WM QRS West Midlands Quality Review Service

NHS

West Midlands Paediatric Critical Care Network

Care of Critically Ill & Critically Injured Children Quality Review Visit

Birmingham Women's and Children's NHS Foundation Trust

Visit Date: 14th September 2018 Report Date: November 2018

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UKAS INSPECTION 8831

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INTRODUCTION

This short report presents the findings of the review of Critically Ill and Critically Injured Children that took place on 14th September 2018. The review visit was commissioned by the West Midlands Paediatric Critical Care Network (WMPCCN), on behalf of commissioners and NHS England who have responsibility for making recommendations on future provision for the delivery of paediatric critical care. This review programme links to both a National Paediatric Critical Care Review; and a West Midlands Paediatric Critical Care CQUIN. The CQUIN outlined a requirement for all West Midlands children's services to be assessed against the WMQRS /Paediatric Intensive Care Society (2016) Standards for the Care of Critically Ill Children (v.5) by July 2017.

The purpose of the visit was to validate the self-assessments and to review the pathway for critically ill children attending the Emergency Department and Children's assessment unit through to inpatient and high dependency inpatient areas where applicable. As part of the WMPCCN programme, information was also gathered about existing capacity to provide paediatric high dependency care at a local level, and the plans that may be required to deliver a higher level of paediatric critical care nearer to the patient's home in the future. Only a select number of Quality Standards were reviewed during this visit. The Quality Standards identified were agreed by the WMPCCN as being important to provide the information required to inform commissioners as part of the National CQUIN for 2017/18. The review visit consisted of a half-day visit, during which reviewers looked at evidence against the self-assessment submitted, met with the lead team for children's services and viewed facilities. This review programme was therefore not as in-depth as the Critically Ill and Critically Injured Children peer review programmes undertaken across the West Midlands in previous years, but was designed to provide specific assurances.

The aim of the standards and the review programme is to help providers and commissioners of services to improve clinical outcomes and service users' and carers' experiences by improving the quality of services. The report also gives external assurance of the care, which can be used as part of organisations' Quality Accounts. For commissioners, the report gives assurance of the quality of services commissioned and identifies areas where developments may be needed.

The aim of the standards and the review programme is to help providers and commissioners of services to improve clinical outcomes and service users' and carers' experiences by improving the quality of services. The report also gives external assurance of the care which can be used as part of organisations' Quality Accounts. For commissioners, the report gives assurance of the quality of services commissioned and identifies areas where developments may be needed.

The report reflects the situation at the time of the visit. The text of this report identifies the main issues raised during the course of the visit. Any immediate risks identified include the Trust's response, and WMQRS's response to any actions taken to mitigate the risk. Appendix 1 lists the visiting team that reviewed the services at Birmingham Women's and Children's NHS Foundation Trust**.** Appendix 2 contains the details of compliance with each of the standards and the percentage of standards met.

This report describes services provided or commissioned by the following organisations:

- Birmingham Women's and Children's NHS Foundation Trust
- NHS Birmingham and Solihull Clinical Commissioning Group

Most of the issues identified by quality reviews can be resolved by providers' and commissioners' own governance arrangements. Many can be tackled by the use of appropriate service improvement approaches; some require commissioner input. Individual organisations are responsible for taking action and monitoring this through their usual governance mechanisms. The lead commissioner for the service concerned is responsible for ensuring action plans are in place and monitoring their implementation, liaising, as appropriate, with other commissioners, including commissioners of primary care. The lead commissioner in relation to this report is NHS Birmingham and Solihull Clinical Commissioning Group.

About West Midlands Quality Review Service

WMQRS is a collaborative venture between NHS organisations in the West Midlands to help improve the quality of health services by developing evidence-based Quality Standards, carrying out developmental and supportive quality reviews (often through peer review visits), producing comparative information on the quality of services and providing development and learning for all involved.

Expected outcomes are better quality, safety and clinical outcomes, better patient and carer experience, organisations with better information about the quality of clinical services, and organisations with more confidence and competence in reviewing the quality of clinical services. More detail about the work of WMQRS is available on www.wmqrs.nhs.uk

Acknowledgments

West Midlands Quality Review Service and West Midlands Paediatric Critical Care Network would like to thank the staff and service users and carers of Birmingham Women's and Children's NHS Foundation Trust for their hard work in preparing for the review and for their kindness and helpfulness during the course of the visit. Thanks, are also due to the visiting team and their employing organisations for the time and expertise they contributed to this review.

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CARE OF CRITICALLY ILL AND CRITICALLY INJURED CHILDREN

TRUST-WIDE

General Comments and Achievements

This visit was planned to look specifically at the urgent care pathway at the Trust, and therefore reviewers only visited the Emergency Department (ED), the Paediatric Assessment Unit (PAU), and the Medical High Dependency Unit (MHDU). The Trust also had a number of other specialty areas caring for children in high dependency settings, and at the time of the visit there were 36 nominal HDU beds across ten different wards. Reviewers therefore met with representatives of the Paediatric Assessment Clinical Intervention and Education team (PACE) and 'HDU Plus', to understand the care of children who required HDU care across the Trust.

Reviewers also visited Ocean Ward, which cared for children with long-term ventilation needs who were medically fit for discharge but required complex care packages to be in place before they could be cared for at home.

Compliance with the Quality Standards was validated for the Emergency Department, the Paediatric Assessment Unit and the Medical High Dependency Unit, but not for other high dependency areas.

Reviewers were impressed with the welcoming and open attitude of the staff. Changes in service organisation had taken place, and this was particularly noticed by reviewers who had taken part in previous review visits to the Trust.

Most of the comments in the Trust-wide section of this report apply to more than one service, and are not duplicated in other areas of the report.

Good Practice

1. Reviewers were impressed by work being undertaken to enhance the level of support and training for HDU care across the Trust, particularly the further development of PACE and the implementation of HDU Plus:

    a. The HDU Plus team provided hospital-wide education and support to staff caring for children requiring HDU care and support across the Trust. The team consisted of consultant intensivist support and clinical practitioners. Evaluation of the service had demonstrated a reduction in the number of unplanned admissions to the Intensive Care Unit. As part of this initiative the Trust had been able to develop an enhanced recovery programme on the spinal unit so that patients could be cared for on the HDU rather than being admitted to the Paediatric Intensive Care Unit (PICU).

    b. PACE had continued to develop, and consisted of 16 site practitioners, providing practical support 24/7 for the sickest patients outside the PICU, as well as education for staff.

