

(PECARN) head injury algorithm completion between clinicians and parents of head injured children.

We conducted a prospective, observational, feasibility study. Children over 2 years old, presenting to the Royal Manchester Children's Hospital within 24 hours of a head injury, were recruited. Children were excluded if they required immediate resuscitation or non-accidental injury was suspected. Parents were given a questionnaire to complete whilst awaiting assessment, with the PECARN criteria in layman's language. Following assessment, the treating clinician completed a similar questionnaire, blinded to the parent's answers.

57 children were included. The mean age was 5.8 years (SD 4.07). The most common mechanism of injury was a fall from standing (46%), with only 6 parents reporting a dangerous mechanism. Arrival Glasgow Coma Scale (GCS) was 15/15 in 98% of children. The inter-rater reliability for individual PECARN criteria was highly variable, with kappa values ranging from -0.10 to 1.00. There was poor agreement on whether the child was alert and acting normally (K -0.10, SE 0.49) but perfect agreement on other features of altered mental state including agitation, repeated questioning and taking longer than normal to respond (all K 1.0).

The high variability in agreement between clinicians and parents when assessing PECARN criteria highlights differences in how these groups evaluate head injured children. This has significant implications for public facing algorithms, such as those used by NHS 111.

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#### VARIABILITY IN POINT OF CARE ULTRASOUND (POCUS) PRACTICES IN PAEDIATRIC EMERGENCY DEPARTMENTS IN THE UK & IRELAND; A PERUKI STUDY

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**Background** Point Of Care Ultrasound (POCUS) is a potentially useful addition to the technical armamentarium of PEM clinicians. Evidence is accumulating on diagnostic and procedural applications; however despite widespread use in other countries, usage patterns are not clear in our setting. Given the lack of a standardised PEM POCUS curriculum, best practice standards, and formal training courses, we aimed to determine variability in PEM POCUS practices across our PEM research network.

**Method and results** This online survey was distributed in March 2019, with content derived iteratively by the study team from existing literature and input from PERUKI members. One response was sought from each site, to describe department practices, hardware, and major enablers and obstacles. Results are presented using descriptive statistics.

**Conclusions** 59/63 (94%) sites responded, including a mix of site and department types (eg 40% tertiary hospital, 60% mixed adult/paediatric EDs, 30% major trauma centres). Almost all (90%) had access to POCUS, and 70% reported limited use by a small proportion of staff, with no named lead. Most (95%) did not have a teaching program or

identified trainer. Approximately half (55%) routinely documented findings, most often in clinical notes, and most (65%) did not store images; most (68%) had no quality assurance measures. The greatest enablers of PEM POCUS were its need, funding for equipment, and clinician engagement; the greatest obstacles were availability of training courses and trainers, and time to learn and maintain skills due to service delivery needs.

Whilst hardware is available in most EDs, PEM POCUS is not yet widespread, with training being the greatest obstacle. Future work exploring clinician opinions will inform whether the specialty wishes to embrace POCUS, and training course content. However, if adopted, it must be coupled with implementation of best practice standards in domains including quality assurance and governance.

## Free Papers

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#### A QUALITATIVE EXPLORATION OF THE FACTORS INFLUENCING PATIENT FLOW IN AN EMERGENCY DEPARTMENT

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**Background** Emergency departments have been characterised as complex adaptive systems and patient flow is one area that affects the efficiency and quality of care in emergency departments. Complex systems may comprise complex processes but the system may still be effective if the processes have the least number of steps required to produce an outcome. Improving patient flow requires an understanding of how ED processes work. However, there is little existing qualitative literature exploring ED patient flow. This study aimed to understand the ED patient flow process and identify the factors that influence it.

Multiple qualitative methods were used to explore ED patient flow in a single case study site in Trinidad and Tobago. Data was collected from May 2017 to March 2018. Non-participant observations (48 hours), observational process mapping (155 hours) and informational conversational interviews (90) were used to explore patient flow. Observational process mapping involved directly observing patient journeys across all levels of urgency. Thematic analysis was used to analyse the data.

Six broad themes were identified as factors influencing ED patient flow- 1) ED organizational work processes, 2) ED design and layout, 3) Material resources within and outside the ED, 4) ED nursing staff levels, roles, skill mix and use, 5) ED non-clinical staff, 6) External clinical and non-clinical departments. Within the themes there were primary factors that influenced patient flow as well as secondary factors. The secondary factor represented the staff response to either enhance the primary factor or to compensate for limitations in the process. A conceptual model of the factors influencing ED patient flow was developed.

The conceptual model of ED patient flow developed in this study can be used to systematically examine the factors influencing ED patient flow and may be used by policy and decision makers to improve patient flow.