be

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- Reducing disruption and costs to parents of travel and support
- Enabling improved capacity at regional centres , therefore improving access for other critically ill children

### 3.2 Service description/care pathway

Level 2 PCCUs will work as part of a Network and will be responsible for the provision of level 2 care to their agreed catchment population. There are two requirements for Level 2 PCC capacity – in the care of critically ill children and in the care of the long-term ventilated (LTV) child.

The level of complexity of patients will vary as described in the table below:

PCC level	Provided in:	Description	Nurse: patient ratio
1	Level 1,2 & 3 PCCU	Children requiring monitoring or interventions defined by PCC HRG 07Z	0.5:1 (1:1 if in a cubicle)
2	Level 2 &3 PCCU	Children requiring monitoring or interventions defined by PCC HRG 06Z	
3	Level 3 PCCU	Children requiring ventilatory support or support of two or more organs systems. Children at level 3 are usually intubated to assist breathing. PCC HRG 05Z/04Z	1: 1
		Children undergoing complex monitoring and/or therapeutic procedures, including advanced respiratory support. PCC HRG 03Z/02Z	1.5 : 1
Level 3 PCCU which supports cardiac surgery		Children receiving treatment by extra-corporeal membrane oxygenation (ECMO) PCC HRG 01Z	2 : 1

A list of interventions to define Level 1 and 2 PCC were described within the Paediatric Critical Care Minimum Data Set (PCCMDS). Further work has shown these to be inadequate to describe the work and modification to PCCMDS have been requested.

Basic Level Paediatric Critical Care Definitions are attached in appendix 1.

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### 3.2.1 Critically Ill Children

Critically ill children present to all hospitals which admit children. At presentation they are assessed and stabilised. On-going care depends on the level of intervention required following stabilisation and on the hospital's capacity to provide it.

They may require:

- General ward care and Level 1 PCC which is provided in every DGH
- Level 2 PCC, which can be provided in tertiary paediatric centres, either within Level 3 PCCU or on Level 2 PCCs, or in DGHs on designated Level 2 PCCs.
- Advanced level critical care, which is usually provided in regional Level 3 PCCUs but can occasionally occur in Adult Intensive Care Units.

General ward provision and level 1 PCC is outside the scope of this Service Specification.

### 3.2.2. Long Term Ventilation

The numbers of children requiring invasive Long Term Ventilation (LTV) are increasing by the year. Their care is initiated in a Level 3 PCCU or neonatal unit. Discharge to home is usually a protracted process, often requiring multi-agency involvement, adaptations to the home or rehousing and the recruitment and training of a care team. In many areas, care continues to be provided in the regional centre while this process is taking place. This involves persistent disruption and travel for the family, may incur substantial cost to the commissioner and may reduce critical care capacity in the central unit. However, once a patient has been medically stable on LTV (see LTV service specification for definition of medical stability) for a total of 90 days (i.e. including level 3 stay), commissioning responsibility and charges pass to local Clinical Commissioning Group commissioners.

Provision of level 2 PCC facilities in some District General Hospitals (DGHs) will enable earlier discharge so care of these children will take place closer to home, will enhance the skills of the DGH staff and will enable staff and family to become familiar with each other. The child may then be admitted to their local hospital for the treatment of some inter-current illnesses.

### 3.3 Population covered

The service outlined in this specification is for patients ordinarily resident in England\*; or otherwise the commissioning responsibility of the NHS in England (as defined in Who Pays?: Establishing the responsible commissioner and other Department of Health guidance relating to patients entitled to NHS care or exempt from charges).

Specifically this service is for critically ill children whose care needs exceed the capacity of a general ward or Level 1 PCCU as defined by reaching HRG level 2 (XB06Z) and do not meet the criteria for Level 3 PCCU as defined by HRG level 3 and above (XB05Z to XB01Z).

In addition, there is a population of post-operative children admitted to PCCU in tertiary centres whose care needs are not included in PCCMDS, but for whom there is a local agreement that PCC care is appropriate.

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Children up to the age of 16 are normally cared for in a Paediatric Critical Care environment, although the National Service Framework for Children (section 1.2 for link) states the age range for inclusion within paediatric care is 0-18 years (up to but not including the 19th birthday). PCC services shall be available to all critically ill children from the point of discharge from maternity or a neonatal unit until their 16th birthday. In addition, on rare occasions a PCC unit may be deemed to be the most clinically appropriate place to provide critical care to young adults between the ages of 16-24 years (up to but not including the 24th birthday) – for instance as part of a long-term pathway of care managed by a paediatric team or because of their stage of physical or emotional development. Young people who have not completed transition to adult services will usually be cared for in a PICU unless they, or their carers, express a different preference.

Some providers have policies in which patients up to their 19th birthday are classified as children / young people. In the case of these providers Level 2 PCC will accept patients up to their 19th birthday.

Children are also admitted to Level 2 PCC directly from a neonatal unit.

\* Note: for the purposes of commissioning health services, this EXCLUDES patients who, whilst resident in England, are registered with a GP Practice in Wales, but INCLUDES patients resident in Wales who are registered with a GP Practice in England.

### **3.4 Any acceptance and exclusion criteria and thresholds**

#### **3.4.1. Acceptance Criteria**

Referrals: This refers to level 2 areas outside of a level 3 unit in a DGH setting.

The service will accept referrals from within their trust, including general and specialist paediatric wards, emergency departments, children's assessment units and also from neonatal units and level 3 PCCUs/NICUs within their Paediatric Critical Care Network for repatriations.

Children with a paediatric critical care stay of 4 hours or less will not be classified as having a chargeable PCC stay.

