Appendix 2: Methodology

Call for evidence

Following the project launch, an initial open call for evidence was conducted. Respondents were invited to answer the following questions:

- What outcome measures would you currently look for to help you assess the quality of care in an acute paediatric service?
- What other outcome measures are you aware of that you think should be considered?
- What level and type evidence would you consider sufficient to support the use of an outcome measure to indicate quality of service? For example, validated outcome measure cited in peer reviewed journal, agreement by consensus, already in established use, etc.
- Would you be willing for your organisation to take part in a pilot study to assess the feasibility of collecting the shortlisted outcome measures?

A session was held with the RCPCH Youth Advisory Panel (now &Us: The voice of children, young people and families) and the RCPCH Parent and Carers’ Group. These groups were asked:

- From your perspective, what makes a good health service and what makes a bad health service?
- Do you have examples of any type of service which has stood out from the rest? Can you describe the service and the reasons for it standing out?
- What do you think paediatric services should be measuring or monitoring to tell us how well they are performing?

Responses from both streams of the call for evidence were fed into the shortlisting process.

Literature review

The review asked three key questions:

1. What outcome measures are being, or could be, used to indicate quality of care in acute paediatric settings for the most commonly seen conditions?
2. What outcome measures are being, or could be, used to indicate patient safety in acute paediatric settings?
3. What outcome measures are being, or could be, used to indicate good patient experience in acute paediatric settings?

The most commonly seen conditions included in the search are based on the top 20 diagnoses for children aged under 18 in Hospital Episode Statistics (HES) data, plus two mental health related conditions. These are:

- Asthma
- Lower respiratory tract infections/Pneumonia
- Bronchiolitis
- Gastroenteritis
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- Convulsions/seizures
- Non-specified viral
- Deliberate self-harm
- Deliberate overdose

Key databases including Medline, Embase, Health Management Information Consortium, the Cochrane Collection and NHS Evidence were searched in November 2014 returning 3319 papers.

An abstract screen was carried out by a team of four reviewers using the inclusion/exclusion criteria and 146 papers were identified for inclusion. A hand search of relevant websites was carried out to find papers cited by respondents to the call for evidence – this identified another 21 papers for inclusion. The full text of the papers selected for inclusion was obtained and a final full text screen carried out, with 137 papers identified to go forward for full appraisal.

As part of the full appraisal, reviewers were asked to identify whether or not the paper was primarily focussed on analysing the use of an outcome measure, or whether the outcome measure/s stated were used as a tool to assess another variable. Reviewers extracted the outcome measures used in the paper, determined whether the study directly applied to the patient population and determined whether or not the full paper should be taken forward as evidence for shortlisting measures.

**Shortlisting by reference group**

Evidence from the initial call for evidence and the literature review was collated by outcome measure and under 5 key domains:

- Overall acute healthcare utilisation
- Acute healthcare utilisation for long term conditions, including mental health problems
- Safety
- Process markers of care quality proven to have impact of outcomes
- Measures of acute healthcare access & experience

The reference group reviewed the longlist of measures, considering:

1. Relevance/Importance of outcome to Parent/Carer/Child, Clinician and Commissioning body
2. Practicality of measuring outcome at the local level
3. Relevance of outcome to existing Facing the Future standards, i.e. could compliance with these standards be expected to influence this outcome?
4. Which of the 5 domains above does the measure best relate to?
5. Frequency of event/condition to which outcome relates to – outcomes relating to rare conditions/situations are likely to be more appropriately considered a sentinel events rather than robust outcomes.

Where members of the reference group were unable to attend the shortlisting meeting, their responses provided prior to the meeting and fed into the discussion. In addition to the shortlisting meeting, further discussions were held with key groups in order to refine and inform the final shortlist of 19 measures.
Open consultation on shortlist

A consultation on the shortlist of 19 measures was held from February to March 2016. Invites to participate in the consultation were sent directly to approximately 700 key stakeholders, with further publicity via the RCPCH website, bulletins and social media.
## Consultation proforma

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure focus</th>
<th>Acceptability</th>
<th>Relevance</th>
<th>Data collection</th>
<th>Sensitivity to change</th>
<th>Additional comments</th>
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<tbody>
<tr>
<td>Administration of intravenous antibiotics within 1 hour of triage to acute paediatric services of infants, children and young people with suspected sepsis.</td>
<td>What particular measure should we focus on? For example, “Rates of admission for ambulatory sensitive conditions”, which condition should be used?</td>
<td>How acceptable would this measure be to you as an indicator of child health outcomes? 1. Completely acceptable 2. Moderately acceptable 3. Not at all acceptable</td>
<td>How feasible do you think it would be to improve this aspect of care through service change? 1. Completely feasible 2. Moderately feasible 3. Not at all feasible</td>
<td>Based on your local service, how feasible do you think it would be to collect these data? Do you already collect it?</td>
<td>In your opinion, would these events occur frequently enough to detect changes in quality of care?</td>
<td>Please add any additional comments relating to your responses, and any general comments on this measure. Please also note if there are data sources or guidelines we have missed.</td>
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<td>Management of acute exacerbations of asthma in infants, children and young people according to British Thoracic Society/Scottish Intercollegiate Guidelines Network Guidelines.</td>
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<td>Adherence to the Advanced Paediatric Life Support (APLS) guidance (or personalised Epilepsy care plan if in place) for the treatment of infants, children and young people presenting in or developing status epilepticus whilst an inpatient.</td>
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<td>Quality of response to and learning from adverse incidents reported relating to physical or mental health affecting infants, children and young people admitted to acute paediatric services.</td>
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<td>Important patient information lost during shift change (e.g. important investigation results, or need to chase such results, or arrange a time dependent investigation or clinical intervention).</td>
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<td>Medication and treatment errors (including incorrect drugs given, prescribed and/or dispensed).</td>
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| Length of stay in the emergency department:  
  - Median time for infants, children and young people to be seen and/or discharged/admitted from department  
  - Interquartile range for time for infants, children and young people to be seen and/or discharged/admitted from department |
| Unscheduled re-attendance at the emergency department within 48-72 hours of attendance. |
| Overall rate of admission to paediatric inpatient services.  
Length of admission to paediatric inpatient services.  
Emergency readmission within 24 hours/48 hours/7 days of
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<tr>
<th>Measure</th>
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<td>discharge from hospital for infants, children and young people.</td>
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<td>Following admission to paediatric acute inpatient services, timely clinical response to infants, children and young people triggering Paediatric Early Warning System (PEWS) system.</td>
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<td>Rates of admission for ambulatory sensitive conditions, for example diabetes, asthma or epilepsy.</td>
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<td>Rates of emergency transfer to paediatric intensive care, and level of ventilator and circulatory support required at transfer of CAYP to paediatric intensive care.</td>
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<td>Measure of staff physical and psychological health (e.g. levels of sickness, levels of absence, turnover).</td>
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<td>A measure of staff satisfaction (for example with the intervention, with care provided, with the level of education provided about family-centred care).</td>
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<td>A measure of patient/parent satisfaction</td>
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<td>A measure of patient stress/anxiety levels and emotional wellbeing whilst in hospital.</td>
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<td>All infants, children and young people requiring pain relief receive effective multimodal pain relief with documentation of efficacy.</td>
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• Would you be interested in your organisation taking part in the piloting stage?

• Are you already collecting/collating outcomes for acute general paediatrics that are not included in the list above? If so, please provide details.

• Additional comments.