2. **Education and training**

    There was a range of education and training for staff to deliver both level one and level two high dependency care safely:

    a. Two levels of simulation training were delivered: monthly cardiac arrest training and a programme of simulation training for other areas that in each case included a scenario covering an element of level one or level two.

    b. There was education and support for critical care.

    c. Nursing competence frameworks were well defined, with a robust process for identifying those staff who were expert, competent or novice.

    d. Education and training was provided by the PACE team.

3. The appendix in the resuscitation guideline, '*Witnessed Resuscitation*', gave very comprehensive information about support for parents. The policy was also clear about the roles and responsibilities of staff. Reviewers

were also impressed that in the ED a member of the team was assigned to support parents whose child was being resuscitated, and that there was a designated room close to the resuscitation room for parents to use if they wanted to be away from the situation.

4. The *'Unanticipated Difficult Intubation'* policy was very clear. The policy also included a flow chart, which was easy to follow.

Immediate Risks: None

Concerns

1. **Guidelines and Policies**

   The governance process for ensuring that guidelines were reviewed, and versions were controlled was not robust. Reviewers were shown a number of guidelines that were out of date (for example, Bronchiolitis (2016/17) and Asthma (SIGN 2014)). Other guidelines referred to the Emergency Department Handbook for 2011 and some stated that they applied to the PICU only, but relevant alternatives could not be located for areas outside the PICU.

Further Consideration

1. A hospital-wide critical care group with representation from all areas providing critical care was not in place. Reviewers considered that establishing a group would enable a more collaborative and strategic approach to be taken towards caring for the critically ill child, both internally and with external stakeholders.
2. Medical staff used their paediatric resuscitation and life support competencies on a frequent basis. Evidence was not available to reviewers that competences for advanced paediatric resuscitation and life support had been maintained for all ED and MHDU consultants, who did not have up to date advanced paediatric resuscitation and life support training. Reviewers considered that the Trust should assure itself that monitoring through annual appraisals and continuous professional development is able to provide sufficient assurance of ongoing competence.
3. At the time of the visit, the Trust was in the process of reviewing medical oversight for children on the MHDU, because children were cared for by the admitting paediatrician with oversight and support from the HDU Plus consultant intensivist. Reviewers considered that as part of this process it may be sensible to look at the arrangements for those children under the care of the PACE team.
4. With the level of support available to the HDU areas across the Trust, reviewers considered that the Trust should consider the development of a level 2 HDU facility to enable the PICU to step down those children who no longer required level 3 care. To achieve this, the Trust would need to work closely with commissioners to ensure that the model of care delivered matched what was commissioned.
5. Reviewers considered that the competence framework in use could be enhanced if competences were used in a complementary way, so that staff could use the approach as building blocks or as a top up approach, with the competences transferable across the various areas of the Trust.

CHILDREN'S EMERGENCY DEPARTMENT

General Comments and Achievements

Reviewers saw a well-organised service with a good system for triage and alerting. The PAU and the MHDU were co-located, which improved communication and flow.

Paediatric Assessment Unit (PAU)

General Comments and Achievements

A flexible approach had been implemented, with some staff working 50% of their time on the PAU and 50% with the Hospital at Home team. This allowed the transference of skill amongst staff, and staff retention had improved as a result. There was evidence of good nurse leadership, and an awareness of the team's capabilities and development needs. The unit was aware that it retained children for longer than was optimal for an assessment unit, often acting as an overflow for the MHDU.

Ocean Inpatient Ward

General Comments and Achievements

Ocean Ward cared for stable long-term ventilated patients who were medically fit for discharge but required complex care packages to be in place before they could be cared for at home. This was a useful resource for helping manage PICU capacity.

Medical High Dependency Unit

Good Practice

1. Reviewers were impressed that all nurses had HDU competencies and were trained to look after patients who required continuous positive airway pressure ventilation (CPAP).

Further Consideration

1. At the time of the visit, the unit was restricted in the level of interventions it could provide, because neither the medical skill set, nor the staffing was yet in place. Reviewers thought that this might be restricting the ability to develop HDU activity within the HDU area. Nursing staff had appropriate competences but were restricted because the medical supervision remained with paediatricians from multiple specialties who had differing ranges of skills and experience in high dependency care.
2. The facilities within the unit were very cramped, with limited room at the bedside for staff and parents.

Future Strategy

1. The team had a clear vision for the future, which included expanding level 2 capacity, with designated areas. The data seen suggested that eight to nine beds would need to be available. Future level 2 capacity would be designated to support complex surgical patients.
2. Medical staff competences should be developed to support HDU development.
3. The Trust should be looking to provide leadership and support to enable hospitals across the region to receive stable children, which would help to reduce PICU pressure.

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APPENDIX 1 MEMBERSHIP OF VISITING TEAM

Visiting Team		
Dr John Alexander	Clinical Director, PICU	University Hospitals of North Midlands NHS Trust
Lynne Bowyer	General Manager for Children's Services	University Hospitals Birmingham NHS Foundation Trust
Ally Davies	Network Lead/BWC Transformation Manager	Birmingham Women's and Children's NHS Foundation Trust
Sophie Harris	Band 6 - HDU lead	The Dudley Group NHS Foundation Trust

WMQRS Team		
Sarah Broomhead	Assistant Director	West Midlands Quality Review Service

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APPENDIX 2 COMPLIANCE WITH THE QUALITY STANDARDS

Analyses of percentage compliance with the Quality Standards should be viewed with caution as they give the same weight to each of the Quality Standards. Also, the number of Quality Standards applicable to each service varies depending on the nature of the service provided. Percentage compliance also takes no account of 'working towards' a particular Quality Standard. Reviewers often comment that it is better to have a 'No, but', where there is real commitment to achieving a particular standard, than a 'Yes, but' where a 'box has been ticked' but the commitment to implementation is lacking. With these caveats, table 1 summarises the percentage compliance for each of the services reviewed.

