allocated to either a ‘no-feedback’ or ‘feedback’ group, and performed 60 seconds of two-thumb (TT) and two-finger (TF) chest compressions on a “physiological” CPR manikin instrumented to measure chest deflections. Baseline data were recorded for both groups without feedback, before chest compressions were repeated in the experimental phase with the ‘feedback’ group receiving real-time performance feedback. Chest compression depths, chest release forces, chest compression rates and compression duty cycles were recorded for all participants. Quality indices were calculated to report the proportion of chest compressions that achieved internationally recommended quality targets for each measure, with an overall quality index calculated to report the proportion of chest compressions that simultaneously achieved all four quality targets. Results were compared between the ‘no-feedback’ and ‘feedback’ groups.

**Results** Baseline data were consistent with other studies, with < % of chest compressions simultaneously achieving all four internationally recommended quality targets. During the experimental stage (Table 1), the provision of real-time performance feedback improved the quality of the chest compression depths, chest compression rates and compression duty cycles provided by both techniques (all measures: p < 0.001). This enabled the ‘feedback’ group to simultaneously achieve all four quality targets in 75% of TF and 80% of TT technique chest compressions, whilst <1% of chest compressions achieved this for the ‘no-feedback’ group.

**Conclusions** Real-time performance feedback considerably improved the quality of chest compressions provided during simulated infant CPR. If these results transfer into clinical practice this technology could, for the first time, support resuscitators in performing high quality chest compressions during infant CPR and thus potentially improve future outcomes.

**Abstract P13**

**EFFORT OF BREATHING IS NOT AN IMPORTANT PARAMETER IN A PEDIATRIC EARLY WARNING SCORING SYSTEM**

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**Aims** Across the UK there is diverse practise in the use of Paediatric Early Warning Scores (PEWS). Many scoring systems are in use and include different physiological parameters to identify children at risk of life-threatening deterioration. Unlike adult practise, PEWS often comprise of both objective and subjective criteria. ‘Effort of breathing’ is a subjective parameter commonly included in paediatric scoring systems. Determining a child’s effort of breathing is influenced by factors including appropriate exposure of the patient as well as clinical skill, experience and acumen of the scorer.

As part of a study assessing the validity of PEWS charts, a large data set was collected. Analysis of the NHS Institute PEWS chart is made here.

**Method** Physiological parameters were collected retrospectively from a cohort of 1537 children aged 0–16 years attending a district general hospital’s Children’s Emergency Department over a 5 week period. Admission to Paediatric High Dependency or Intensive Care were used as proxy outcome measures for serious and life-threatening deterioration.

**Results** Data was complete for 967 records. At a best cut-off score of 5, NHS Institute PEWS had a sensitivity of 64.3% (95% CI 55.6–72.6), specificity of 96.5% (95% CI 95.1–97.6), positive predictive value of 21.4% (95% CI 10.8–37.2) and negative predictive value of 99.5% (95% CI 98.7–99.8). The area under the Receiver Operating Characteristic curve (AUC) (figure 1) was 0.86 (95% CI 0.74–0.98, p < 0.01). If ‘effort of breathing’ was excluded from NHS Institute PEWS the AUC was 0.85 (95% CI 0.74–0.97, p < 0.00).

**Conclusion** The NHS Institute PEWS is a valid tool with good diagnostic accuracy in recognizing children at risk of serious and life-threatening deterioration at triage in the Emergency Department. The predictive power did not change when ‘effort of breathing’ was excluded. It is reassuring that such a subjective parameter does not undermine the value of the scoring system. However, further work is needed to determine whether other subjective measures have any value in paediatric early warning tools.

**Abstract P13 Figure 1** Receiver operating characteristic curve for NHS Institute PEWS with and without effort of breathing.