

POTENTIAL IMPACT OF A HOST RESPONSE GENE EXPRESSION SEPSIS ASSAY (SEPTICYTE RAPID) IN A TERTIARY EMERGENCY DEPARTMENT SETTING

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PURPOSE

Surviving Sepsis

- Greater than 48 million cases of sepsis worldwide contributing to 11 million deaths
- Early detection is main factor for patient outcome but often hindered resulting in delay in antibiotic administration

Surviving Sepsis Guidelines 2021:

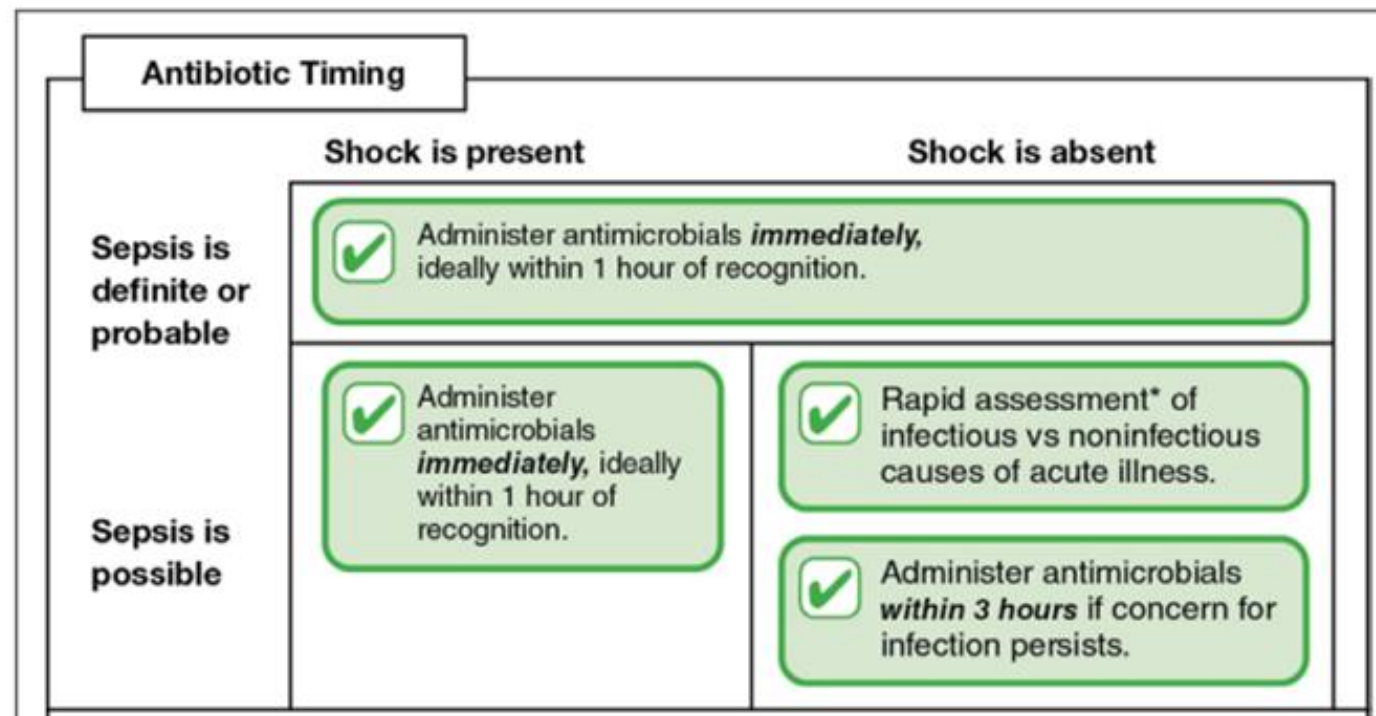


Figure 1. Surviving Sepsis Guidelines 2021

SeptiCyte RAPID Assay

- Gene expression assay able to differentiate sepsis vs SIRS with high degree of reliability within 60 minutes.
- Provides a quantitative score (SeptiScore) ranging 0-15 with higher scores indicating higher probability of sepsis, with results falling into 4 distinct probability bands.