Table 1 - Percentage of Quality Standards met

Details of compliance with individual Quality Standards can be found in a separate document.

Service	Number of Applicable QS	Number of QS Met	% met
Hospital-wide	10	9	10
Emergency Department	17	14	82
Children's Assessment Service	21	16	76
Level 2 Paediatric Critical Care Unit	26	22	85
Health Economy	**74**	**61**	**82**

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HOSPITAL-WIDE

Ref	Standard	Met?	Reviewer's comments
HW-201	**Board-Level Lead for Children** A Board-level lead for children's services should be identified.	Y	
HW-202	**Clinical Leads** The Board-level lead for children's services should ensure that the following leads for the care of children have been identified: a. Lead consultants and nurses for each of the areas where children may be critically ill (QS **-201) b. Lead consultant for paediatric critical care c. Lead consultant for surgery in children (if applicable) d. Lead consultant for trauma in children (if applicable) e. Lead anaesthetist for children (QS A-201) f. Lead anaesthetist for paediatric critical care (QS A-202) g. Lead GICU consultant for children (QS A-203) (if applicable) h. Lead consultant/s and lead nurse/s for the Specialist Paediatric Transport Service (QS T-201) (if applicable) i. Lead consultant and lead nurse and for safeguarding children j. Lead allied health professional for the care of critically ill children	Y	
HW-203	**Hospital Wide Group** Hospitals providing hospital services for children should have a single group responsible for the coordination and development of care of critically ill and critically injured children. The membership of this group should include all nominated leads (QS HW-202) and the Resuscitation Officer with lead responsibility for children. The accountability of the group should include the Hospital Lead for children's services (QS HW-201). The relationship of the group to the Trust's mechanisms for safeguarding children and clinical governance issues relating to children should be clear.	N	An executive led group looking at care of the critically ill children across the Trust that included all the leads in HW-201-202 was not in place. Directorate-wide groups were in operation.

Ref	Standard	Met?	Reviewer's comments
HW-204	**Paediatric Resuscitation Team** A paediatric resuscitation team should be immediately available at all times, comprising at least three people: a. A Team Leader with up to date advanced paediatric resuscitation and life support knowledge and competences and at least Level 1 RCPCH (or equivalent) competences (QS PM-203) b. A second registered healthcare professional with up to date advanced paediatric resuscitation and life support competences An anaesthetist, or other practitioner, with up to date competences in advanced paediatric resuscitation and life support and advanced airway management	Y	
HW-205	**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.	Y	
HW-206	**Other Clinical Areas** Staff in other clinical areas where children may be critically ill, such as imaging and paediatric out-patient departments, should have basic paediatric resuscitation and life support training.	Y	
HW-401	**Paediatric Resuscitation Team – Equipment** The paediatric resuscitation team should have immediate access to appropriate drugs and equipment which are checked in accordance with local policy.	Y	
HW-501	**Resuscitation and Stabilisation** Protocols should be in use covering resuscitation and stabilisation, including: a. Alerting the paediatric resuscitation team b. Arrangements for accessing support for difficult airway management c. Stabilisation and ongoing care d. Care of parents during the resuscitation of a child	Y	However, the policy was due for review March 2018.

Ref	Standard	Met?	Reviewer's comments
HW-598	**Trust-Wide Guidelines** The following Trust-Wide guidelines should be in use: a. Consent b. Organ and tissue donation c. Palliative care d. Bereavement e. Staff acting outside their area of competence covering: f. Exceptional circumstances when this may occur g. Staff responsibilities h. Reporting of event as an untoward clinical incident i. Support for staff	Y	e' was not applicable in terms of staff acting outside their area of competence as all staff were designated children's specialists. There was a policy for the health and wellbeing of staff.
HW-602	**Paediatric Critical Care Operational Delivery Network Involvement** At least one representative from the Trust should attend each meeting of the Paediatric Critical Care Operational Delivery Network. Information about the work of the network should be disseminated to all staff involved in the provision of critical care for children	Y	

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EMERGENCY DEPARTMENT

Ref	Standard	Met?	Reviewer's comments
ED-201	**Lead Consultant and Lead Nurse** A nominated lead consultant and lead nurse should be responsible for staffing, training, guidelines and protocols, governance and for liaison with other services. The lead nurse should be a senior children's nurse. The lead consultant and lead nurse should undertake regular clinical work within the service for which they are responsible.	Y	
ED-202	**Consultant Staffing** a. A consultant who is able to attend the hospital within 30 minutes and who does not have responsibilities to other hospital sites should be available 24/7 b. All consultants should have up to date advanced paediatric resuscitation and life support competences and should undertake CPD of relevance to their work with critically ill and critically injured children	N	Evidence was not available to reviewers that competences for advanced paediatric resuscitation and life support had been maintained for all ED Consultants, who did not have up to date advanced paediatric resuscitation and life support training.
ED-203	**'Middle Grade' Clinician** A 'middle grade' clinician with the following competences should be immediately available at all times: a. Advanced paediatric resuscitation and life support b. Assessment of the ill child and recognition of serious illness and injury c. Initiation of appropriate immediate treatment d. Prescribing and administering resuscitation and other appropriate drugs e. Provision of appropriate pain management f. Effective communication with children and their families g. Effective communication with other members of the multi-disciplinary team, including the on-duty consultant A clinician with at least Level 1 RCPCH (or equivalent) competences and experience should be immediately available. Doctors in training should normally be Specialist Trainee 4 (ST4) or above. Larger hospitals with several wards or departments caring for children will require more than one clinician with these competences on site 24/7.	N	Evidence was not available to show that all Consultants had up to date advanced paediatric resuscitation and life support competences

