Aims/Objectives/Background Sepsis is a major cause of morbidity and mortality and many tools exist to facilitate early recognition. The current international consensus definition of sepsis recommends the use of the quick Sequential Organ Failure Assessment (qSOFA) score in the emergency department (ED) to rapidly identify those who are likely to have poor outcomes. Early Warning Scores (EWS) are used more routinely; if these could provide the same information, they could allow standardisation and streamlining of effort.

This review compares two tools qSOFA and EWS (National/Modified Early Warning Scores (NEWS/MEWs)) for predicting intensive care (ICU) admission and mortality when applied to suspected sepsis patients in the ED.

Methods/Design A literature search was conducted using Medline, CINAHL, Embase, and Cochrane Library, hand searching of references and a grey literature search with no language or date restrictions. Two authors selected studies and quality assessment completed using QUADAS-2. Area under the Receiver Operating Characteristic Curve (AUROC), sensitivities, and specificities were compared.

Results/Conclusions Results 12 studies were included, totalling 395,661 patients. All reported mortality and six reported ICU admission.

AUROC estimates were variable ranging from little better than chance to good prediction. The ranges demonstrated overlap between scores suggesting little difference for predicting mortality (NEWS: 0.59–0.88; qSOFA: 0.57–0.79; MEWS 0.56–0.75). However, individual papers mostly reported higher AUROC values for NEWS than qSOFA. NEWS demonstrated a trend to better sensitivity for ICU admission (NEWS≥5 0.46–0.91; qSOFA≥2 0.12–0.53) and mortality (NEWS≥5 0.51–0.97; qSOFA≥2 0.14–0.7) but lower specificity (ICU: NEWS≥5 0.25–0.91; qSOFA≥2 0.67–0.99, Mortality: NEWS≥5 0.22–0.91; qSOFA≥2 0.58–0.99).

Conclusion The wide range of AUROC estimates and high heterogeneity limit our conclusions. Allowing for this, the NEWS AUROC was consistently higher than qSOFA within individual papers. Both scores allow threshold setting, determined by the preferred compromise between sensitivity and specificity. At established thresholds NEWS trended to higher sensitivity whilst qSOFA favoured specificity.