**VALIDATION OF AN EARLY WARNING SCORE FOR INDENTIFYING HOSPITALIZED CHILDREN AT RISK FOR CLINICAL DETERIORATION**

**M.C. McLellan1**; K. Gauvreau1, 2; J.A. Connor1, 2

1. Boston Children’s Hospital, Boston, MA

2. Harvard Medical School, Boston, MA

*Background:* Most inpatient pediatric arrests are preventable through early recognition and treatment of clinical deterioration. Children with cardiac disease have the highest arrest rates of hospitalized children. The Children’s Hospital Early Warning Score (CHEWS) was designed and implemented to identify deterioration in this high risk population. The CHEWS was then applied to all inpatients outside of the intensive care units (ICU).

*Objective:* This study’s objective was to validate the CHEWS in detecting clinical deterioration in cardiac and non-cardiac patients using the previously validated Brighton Pediatric Early Warning Score (PEWS) for comparison.

*Methods:* A retrospective cohort study reviewed all non-ICU patients at a quaternary academic pediatric hospital. CHEWS and PEWS scores were obtained on cases (n=424) and a randomly selected comparison sample (n=1024).Specificity, sensitivity and area under the receiver-operating characteristic curves (AUROC) and early warning times were calculated for both tools.

*Results:*

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| --- | --- | --- |
|  | CHEWS | PEWS |
| Cardiac (n=312) |  |  |
| AUROC\* | 0.917 | 0.785 |
| Sensitivity score (score ≥3) | 95.3% | 54.7% |
| Specificity (score ≥3) | 76.2% | 86.3% |
| Median early warning time (score ≥3)\* | 9.25 hours | 2.25 hours |
| Median early warning time (score ≥ 5)\* | 2 hours | 0 hours |
| Non-cardiac (n=1136) |  |  |
| AUROC | 0.902 | 0.798 |
| Sensitivity (score ≥3) | 91.4% | 73.6% |
| Specificity (score ≥3) | 67.8% | 73.5% |
| Median early warning time (score ≥3)\* | 11.1 hours | 3.8 hours |
| Median early warning time (score ≥ 5)\* | 8.5 hours | 35 minutes |
| Validation of CHEWS and PEWS for identifying deterioration in cardiac and non-cardiac patients (\*p < 0.001). | | |

*Conclusions:* CHEWS has excellent discrimination to identify clinical deterioration in hospitalized children with or without cardiac disease. CHEWS has a higher sensitivity and longer earlier warning time than PEWS.