Ref	Standard	Met?	Reviewer's comments
ED-206	**Competence Framework and Training Plan – Staff Providing Bedside Care** A competence framework and training plan should ensure that all staff providing bedside care have or are working towards, and maintain, competences appropriate for their role in the service including: a. Paediatric resuscitation: All staff should have basic paediatric resuscitation and life support competences and the service should have sufficient staff with advanced paediatric resuscitation and life support competences to achieve at least the minimum staffing levels (QS ED-208) and expected input to the paediatric resuscitation team (QS HW-204) b. Care and rehabilitation of children with trauma (if applicable) c. Care of children needing surgery (if applicable) d. Use of equipment as expected for their role e. Care of children with acute mental health problems	Y	
ED-207	**Staffing Levels: Bedside Care** Nursing and non-registered health care staffing levels should be appropriate for the number, dependency and case-mix of children normally cared for by the service and the lay-out of the unit. An escalation C12policy should show how staffing levels will respond to fluctuations in the number and dependency of patients. If staffing levels are achieved through flexible use of staff (rather than rostering), achievement of expected staffing levels should have been audited. Before starting work in the service, local induction and a review of competence for their expected role should be completed for all agency, bank and locum staff. The following minimum nurse staffing levels should be achieved: a. At least one nurse with up to date advanced paediatric resuscitation and life support competences on each shift b. At least one registered children's nurses on duty at all times in each area	Y	

Ref	Standard	Met?	Reviewer's comments
ED-209	**Other Staffing** The following staff should be available: a. Appropriately qualified staff to provide support for play, mental stimulation and distraction during procedures (7/7) b. On-call access to pharmacy and physiotherapy services able to support the care of children (24/7) c. Access to dietetic service (at least 5/7) d. Access to a liaison health worker for children with mental health needs (7/7) e. Access to staff with competences in psychological support (at least 5/7)	Y	
ED-211	**ED Liaison Paediatrician** A nominated paediatric consultant should be responsible for liaison with the nominated Emergency Department consultant (QS ED-201).	N/A	
ED-212	**ED Sub-speciality Trained Consultant** Emergency Departments seeing 16,000 or more child attendances per year should have a consultant with sub-specialty training in paediatric emergency medicine.	Y	
ED-301	**Imaging Services** 24 hour on site access to imaging services should be available including ultrasound and CT scanning, with reporting available within one hour. Arrangements for access to MRI should be in place. If staff with competences in reporting imaging of children are not available 24/7 then the Hospital should have arrangements for review of imaging by a paediatric radiologist.	Y	
ED-401	**Resuscitation Equipment** An appropriately designed and equipped area, or adequate mobile equipment, for resuscitation and stabilisation of critically ill children of all ages should be available. Drugs and equipment should be checked in accordance with local policy.	Y	
ED-402	**Grab Bag'** Appropriate drugs and equipment for in-hospital and time-critical transfers should be immediately available and checked in accordance with local policy.	Y	

Ref	Standard	Met?	Reviewer's comments
ED-501	**Initial Assessment** A protocol should be in use which ensures a brief clinical assessment within 15 minutes of arrival, including a pain score (where appropriate), and a system of prioritisation for full assessment if waiting times for full assessment exceed 15 minutes.	Y	The Manchester Triage tool was in place. Data showed that only 95% of children attending were assessed within 15mins.
ED-502	**Paediatric Early Warning System** A system to provide early warning of deterioration of children should be in use. The system should cover observation, monitoring and escalation of care.	Y	
ED-503	**Resuscitation and Stabilisation** Hospital-Wide protocols for resuscitation and stabilisation should be in use, including: a. Alerting the paediatric resuscitation team b. Arrangements for accessing support for difficult airway management c. Stabilisation and ongoing care d. Care of parents during the resuscitation of a child	Y	see Trust-wide
ED-504	**Paediatric Advice** Guidelines on accessing advice from the local paediatric service and local paediatric critical care service should be in use in units where children are not under the care of a paediatrician.	N/A	
ED-505	**Clinical Guidelines** The following clinical guidelines should be in use: **a.** Treatment of all major conditions, including: i. acute respiratory failure (including bronchiolitis and asthma) ii. sepsis (including septic shock and meningococcal infection) iii. management of diabetic ketoacidosis iv. seizures and status epilepticus v. trauma, including traumatic brain injury, spinal injury and rehabilitation of children following trauma (if applicable) vi. burns and scalds vii. cardiac arrhythmia viii. upper airway obstruction b. Management of acutely distressed children, including use of restraint c. Drug administration and medicines management d. Pain management e. Procedural sedation and analgesia f. Infection control and antibiotic prescribing g. Tissue viability, including extravasation	N	Some guidelines were beyond their review date and the Paediatric in Partnership (PIP) guidelines on the intranet were not the latest version, and did not have guidance for use locally.

Ref	Standard	Met?	Reviewer's comments
ED-506	**PCC Transfer Guidelines** Guidelines on referral to a Specialist Paediatric Transport Service should be in use, covering at least: a. Accessing advice from a Specialist Paediatric Transport Service and providing full clinical information b. Ensuring decisions on whether a child needs to be transferred are taken by the appropriate local consultant together with the Specialist Paediatric Transport Service c. Local guidelines on the maintenance of paediatric critical care until the child's condition improves or the SPTP arrives. These guidelines should stipulate the location/s in which children may be maintained	N/A	
ED-507	**In-hospital Transfer Guidelines** Guidelines on transfer of seriously ill children within the hospital (for example, to or from imaging or theatre) should be in use. The guidelines should specify the escort arrangements and equipment required.	Y	
ED-508	**Inter-hospital Transfer Guidelines** Guidelines on transfer of children between hospitals or between hospital sites should be in use covering at least: a. Types of patients transferred b. Composition and expected competences of the escort team c. Drugs and equipment required d. Restraint of children, equipment and staff during transfer e. Monitoring during transfer	Y	

Ref	Standard	Met?	Reviewer's comments
ED-509	**Time-Critical Transfer Guidelines** Guidelines should be in place for situations where emergency transfer is time-critical and waiting for the SPTS to arrive may introduce unsafe delay, for example, severe head injury, intracranial bleeding, severe thoracic vascular trauma, burns and some intra-abdominal emergencies. The guidelines should include: a. Securing advice from the Specialist Paediatric Transport Service (QS ED-506) b. Escort team of at least two clinical staff with appropriate training and experience. The referring consultant and senior nurse on duty should judge the appropriateness of the escorts who would normally be senior clinicians with experience and / or training in a) care of the critically ill child, b) emergency transfer and c) advanced airway management c. Indemnity for escort team d. Availability of drugs and equipment, checked in accordance with local policy (QS ED-402) e. Arrangements for emergency transport with a local ambulance service and the air ambulance f. Arrangements for ensuring restraint of children, equipment and staff during transfer	N/A	
ED-798	**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'.	Y	

