IDENTIFYING SEPSIS USING A MODIFIED EARLY WARNING SCORE
Erin Whitley, BSN, RN; Stephanie Dunkle, BSN, RN,
Jamie K. Roney, MSN, RN-BC, CCRN-K; JoAnn, Long, PhD, RN, NEA-BC
Lubbock Christian University & Covenant Health

Introduction
Despite advances in the identification & treatment of sepsis, 35-50% of patients still die

- Few tools developed from sound research have been introduced to address acute declines in patient condition outside of the intensive care unit (ICU).
- Testing of modified early warning scoring (MEWS) tools has been mostly retrospective & gaps exist in data related to reliability & validity testing & outcome measurement.
- A MEWS tool incorporating crucial sepsis indicators could save lives.

Aim
To determine if a MEWS tool, adapted to include systemic inflammatory response syndrome (SIRS) criteria, can decrease mortality, length of stay, & cost to treat septic patients.

Background
Many tools have been used in the acute care setting to identify at risk for deterioration patients

- Early detection systems have become an integral part of most hospital’s quality programs.
- Some tools are not used to their maximum potential & it is critical for screening tools to be tailored to needs of individual facilities.
- A multidisciplinary team collaborated on development of a MEWS tool using SIRS guidelines to identify not just at-risk for deterioration patients, but also those with sepsis.

Clinical Significance
Testing of MEWS tools has been mostly retrospective & gaps still exist in data related to patient mortality

- Sepsis patients often experience sudden changes in status & quick progression to an unstable condition.
- A MEWS tool which incorporates key sepsis indicators could save lives.

Literature Review
- Recording & scoring of physiologic findings has been identified as an effective means to identify patients beginning to deteriorate
- Early warning systems facilitate identification of all at-risk patients
- Accurate identification & assessment of key vital signs, lab data, & other physiological findings is essential to a successful sepsis recognition tool
- Increasing complexity of patient conditions, coupled with many comorbidities, makes effective decision making tools highly valuable
- Many factors can contribute missing early signs of deterioration: missing key physiological changes, not taking vital signs, & lack of reporting of changes in condition

Conceptual Framework
Transforming Care at the Bedside (TCAB)
- Subtle changes in patient condition go undetected leading to about 35-40% of unexpected deaths occurring on medical-surgical floors.
- Primary concept: Front-line staff providing care should be involved in improving care delivered

Research Questions
1. Is there a difference in mortality in sepsis patients scored using a MEWS tool as compared to sepsis patients who did not use the MEWS assessment tool?
2. Is there a difference in length of stay for septic patients post MEWS implementation?
3. Does use of MEWS tool decrease cost to treat septic patients?

Methods
Study used a comparative descriptive design.

- Charts of all patients diagnosed with sepsis from January 2014 to July 2014 were evaluated (prior to implementation of the Covenant Health MEWS tool)
- Charts of all patients diagnosed with sepsis from August 2014 to January 2015 after implementation of a MEWS tool with SIRS criteria were evaluated.

Results
Descriptive statistics were collected & reported on the mortality rates, length of stay, 30 day all-cause risk adjusted readmissions, & cost to treat using 3M methodology & run trends for the following:

Conclusions
MEWS tool introduction for use at Covenant Health (modified to incorporate sepsis screening criteria) was effective in positively impacting sepsis mortality, length of stay, 30 day all-cause risk adjusted readmissions, & cost to treat

- Overall trends for key metrics have trended downward since implementation of MEWS screening instrument deployment on medical-surgical and telemetry units
- Costs data inaccuracy prevent reporting comparisons to date at this time
- Both observed mortality & risk-adjusted mortalities demonstrate positive impact of MEWS tool implementation
- Mortality & cost spikes correlate with seasonal respiratory illness (according to Kaplan & Hadfield (2007), pneumonia accounts for 35% of all sepsis cases)

References
Available upon request.