#### **3.4.2. Criteria for referral**

The service will accept referrals for children who meet one of the following criteria:

- PCCMDS level 2 care.
- Post-operative care of children, subject to local agreement.

Patients will be accepted subject to capacity. Where demand exceeds capacity a network-wide process of prioritisation will be required.

In addition, in order to qualify for provision of Level 2 service providers will:

- Meet the 'Core Standards' PICS Standards (including appendices)
- Meet the RCPCH/PICS Level 2 PCC standards which were published and recommended from 2014.
- Submit PCCMDS data to SUS

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- Be a member of a Paediatric Critical Care Network
- Audit activity within their Level 2 PCC

### 3.4.3 Exclusions

- Adult patients should not be treated in a paediatric critical care environment, although patients aged 16-18 years (or in exceptional circumstances, up to 24 years) may be treated in a paediatric critical care environment if this is deemed to be the most appropriate location care based on individual needs

### 3.5 Interdependencies with other services/providers

Interdependencies in Level 2 PCC depend on site and speciality.

For Level 2 PCCUs located in a DGH the following services are required to be co-located and available 24/7:

- General Paediatric,
- Anaesthetic
- Access to the ENT pathway

Links to PCC Transport/Retrieval Services which meet the PCC Transport Specification are essential.

## 4. Applicable Service Standards

### 4.1 Applicable national standards e.g. NICE

4.1.1 Core Standards	Providers will need to meet the general obligations for the provision of paediatric services as outlined in the National Service Framework <sup>5</sup> and “Commissioning safe and sustainable specialised paediatric services: a framework of critical inter-dependencies DoH 2008 <sup>6</sup> ”).
	Standards for the provision of Paediatric High Dependency Care have been published by the Paediatric Intensive Care Society (Paediatric Intensive Care Society - Standards 2008 <sup>7</sup> PICS) and are being update by a group convened with the Royal College of Paediatrics and Child Health and RCN.

References:

1. [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_4090552.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4090552.pdf)
2. [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_088068](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088068)
3. [http://www.ukpics.org.uk/documents/PICS\\_standards.pdf](http://www.ukpics.org.uk/documents/PICS_standards.pdf)

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<b>5. Applicable quality requirements and CQUIN goals</b>
<b>5.1 Applicable quality requirements (See Schedule 4 Parts A-D)</b>  Not applicable to Level 2 PCC at this time.
<b>5.2 Applicable CQUIN goals (See Schedule 4 Part E)</b>  Not applicable to level 2 PCC at this time.
<b>6. Location of Provider Premises</b>
The Provider's Premises are located at:  Not applicable
<b>7. Individual Service User Placement</b>
Not applicable

#### Appendix 1:

Level 1 unit interventions (limited to those in PCCMDS and the four additional candidate items)	Level 2 unit interventions
<ul style="list-style-type: none"> <li>• Oxygen therapy + pulse oximetry + ECG monitoring (NB includes high flow oxygen)</li> <li>• Arrhythmia requiring IV anti-arrhythmic</li> <li>• Diabetic Ketoacidosis requiring continuous infusion of insulin</li> <li>• Severe Asthma requiring IV bronchodilator therapy</li> <li>• Reduced conscious level (GCS 12 or below) AND hourly (or more frequent) GCS monitoring</li> <li>• Upper airway obstruction requiring nebulised adrenaline</li> <li>• Apnoea</li> </ul>	<ul style="list-style-type: none"> <li>• CPR in past 24 hours</li> <li>• Nasopharyngeal airway</li> <li>• Acute non-invasive ventilation, including CPAP</li> <li>• &gt;80 mls/kg fluid bolus in 24 hours</li> <li>• *Continuous infusion of an anti-epileptic</li> <li>• *Arterial line</li> <li>• *Central venous pressure monitoring</li> <li>• *Epidural</li> <li>• *Care of tracheostomy (first 7 days of admission)</li> <li>• *Inotropic / vasopressor treatment</li> <li>• *Acute cardiac pacing (external)</li> <li>• *IV thrombolysis•</li> <li>• *Exchange transfusion (neonates only)</li> <li>• Invasive ventilation of the Long Term Ventilated Child</li> </ul> <p>Note: * denotes those interventions that are almost always performed for stabilisation.</p>

#### Appendix 2:

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Quality standards specific to the service using the following template:

Quality Requirement	Threshold	Method of Measurement	Consequence of breach
<b>Domain 1: Preventing people dying prematurely</b>			
Standardised mortality	remain within 99.9% confidence limits	To be agreed	Non-compliance with contract General Conditions 8 & 9
<b>Domain 2: Enhancing the quality of life of people with long-term conditions</b>			
Ensure working within a Network of Care with the Level 3 PCC and other paediatric units as required	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9
Effective and timely communication is supplied to receiving health care professionals following transfer / discharge from level 2 PCC	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9
<b>Domain 3: Helping people to recover from episodes of ill-health or following injury</b>			
Facilitating both the avoidance of admission to Level 3 PCCU and rapid repatriation to a 'network' Level 2 PCC facility where that is safe and appropriate	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9
Avoiding unnecessary transfer for the child to a regional centre where appropriate care can be delivered locally	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9
Quality Requirement	Threshold	Method of Measurement	Consequence of breach
<b>Domain 4: Ensuring that people have a positive experience of care</b>			
Ensure appropriate escalation to level 3 care is timely and repatriation from level 3 to level 2 is undertaking in a	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9

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timely manner. Timely discharge documentation to facilitate smooth transition to home/other services.			
<b>Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm</b>			
Levels 2 PCC should work within a network and have agreed protocols with the Lead level 3 unit.	To be agreed	To be agreed	Non-compliance with contract General Conditions 8 & 9

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