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CHILDREN'S ASSESSMENT SERVICE

Ref	Standard	Met?	Reviewer's comments
CA-201	**Lead Consultant and Lead Nurse** A nominated lead consultant and lead nurse should be responsible for staffing, training, guidelines and protocols, governance and for liaison with other services. The lead nurse should be a senior children's nurse. The lead consultant and lead nurse should undertake regular clinical work within the service for which they are responsible.	Y	
CA-202	**Consultant Staffing** a. A consultant who is able to attend the hospital within 30 minutes and who does not have responsibilities to other hospital sites should be available 24/7 **b.** All consultants should have up to date advanced paediatric resuscitation and life support competences and should undertake CPD of relevance to their work with critically ill and critically injured children	N	Evidence was not available to reviewers that competences for advanced paediatric resuscitation and life support had been maintained for all Consultants who did not have up to date advanced paediatric resuscitation and life support training.
CA-203	**'Middle Grade' Clinician** A 'middle grade' clinician with the following competences should be immediately available at all times: a. Advanced paediatric resuscitation and life support b. Assessment of the ill child and recognition of serious illness and injury c. Initiation of appropriate immediate treatment d. Prescribing and administering resuscitation and other appropriate drugs e. Provision of appropriate pain management f. Effective communication with children and their families g. Effective communication with other members of the multi-disciplinary team, including the on-duty consultant A clinician with at least Level 1 RCPCH (or equivalent) competences and experience should be immediately available. Doctors in training should normally be ST4 or above. Larger hospitals with several wards or departments caring for children will require more than one clinician with these competences on site 24/7.	N	Evidence was not available to show that all middle grade staff had up to date advance paediatric life support competences .

Ref	Standard	Met?	Reviewer's comments
CA-206	**Competence Framework and Training Plan – Staff Providing Bedside Care** A competence framework and training plan should ensure that all staff providing bedside care have or are working towards, and maintain, competences appropriate for their role in the service including: a. Paediatric resuscitation: All staff should have basic paediatric resuscitation and life support competences and the service should have sufficient staff with advanced paediatric resuscitation and life support competences to achieve at least the minimum staffing levels (QS CA-208) and expected input to the paediatric resuscitation team (QS HW-204) b. Care and rehabilitation of children with trauma (if applicable) c. Care of children needing surgery (if applicable) d. Use of equipment as expected for their role **e.** Care of children with acute mental health problems	Y	
CA-207	**Staffing Levels: Bedside Care** Nursing and non-registered health care staffing levels should be appropriate for the number, dependency and case-mix of children normally cared for by the service and the lay-out of the unit. An escalation policy should show how staffing levels will respond to fluctuations in the number and dependency of patients. If staffing levels are achieved through flexible use of staff (rather than rostering), achievement of expected staffing levels should have been audited. Before starting work in the service, local induction and a review of competence for their expected role should be completed for all agency, bank and locum staff. The following minimum nurse staffing levels should be achieved: a. At least one nurse with up to date advanced paediatric resuscitation and life support competences on each shift **b.** At least two registered children's nurses on duty at all times in each area	N	In accordance with Trust policy a nurse with advanced paediatric resuscitation and life support training was not available on each shift as the resuscitation team and other consultant staff would have these competences.

Ref	Standard	Met?	Reviewer's comments
CA-209	**Other Staffing** The following staff should be available: a. Appropriately qualified staff to provide support for play, mental stimulation and distraction during procedures (7/7) b. On-call access to pharmacy and physiotherapy services able to support the care of children (24/7) c. Access to dietetic service (at least 5/7) d. Access to a liaison health worker for children with mental health needs (7/7) **e.** Access to staff with competences in psychological support (at least 5/7)	Y	
CA-301	**Imaging Services** 24 hour on site access to imaging services should be available including ultrasound and CT scanning, with reporting available within one hour. Arrangements for access to MRI should be in place. If staff with competences in reporting imaging of children are not available 24/7 then the Hospital should have arrangements for review of imaging by a paediatric radiologist.	Y	
CA-401	**Resuscitation Equipment** An appropriately designed and equipped area, or adequate mobile equipment, for resuscitation and stabilisation of critically ill children of all ages should be available. Drugs and equipment should be checked in accordance with local policy.	Y	
CA-402	**'Grab Bag'** Appropriate drugs and equipment for in-hospital and time-critical transfers should be immediately available and checked in accordance with local policy.	Y	Grab bags were not used but equipment was available for transferring children to other areas.
CA-406	**'Point of Care' Testing** 'Point of care' testing for blood gases, glucose, electrolytes and lactate should be easily available.	Y	
CA-501	**Initial Assessment** A protocol should be in use which ensures a brief clinical assessment within 15 minutes of arrival, including a pain score (where appropriate), and a system of prioritisation for full assessment if waiting times for full assessment exceed 15 minutes.	Y	Reviewers were told that 95% of assessments were undertaken within 15 mins with an average of 7mins
CA-502	**Paediatric Early Warning System** A system to provide early warning of deterioration of children should be in use. The system should cover observation, monitoring and escalation of care.	Y	

Ref	Standard	Met?	Reviewer's comments
CA-503	**Resuscitation and Stabilisation** Hospital-Wide protocols for resuscitation and stabilisation should be in use, including: a. Alerting the paediatric resuscitation team b. Arrangements for accessing support for difficult airway management c. Stabilisation and ongoing care **d.** Care of parents during the resuscitation of a child	Y	
CA-504	**Paediatric Advice** Guidelines on accessing advice from the local paediatric service and local paediatric critical care service should be in use in units where children are not under the care of a paediatrician.	Y	
CA-505	**Clinical Guidelines** The following clinical guidelines should be in use: **All:** **a.** Treatment of all major conditions, including: i. acute respiratory failure (including bronchiolitis and asthma) ii. sepsis (including septic shock and meningococcal infection) iii. management of diabetic ketoacidosis iv. seizures and status epilepticus v. trauma, including traumatic brain injury, spinal injury and rehabilitation of children following trauma (if applicable) vi. burns and scalds vii. cardiac arrhythmia viii. upper airway obstruction b. Management of acutely distressed children, including use of restraint c. Drug administration and medicines management d. Pain management e. Procedural sedation and analgesia f. Infection control and antibiotic prescribing **g.** Tissue viability, including extravasation h. Nasal high flow therapy (if used) **i.** Management of children undergoing surgery (if applicable)	N	Some guidelines were beyond their review date and the Paediatric in Partnership (PIP) guidelines on the intranet were not the latest version, and did not have guidance for use locally.