Balk et al 2022	Band 1	Band 2	Band 3	Band 4
Value	0 - 4.9	5.0 - 6.1	6.2 - 7.3	7.4 - 15
Sepsis Probability (%)	10	22	45	81
Sepsis Likelihood Ratio	0.15	0.38	1.07	6.05

Figure 2. SeptiCyte Rapid score correlation with probability of sepsis

METHODS

- A retrospective non-interventional evaluation of patients with suspected or documented sepsis presenting to Moses Cone Hospital.
- Adult patients presenting to emergency department with a positive sepsis screen.
- Routine sepsis care without additional interventions.
- Clinical probability of sepsis determined independently (none, possible, probable, definite)
- SeptiCyte RAPID determination with sepsis laboratory panel.
- Demographics and sepsis bundle compliance data collected.

RESULTS

- August 1 – October 31, 2022
- 62 patients; 34 (53.9%) Female; Mean Age, yrs (SD): 62.3 (21.1)
Caucasian 33; African American 21; other 8
- Deaths # (%): 15 (23.8)

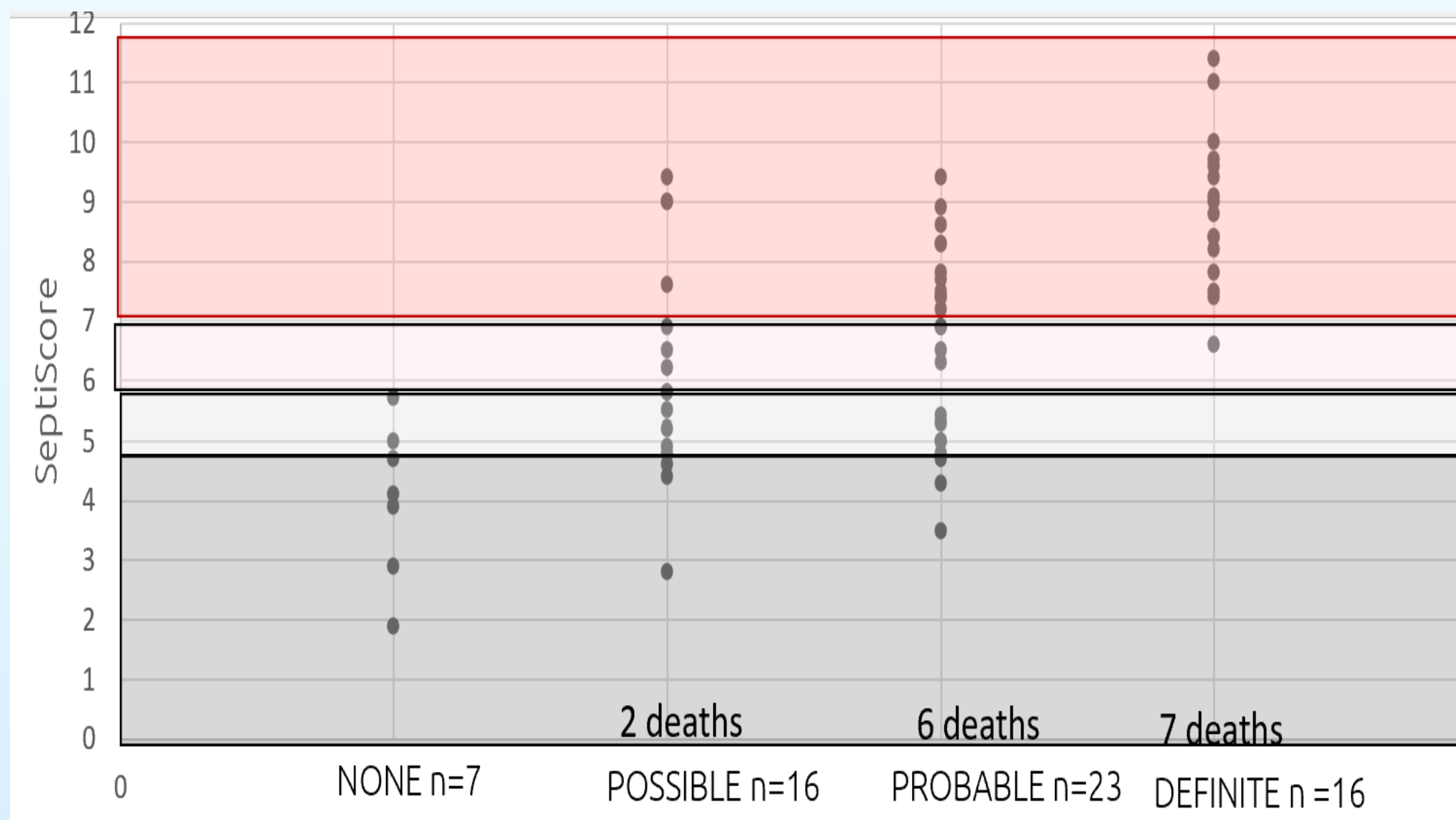


Figure 3. Correlation of SeptiScore with probability of clinically determined sepsis

