Multi-disciplinary staff training for portable CT scanner use in the Paediatric Intensive Care unit

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Setting

- 32 bed split ICU in London
  - Paediatric ICU
  - Neonatal ICU
  - Cardiac ICU

- PICU regional neurotrauma
  - 50 Traumatic Brain Injury per year
  - Complex paediatric neurosurgery
  - Neurovascular interventional work
Introduction

- Transport of critically ill, unstable children off of PICU
  - *never without risk*

- ICU staffing can be run pretty tight!
  - How many to take child to CT?

- A portable CT scanner - Ceretom was introduced to a regional neuro-critical care/lead centre for **head CT scans** 2007
  - We have previously reported positive impacts on patient safety & staffing levels/safety on PICU (1)

- We aim to describe the development of shared protocols and training for Ceretom use

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(1) A Portable CT Scanner In The Pediatric Intensive Care Unit Decreases Transfer-associated Adverse Events And Staff Disruption. Shruti Agrawal, Sara-louise Hulme, Richard Hayward & Joe Brierley. European Journal Of Trauma And Emergency Surgery, 2010, Volume 36, Number 4, Pages 348-352
When Ceretom was introduced the training of radiographers and the PICU team occurred independently.

Different ‘protocols’ were used, creating an inconsistent approach to patient preparation for scanning.

The end result was delayed scans with prolonged scanning times.
Methods

- Descriptive study of Ceretom group

- A robust Ceretom user group was developed

- The meetings encouraged open communication, allowing all users to fully understand each others perspectives
Methods

- The meetings facilitated the development of more collaborative Ceretom protocols with a combined risk assessment.

- The user group developed regular joint team scenario education sessions to provide practical guidance to all about their role in Ceretom scanning.

- Radiology provided protected time for the radiographers to undertake training.

- All PICU nurses were taught how to correctly prepare and position patients in the scanner – to reduce time radiographers spend on unit performing scans.

- Ceretom user group continues on a quarterly basis for feedback and service improvement.
Results

- Shared protocols & education packages facilitated role development

- Positioning identified as too difficult, new bracket identified & bought: Now straightforward

- Radiology/radiographer understanding of challenge of transfer to CT enhanced: Children on CVVH, HFOV & ECMO now have access to head CT

- Combined patient preparation & scanning times reduced from 1 hour to 20 minutes

- Reduced demands on radiography team – now only need to be present for 5-10 minutes rather than the entire duration

- Nurse-led process: Medical staff not necessary for Ceretom scan vs. 1 or 2 present for transfer off ICU
Future aims

- Joint simulation centre based scenario teaching
- Shared protocols recently adapted and implemented for use on ECMO patients within cardiac critical care
  - ECMO use being presented at Colorado meeting
- Increased provision of out of hours Ceretom scans for all intensive care patients
- Perfusion scans, smaller child lung/abdominal possible
Conclusions

- Critically ill children who are too unstable to transfer to CT can now undergo safe bedside CT scans without leaving the unit.
- For others an informed risk/benefit approach to scanning is undertaken.
- To effectively change practice in the PICU, a collaborative multi-disciplinary approach is essential; requiring all users to invest in the process.