Ref	Standard	Met?	Reviewer's comments
CA-506	**PCC Transfer Guidelines** Guidelines on referral to a Specialist Paediatric Transport Service should be in use, covering at least: a. Accessing advice from a Specialist Paediatric Transport Service and providing full clinical information b. Ensuring decisions on whether a child needs to be transferred are taken by the appropriate local consultant together with the Specialist Paediatric Transport Service **c.** Local guidelines on the maintenance of paediatric critical care until the child's condition improves or the SPTP arrives. These guidelines should stipulate the location/s in which children may be maintained	N/A	The QS was not applicable to the Trust.
CA-507	**In-hospital Transfer Guidelines** Guidelines on transfer of seriously ill children within the hospital (for example, to or from imaging or theatre) should be in use. The guidelines should specify the escort arrangements and equipment required.	Y	
CA-508	**Inter-hospital Transfer Guidelines** Guidelines on transfer of children between hospitals or between hospital sites should be in use covering at least: a. Types of patients transferred b. Composition and expected competences of the escort team c. Drugs and equipment required d. Restraint of children, equipment and staff during transfer **e.** Monitoring during transfer	Y	

Ref	Standard	Met?	Reviewer's comments
CA-509	**Time-Critical Transfer Guidelines** Guidelines should be in place for situations where emergency transfer is time-critical and waiting for the SPTS to arrive may introduce unsafe delay, for example, severe head injury, intracranial bleeding, severe thoracic vascular trauma, burns and some intra-abdominal emergencies. The guidelines should include: a. Securing advice from the Specialist Paediatric Transport Service (QS CA-506) b. Escort team of at least two clinical staff with appropriate training and experience. The referring consultant and senior nurse on duty should judge the appropriateness of the escorts who would normally be senior clinicians with experience and / or training in a) care of the critically ill child, b) emergency transfer and c) advanced airway management c. Indemnity for escort team d. Availability of drugs and equipment, checked in accordance with local policy (QS CA-402) e. Arrangements for emergency transport with a local ambulance service and the air ambulance **f.** Arrangements for ensuring restraint of children, equipment and staff during transfer	N/A	

Ref	Standard	Met?	Reviewer's comments
CA-601	**Operational Policy** The service should have an operational policy covering at least: a. Individualised management plans are accessible for children who have priority access to the service (where applicable) b. Informing the child's GP of their attendance / admission c. Level of staff authorised to discharge children d. Arrangements for consultant presence during 'times of peak activity' (7/7) e. Servicing and maintaining equipment, including 24 hour call out where appropriate f. Arrangements for a consultant-led rapid access service which can see children within 24 hours of referral g. Arrangements for admission within four hours of the decision to admit h. Types of patient admitted i. Review by a senior clinician within four hours of admission j. Review by a consultant within 14 hours of admission and at least two consultant-led clinical handovers every 24 hours k. Handover of patients at each change of responsible consultant, non-consultant medical staff, nursing staff and other staff **l.** Discussion with a senior clinician prior to discharge	N	A policy was not available covering the requirements of the QS
CA-703	**Audit and Quality Improvement** The service should have a rolling programme of audit, including at least: a. Audit of implementation of evidence based guidelines (QS CA-500s) b. Participation in agreed national and network-wide audits **c.** Use of the 'Urgent and Emergency Care Clinical Audit Toolkit' to review individual clinical consultations	Y	
CA-704	**Key Performance Indicators** Key performance indicators should be reviewed regularly with Hospital (or equivalent) management and with commissioners.	Y	

Ref	Standard	Met?	Reviewer's comments
CA-798	**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'.	Y	

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LEVEL 2 PAEDIATRIC CRITICAL CARE UNIT

Ref	Standard	Met?	Reviewer's comments
L2-201	**Lead Consultant and Lead Nurse** A nominated lead consultant and lead nurse should be responsible for staffing, training, guidelines and protocols, governance and for liaison with other services. The lead nurse should be a senior children's nurse. The lead consultant and lead nurse should undertake regular clinical work within the service for which they are responsible.	Y	
L2-202	**Consultant Staffing** a. A consultant who has undertaken relevant training in paediatric critical care, who is able to attend the hospital within 30 minutes and who does not have responsibilities to other hospital sites should be available 24/7. If the consultant providing cover for the L2 PCC Unit is not a paediatrician, 24 hour cover by a consultant paediatrician who is able to attend the hospital within 30 minutes and who does not have responsibilities to other hospital sites is also required b. New appointments to consultant posts in L2 PCCUs should have completed the RCPCH 'Framework of Competences for a Special Study Model in Paediatric Critical Care' (or equivalent) and should have worked for at least six months in a Level 2 and for at least six months in a Level 3 PCCU (or equivalent) c. All consultants should have up to date advanced paediatric resuscitation and life support competences and should undertake CPD of relevance to their work with critically ill and critically injured children	N	Evidence was not available to reviewers that competences for advanced paediatric resuscitation and life support had been maintained for all Consultants who did not have up to date advanced paediatric resuscitation and life support training. However, cover was available from the Paediatric Intensive Care Consultant.