Sepsis Outcomes (%) Based on Clinical Probability

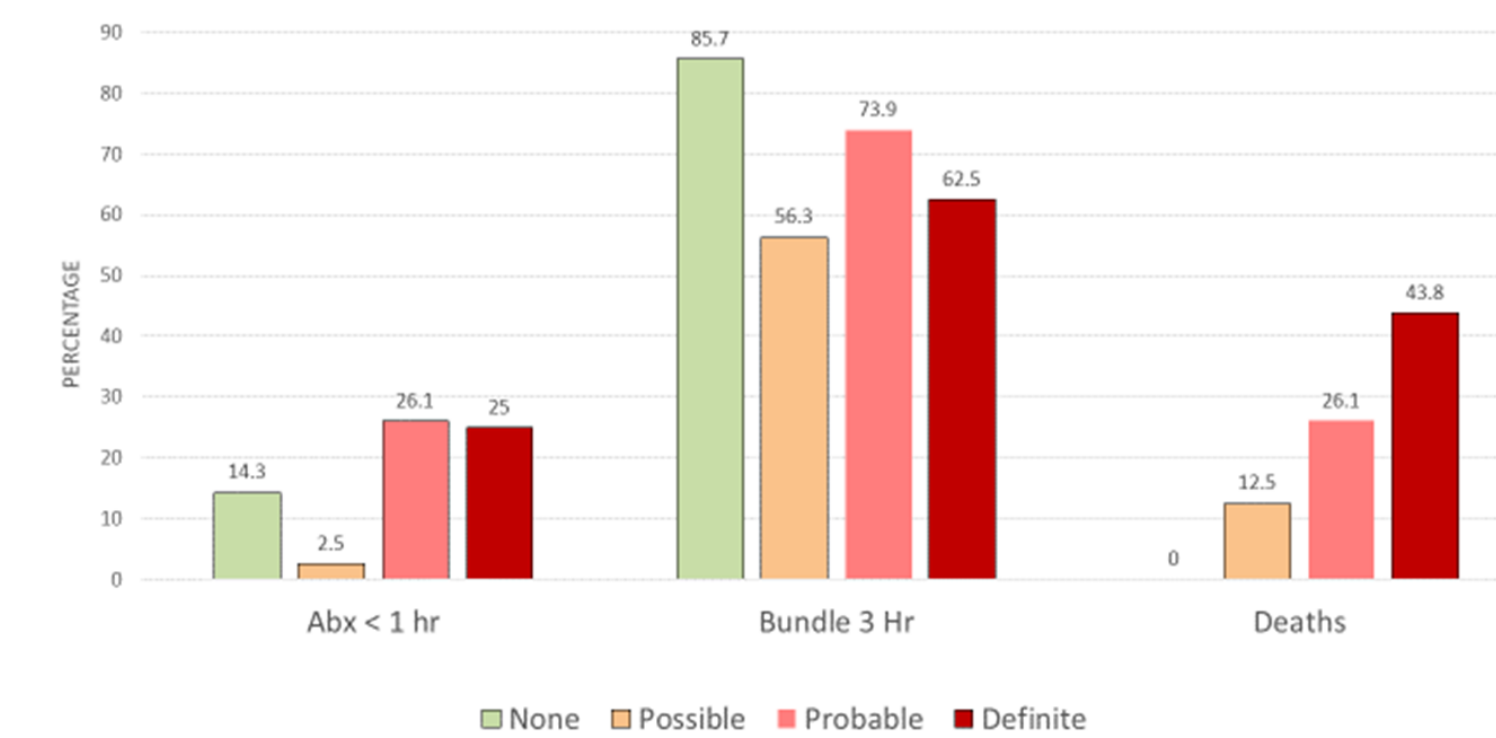


Figure 4. Sepsis 3-hour bundle compliance in correlation with probability of clinically determined sepsis

