**INTRODUCTION**

As part of the Deteriorating Child workstream at Evelina London Children’s Hospital (ELCH), aiming to improve recognition, escalation, and mitigation of safety risks for the deteriorating child, we are designing and implementing a new Paediatric Early Warning Score (PEWS) tool. There is no national or standardised Early Warning Score for children.

ELCH is a regional children’s hospital housing multiple specialties, including cardiology, PICU, general paediatrics and high-dependency care, and a PEWS chart has been in use since 2010. Multidisciplinary PICU admission casenotes review identified problems with chart completion or calculation in 12.4% of cases in 2014, with a delay in recognition or escalation in 19.1% of cases. So far in 2015, casenotes review identified PEWS problems in 18.9% of cases and delay in recognition or escalation in 10.8% of cases.

**OBJECTIVES & METHOD**

In response, the aim of this work was to create a new PEWS observation chart that could be easily and quickly filled in by the nursing staff looking after the patient, and also reliably interpreted by medical and senior nursing staff reviewing the patient, to enable:

1. Early recognition of the deteriorating child
2. Timely escalation
3. Appropriate mitigation of risk, preventing clinical problems for the child

This would be better enabled by:
- Colour-coded charts for quick visual recognition
- Age-specific charts
- Removing scores to avoid relying on adding up

We used the Between the Flags (ref) system developed in Australia, which colour codes observations according to level of clinical concern, and adapted this for Evelina London Children’s Hospital, using 5 age groups: 0-3 months, 3-12 months, 1-4 years, 4-11 years, >12 years.

The new chart was piloted for feasibility (usability with colour-blind members of staff) for three months in 2 settings:
- General paediatric high dependency unit on Mountain ward,
- Paediatric orthopaedics on Savannah ward.

**RESULTS**

Case review of unplanned PICU admissions found that in 5 cases for which the new PEWS chart was used, there was early recognition in 100%, compared with 65.6% of 32 cases for which the old PEWS chart was used.

Pilot data demonstrated high levels of user satisfaction. Some essential changes to the chart were identified, such as changes to ventilator observations for ventilated patients, and a need to colour code inhaled oxygen as this can indicate clinical deterioration.

Collation of feedback and minor changes to the new charts are in progress. We are also designing a variation on the new chart specifically for cardiology patients who have different observation parameters, particularly for oxygen saturations.

The aim is to introduce an updated new PEWS chart across Evelina London later in 2015.

**CONCLUSIONS**

The creation of a new PEWS chart is a complex process that takes time and requires consensus from a multidisciplinary team across different specialties, as well as a pilot to identify issues with the chart that can only be detected with real-time use.

An improved PEWS chart can facilitate earlier recognition of deteriorating child, allowing for earlier escalation and improved clinical outcomes. Ensuring a PEWS chart can be easily completed and quickly and reliably visually interpreted is therefore a clinical priority in paediatrics.

**REFERENCES**


Roland D, Oliver A, Edwards ED, Mason BW, Powell CVE. (2014). Use of paediatric early warning systems in Great Britain: has there been a change of practice in the last 7 years? Arch Dis Child 99:26-29