Ref	Standard	Met?	Reviewer's comments
L2-203	**'Middle Grade' Clinician** A 'middle grade' clinician with the following competences should be immediately available at all times: a. Advanced paediatric resuscitation and life support b. Assessment of the ill child and recognition of serious illness and injury c. Initiation of appropriate immediate treatment d. Prescribing and administering resuscitation and other appropriate drugs e. Provision of appropriate pain management f. Effective communication with children and their families g. Effective communication with other members of the multi-disciplinary team, including the on-duty consultant At least one clinician should be immediately available who is either: a. A paediatric trainee with at least Level 2 RCPCH (or equivalent) competences. Doctors in training should normally be ST6 or above, OR b. A paediatric trainee (at any RCPCH level) who has completed at least 6 months working in a Level 3 Unit, OR c. An anaesthetic specialty trainee, OR d. An advanced nurse practitioner or Hospital / Specialty Doctor with equivalent competences, OR e. A consultant (QS L2-202) Larger hospitals with several wards or departments caring for children will require more than one clinician with these competences on site 24/7.	N	Evidence was not available to show that all middle grade staff had up to date advance paediatric life support competences.
L2-205	**Medical Staff: Continuity of Care** Consultant rotas should be organised to give reasonable continuity of care.	Y	

Ref	Standard	Met?	Reviewer's comments
L2-206	**Competence Framework and Training Plan – Staff Providing Bedside Care** A competence framework and training plan should ensure that all staff providing bedside care have or are working towards, and maintain, competences appropriate for their role in the service including: a. Paediatric resuscitation: All staff should have basic paediatric resuscitation and life support competences and the service should have sufficient staff with advanced paediatric resuscitation and life support competences to achieve at least the minimum staffing levels (QS L2-208) and expected input to the paediatric resuscitation team (QS HW-204) b. Care and rehabilitation of children with trauma (if applicable) c. Care of children needing surgery (if applicable) d. Use of equipment as expected for their role e. Appropriate level paediatric critical care competences: 70% of nursing staff working on the PCC Units should have appropriate level competences in paediatric critical care f. Care of children with tracheostomies g. Care of children needing acute and chronic non-invasive ventilation, and tracheostomy ventilation	Y	The competence-based framework was very comprehensive.

Ref	Standard	Met?	Reviewer's comments
L2-207	**Staffing Levels: Bedside Care** Nursing and non-registered health care staffing levels should be appropriate for the number, dependency and case-mix of children normally cared for by the service and the lay-out of the unit. An escalation policy should show how staffing levels will respond to fluctuations in the number and dependency of patients. If staffing levels are achieved through flexible use of staff (rather than rostering), achievement of expected staffing levels should have been audited. Before starting work in the service, local induction and a review of competence for their expected role should be completed for all agency, bank and locum staff. The following minimum nurse staffing levels should be achieved: a. At least one nurse with up to date advanced paediatric resuscitation and life support competences on each shift b. At least two registered children's nurses on duty at all times in each area c. At least one nurse per shift with appropriate level competences in paediatric critical care d. One nurse with appropriate level competences in paediatric critical care for every two children needing Level 1 or Level 2 critical care e. At least one nurse per shift with competences in care of children with tracheostomies and those requiring non-invasive or tracheostomy ventilation	Y	
L2-208	**New Starters** Nurses and non-registered health care staff without previous paediatric critical care experience should undertake: a. A structured, competency-based induction programme including a minimum of 75 hours of supervised practice in the PCC Unit (or in a higher level unit) b. A programme of theoretical and bedside education and training ensuring a defined level of competency is achieved within 12 months Nurses and non-registered health care staff with previous paediatric critical care experience should complete local induction and a review of competence for their expected role.	Y	

Ref	Standard	Met?	Reviewer's comments
L2-209	**Other Staffing** The following staff should be available: a. Appropriately qualified staff to provide support for play, mental stimulation and distraction during procedures (7/7) b. Pharmacist with paediatric competences (with time allocated at least 5/7 for work on the unit) c. Physiotherapist with paediatric competences (with time allocated at least 5/7 for work on the unit) d. Access to an educator for the training, education and continuing professional development of staff e. A discharge coordinator responsible for managing the discharge of children with complex care needs f. An educator for the training, education and continuing professional development of staff g. Pharmacist with competences in paediatric critical care (with time allocated at least 5/7 for work on the unit) h. Physiotherapist with competences in paediatric critical care (with time allocated at least 5/7 for work on the unit) i. On-call access to pharmacy and physiotherapy services able to support the care of children (24/7) j. Dietetic staff (with time allocated 5/7 for work on the unit) **k.** Staff with competences in psychological support with time allocated in their job plan for work with: i. families ii. staff	Y	
L2-301	**Imaging Services** 24 hour on site access to imaging services should be available including ultrasound and CT scanning, with reporting available within one hour. Arrangements for access to MRI should be in place. If staff with competences in reporting imaging of children are not available 24/7 then the Hospital should have arrangements for review of imaging by a paediatric radiologist.	Y	
L2-302	**Co-located Services** L2 PCC Units should be co-located with ENT services for the support of children with tracheostomies	Y	

Ref	Standard	Met?	Reviewer's comments
L2-401	**Resuscitation Equipment** An appropriately designed and equipped area, or adequate mobile equipment, for resuscitation and stabilisation of critically ill children of all ages should be available. Drugs and equipment should be checked in accordance with local policy.	Y	
L2-402	**'Grab Bag'** Appropriate drugs and equipment for in-hospital and time-critical transfers should be immediately available and checked in accordance with local policy.	Y	Grab bags were not used but equipment was available for transferring children to other areas.
L2-404	**Facilities** Paediatric critical care should be provided in a designated area, distinct from children needing general paediatric care.	Y	
L2-405	**Equipment** Equipment, including disposables, should be appropriate for the usual number and age of children and the critical care interventions provided. Equipment should be checked in accordance with local policy. As a minimum, each bed space should have the capacity for: a. ECG, respiration, pulse-oximetry and non-invasive blood pressure monitoring b. Transducing two pressure traces c. Temperature monitoring at two sitesThese monitors should be available in a modular unit capable of integration with monitors used in the Emergency Department, theatres and portable monitoring systems	Y	
L2-406	**'Point of Care' Testing** 'Point of care' testing for blood gases, glucose, electrolytes and lactate should be easily available.	Y	
L2-502	**Paediatric Early Warning System** A system to provide early warning of deterioration of children should be in use. The system should cover observation, monitoring and escalation of care.	Y	
L2-503	**Resuscitation and Stabilisation** Hospital-Wide protocols for resuscitation and stabilisation should be in use, including: a. Alerting the paediatric resuscitation team b. Arrangements for accessing support for difficult airway management c. Stabilisation and ongoing care d. Care of parents during the resuscitation of a child	Y	