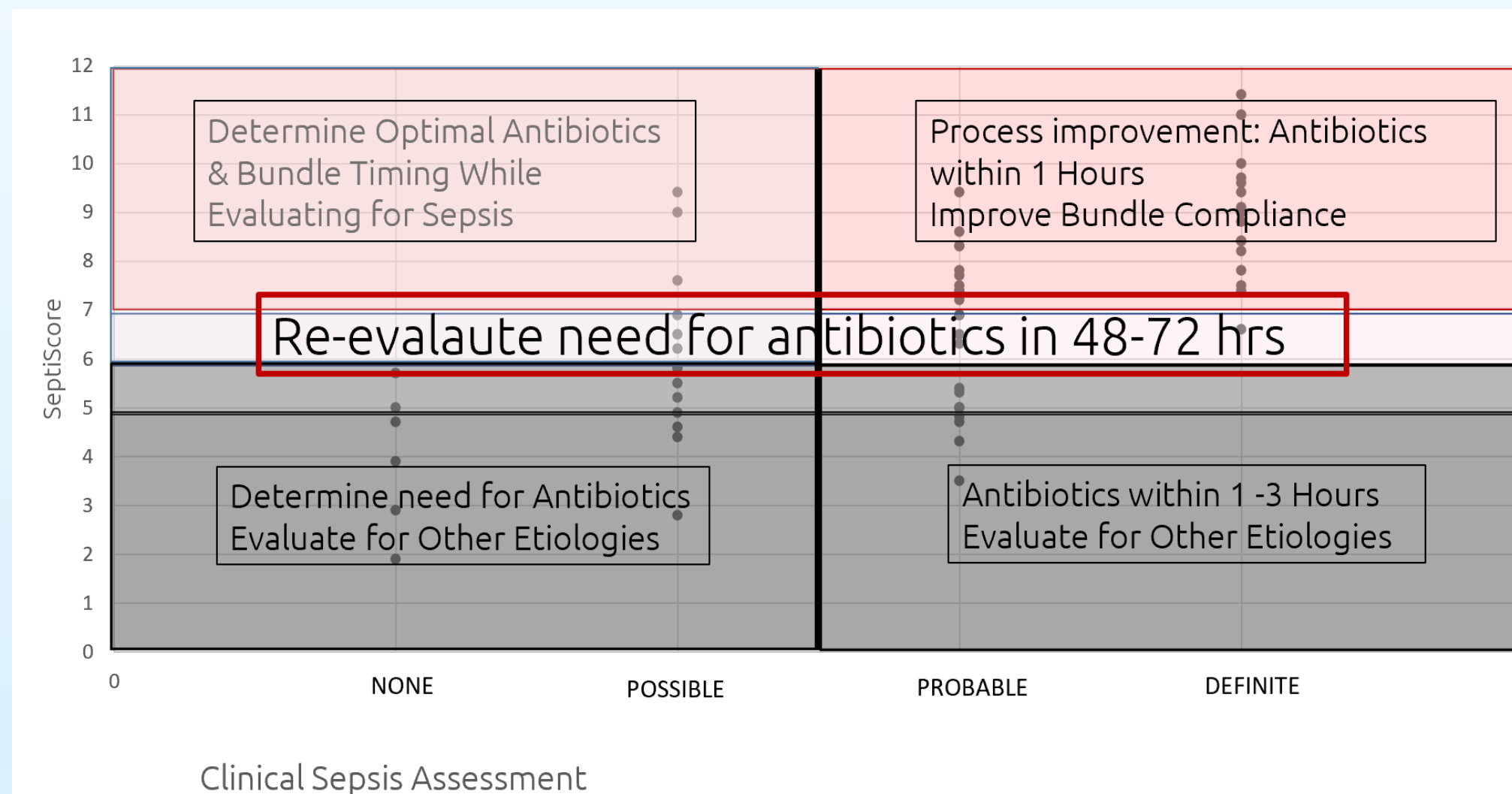


Figure 5. SeptiCyte RAPID Score correlation with clinical probability of sepsis with discriminatory and actionable results

CONCLUSIONS

- SeptiCyte RAPID correlates highly in patients with low and high probability of sepsis and is very helpful in discrimination of patients with intermediate (possible or probable) probability of sepsis.
- Sepsis diagnostic and initiation of treatment decisions should include probability of sepsis with SeptiCyte RAPID being an additional aid.

CLINICAL IMPLICATION

High clinical probability & Septicyte score identifies patients with true sepsis for whom early antibiotics should be the focus. If they are both low, consider evaluation for etiologies other than sepsis. For the intermediate clinical probability group, high septicyte score may help to identify those patients with true sepsis.

References

