**Background:** A National Early Warning Score (NEWS) system was advocated by the Royal College of Physicians in 2012, arguing that greater uniformity would benefit patient safety.1 Observational studies have shown that the introduction of EWS systems to hospitals has been associated with reduced rates of in-hospital cardiac arrest.2 However, multi-centre assessment of EWS systems has not been able to prove an overall survival benefit.3Previously there has been concern that uniform EWS systems might be less sensitive, or might lead to harm, for patients with specific pathology, such as COPD, or spinal or neurosurgical patients. 4,5,6 Unpublished local pilot data have suggested similar limitations of the NEWS within our maintenance haemodialysis population. Here, we present initial outcomes from a collaboration between the nephrology and data science teams aiming to develop a more sensitive scoring system.

**Methods:** A primary outcome of requiring hospital admission was defined as the event to be predicted given the low rate of on dialysis cardiac arrest in our centre. Data were obtained from electronic flow sheets, completed by trained dialysis nurses between 1/1/15 and 31/12/17 that record pre and post dialysis observations. Extreme values representing likely keystroke errors were excluded. A decision tree algorithm was applied to both measured (e.g. blood pressure) and calculated (e.g. inter-dialytic weight gain) data. Hospital admission events were identified using coded clinical episode data within the electronic health record.

**Results:** Over a 3-year period we identified 970 distinct patients, and a total of 53,180 patient-dialysis sessions. Variables including age, dialysis access, length of dialysis session, ultrafiltration volume, blood flow and interdialytic weight gain have been analysed, as have pre and post-dialysis values for temperature, pulse rate, respiratory rate, blood pressure and blood sugar. We are in the process of weighting these variables to develop a composite score based on the risk of admission.

**Conclusions:** We are developing a unique early warning score system for haemodialysis patients, which we expect to be more predictive of admission than generic EWS systems. We aim to trial this within our haemodialysis unit in order to identify high risk patients, which should support early medical review, safer staffing ratios and potential reductions in acute admissions.

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