Abstract 1411

Table 1	Total costs of maintaining a gastrostomy per patient per year by age group

<table>
<thead>
<tr>
<th>Age Group (n)</th>
<th>Mean Costs (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4 years (9)</td>
<td>£525.44 (330.33)</td>
</tr>
<tr>
<td>5–9 years (13)</td>
<td>£867.05 (341.71)</td>
</tr>
<tr>
<td>10–14 years (9)</td>
<td>£551.55 (388.33)</td>
</tr>
<tr>
<td>15–19 years (5)</td>
<td>£918.18 (533.64)</td>
</tr>
</tbody>
</table>

**Objectives**

Our objective was to enhance parental escalation in a paediatric clinical system. We aimed to identify deterioration in a sick child before healthcare professionals. This is especially true in children with complex medical needs. The Birmingham Women’s and Children’s Hospital Paediatric Early Warning System (PEWS) has had a section for parental concern since 2014. A review identified gaps in how this information was assessed, recorded, and escalated.

**Methods**

A comprehensive review in 2017 analysed data from incident reports and feedback from key stakeholders using parent focus groups and staff questionnaires, to identify system gaps. An ergonomist conducted clinical observation of the system in use and a review of the PEWS chart. Results were analysed by an expert group, including doctors, nurses, an ergonomist and a graphic designer. We used the data to adapt and refine the process in which we would engage parents/careers. We also made ergonomic design adaptations to the chart.

Teaching of the adapted system was delivered to the majority of nurses before piloting was started on a mix of medical and surgical wards for four weeks. Daily sense checks to these clinical areas were carried out. Feedback was actively sought and analysed. Results demonstrated that only minor refinements were required. The process and charts were then signed off at relevant Trust committees. Over 80% of frontline clinical staff were then trained before roll out in December 2019. Post roll out evaluation was also completed.

**Results**

Pre intervention parental focus groups revealed that 59% of parents were asked about their opinion of their child’s health. This increased to 76% post pilot and 72% post roll out. The new parent question ‘How is your child different since I last saw them?’ made 100% of parents feel able to escalate concern. This enabled 50% of parents questioned post rollout to escalate a deterioration they had recognised in their child. Post roll out 78% of nurses felt that asking parents this question made it easier to identify a deterioration and 50% of the 362 nurse respondents felt that asking the question had led to earlier detection of deterioration. Allied health professionals liked the specific condition checklist on the PEWS chart designed to improve situational awareness. Although universally welcomed by doctors of all grades, there were some apprehensions around changes leading to increases in unnecessary escalation. The results of the pilot were helpful in addressing these as no such increases were reported.

**Conclusions**

Parental opinion is a key safety feature of our paediatric clinical systems. Through engagement of stakeholders and use of an ergonomic approach we have been able to safely adapt and embed this within our escalation systems to influence work as done.

We would like to thank the West Midlands Academic Health Science Network for funding this review.

**Abstract 1412**

INTEGRATING PARENTAL CONCERNAS AN INTEGRAL ESCALATION ENTITY ON A PAEDIATRIC EARLY WARNING SYSTEM

Mary Salama, Karl Emms, Alice Hemesley, Oliver Amber, Valler-Jones Tracey, Heather Duncan, Birmingham Women’s and Children’s Hospital; West Midlands Academic Health Science Network; University of Birmingham

**Background**

It is recognised that parents and carers are often able to identify deterioration in their sick child before healthcare professionals. This is especially true in children with complex medical needs. The Birmingham Women’s and Children’s Hospital Paediatric Early Warning System (PEWS) has had a section for parental concern since 2014. A review identified gaps in how this information was assessed, recorded, and escalated.

**Objectives**

Our objective was to enhance parental escalation in the PEW System using ergonomic principles.

**Methods**

A comprehensive review in 2017 analysed data from incident reports and feedback from key stakeholders using parent focus groups and staff questionnaires, to identify system gaps. An ergonomist conducted clinical observation of the system in use and a review of the PEWS chart. Results were analysed by an expert group, including doctors, nurses, an ergonomist and a graphic designer. We used the data to adapt and refine the process in which we would engage parents/careers. We also made ergonomic design adaptations to the chart.

Teaching of the adapted system was delivered to the majority of nurses before piloting was started on a mix of four medical and surgical wards for four weeks. Daily sense checks to these clinical areas were carried out. Feedback was actively sought and analysed. Results demonstrated that only minor refinements were required. The process and charts were then signed off at relevant Trust committees. Over 80% of frontline clinical staff were then trained before roll out in December 2019. Post roll out evaluation was also completed.

**Results**

Pre intervention parental focus groups revealed that 59% of parents were asked about their opinion of their child’s health. This increased to 76% post pilot and 72% post roll out. The new parent question ‘How is your child different since I last saw them?’ made 100% of parents feel able to escalate concern. This enabled 50% of parents questioned post rollout to escalate a deterioration they had recognised in their child. Post roll out 78% of nurses felt that asking parents this question made it easier to identify a deterioration and 50% of the 325 nurse respondents felt that asking the question had led to earlier detection of deterioration. Allied health professionals liked the specific condition checklist on the PEWS chart designed to improve situational awareness. Although universally welcomed by doctors of all grades, there were some apprehensions around changes leading to increases in unnecessary escalation. The results of the pilot were helpful in addressing these as no such increases were reported.

**Conclusions**

Parental opinion is a key safety feature of our paediatric clinical systems. Through engagement of stakeholders and use of an ergonomic approach we have been able to safely adapt and embed this within our escalation systems to influence work as done.

We would like to thank the West Midlands Academic Health Science Network for funding this review.

**RCPCH Trainees Committee**
Paediatricians with Expertise in Cardiology Special Interest Group

1418 ARTERIAL FUNCTION IN PREADOLESCENT CHILDREN WITH CONGENITAL HEART DISEASE: A SYSTEMATIC REVIEW

1Joanna Zimianiti, 2Chloe Cheang, 3Roshni Mansfield, 1Carmen Traseira Pedraz, 1Paulina Cecula, 1Malaz Eladdig, 1Sundar Sathyamurthy, 1Jayanta Banerjee. Imperial College London School of Medicine; 1Queen Charlotte’s and Chelsea Hospital, Imperial College Healthcare NHS Trust; 2Department of Neonatology, Queen Charlotte’s and Chelsea Hospital, Imperial College Healthcare NHS Trust; Biomedical Research Centre, Imperial College London; 3Department of Neonatology, Queen Charlotte’s and Chelsea Hospital, Imperial College Healthcare NHS Trust. 10.1136/archdischild-2021-rcpch.631

Background Congenital heart disease (CHD) can increase long-term cardiovascular disease risk. Studying arterial stiffness, an independent predictor of cardiovascular morbidity and mortality, can improve understanding of the pathophysiology of cardiovascular disease in CHD.

Objectives To systematically review the literature to examine how CHD affects arterial stiffness in children ≤12 years, following PRISMA guidelines.

Methods PubMed was searched using the terms: ‘pulse wave velocity’ (PWV), ‘carotid intima-media thickness’ (cIMT), ‘arterial stiffness index’ (SIx), ‘flow-mediated dilation’ (FMD), ‘flow imaging’, ‘laser flow Doppler’, ‘venous plethysmography’, ‘cardiï” magnetic resonance imaging’, ‘aortic intima-media thickness’ (aIMT), ‘vascular ultrasound’ and ‘neonatï”, ‘paediatric’, ‘infantï”, ‘childï”. Case reports, case series, reviews, commentaries, conference proceedings, animal studies, articles not in English and articles with children >12 years were excluded.