Ref	Standard	Met?	Reviewer's comments
L2-504	**Paediatric Advice** Guidelines on accessing advice from the local paediatric service and local paediatric critical care service should be in use in units where children are not under the care of a paediatrician.	Y	
L2-505	**Clinical Guidelines** The following clinical guidelines should be in use: a. Treatment of all major conditions, including: i. acute respiratory failure (including bronchiolitis and asthma) ii. sepsis (including septic shock and meningococcal infection) iii. management of diabetic ketoacidosis iv. seizures and status epilepticus v. trauma, including traumatic brain injury, spinal injury and rehabilitation of children following trauma (if applicable) vi. burns and scalds vii. cardiac arrhythmia viii. upper airway obstruction b. Management of acutely distressed children, including use of restraint c. Drug administration and medicines management d. Pain management e. Procedural sedation and analgesia f. Infection control and antibiotic prescribing g. Tissue viability, including extravasation h. Nasal high flow therapy (if used) i. Management of children undergoing surgery (if applicable) j. Rehabilitation after critical illness (if applicable) k. Acute non-invasive ventilation (CPAP and BiPAP) l. Tracheostomy care, including management of a tracheostomy emergency m. Care of children on long-term ventilation (tracheostomy and mask)	N	Some guidelines were beyond their review date and the Paediatric in Partnership (PIP) guidelines on the intranet were not the latest version and did not have guidance for use locally.

Ref	Standard	Met?	Reviewer's comments
L2-506	**PCC Transfer Guidelines** Guidelines on referral to a Specialist Paediatric Transport Service should be in use, covering at least: a. Accessing advice from a Specialist Paediatric Transport Service and providing full clinical information b. Ensuring decisions on whether a child needs to be transferred are taken by the appropriate local consultant together with the Specialist Paediatric Transport Service c. Local guidelines on the maintenance of paediatric critical care until the child's condition improves or the SPTP arrives. These guidelines should stipulate the location/s in which children may be maintained	Y	
L2-507	**In-hospital Transfer Guidelines** Guidelines on transfer of seriously ill children within the hospital (for example, to or from imaging or theatre) should be in use. The guidelines should specify the escort arrangements and equipment required.	Y	
L2-508	**Inter-hospital Transfer Guidelines** Guidelines on transfer of children between hospitals or between hospital sites should be in use covering at least: a. Types of patients transferred b. Composition and expected competences of the escort team c. Drugs and equipment required d. Restraint of children, equipment and staff during transfer e. Monitoring during transfer	Y	

Ref	Standard	Met?	Reviewer's comments
L2-509	**Time-Critical Transfer Guidelines** Guidelines should be in place for situations where emergency transfer is time-critical and waiting for the SPTS to arrive may introduce unsafe delay, for example, severe head injury, intracranial bleeding, severe thoracic vascular trauma, burns and some intra-abdominal emergencies. The guidelines should include: a. Securing advice from the Specialist Paediatric Transport Service (QS L2-506) b. Escort team of at least two clinical staff with appropriate training and experience. The referring consultant and senior nurse on duty should judge the appropriateness of the escorts who would normally be senior clinicians with experience and / or training in a) care of the critically ill child, b) emergency transfer and c) advanced airway management c. Indemnity for escort team d. Availability of drugs and equipment, checked in accordance with local policy (QS L2-402) e. Arrangements for emergency transport with a local ambulance service and the air ambulance f. Arrangements for ensuring restraint of children, equipment and staff during transfer	NA	

Ref	Standard	Met?	Reviewer's comments
L2-601	**Operational Policy** The service should have an operational policy covering at least: a. Individualised management plans are accessible for children who have priority access to the service (where applicable) b. Informing the child's GP of their attendance / admission c. Level of staff authorised to discharge children d. Arrangements for consultant presence during 'times of peak activity' (7/7) e. Servicing and maintaining equipment, including 24 hour call out where appropriate f. Arrangements for admission within four hours of the decision to admit g. Types of patient admitted h. Review by a senior clinician within four hours of admission i. Discussion with a consultant within four hours of admission j. Review by a consultant within 14 hours of admission and at least two consultant-led clinical handovers every 24 hours k. Handover of patients at each change of responsible consultant, non-consultant medical staff, nursing staff and other staff l. Discussion with a senior clinician prior to discharge m. Arrangements for discharge within four hours of the decision to discharge n. Arrangements for critical care 'outreach' to other wards within the hospital o. Discharge of children with tracheostomies: i. Suitability for discharge ii. Staffing and monitoring facilities that should be in place prior to discharge iii. Process for planning and agreement of discharge p. Discharge of children on long-term ventilation q. Agreed contribution to the network-wide training and CPD programme (QS N-206)	N	The operational policy in use did not include ' b, e, I and j' . The Critical care outreach section of the policy said that the team could be contacted but reviewers suggested that including how in the policy may be helpful for staff.

Ref	Standard	Met?	Reviewer's comments
L2-702	**Data Collection** The service should collect and submit: a. Paediatric Intensive Care Audit Network (PICANet) data for submission to PICANet as soon as possible and no later than three months after discharge from the PCC Unit b. Paediatric Critical Care Minimum Data Set for submission to PICANet and SUS c. 'Quality Dashboard' data as recommended by the PCC CRG	Y	'c' was not applicable
L2-704	**Key Performance Indicators** Key performance indicators should be reviewed regularly with Hospital (or equivalent) management and with commissioners, including 'Quality Dashboard' data as recommended by the PCC CRG.	Y	
L2-798	**Review and Learning** The service should have appropriate multi-disciplinary arrangements for: a. Review of, and implementing learning from, positive feedback, complaints, morbidity, mortality, transfers and clinical incidents and 'near misses' b. Review and dissemination of published scientific evidence relating to paediatric critical care	Y	

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