

Category : **Sepsis: biomarkers**

A175 - Protocolized application of a novel host-response assay in standard sepsis treatment workflows at two different emergency departments

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Introduction:

Diagnostics to aid the emergency department (ED) in rapid sepsis risk assessment of potentially infected patients are needed[1]. Effective integration into existing workflows will be key for any such test. We evaluated the performance of a host-response test for early sepsis diagnosis implemented in two ED environments as part of the existing protocolized response to suspected infection.

Methods:

This study enrolled adults (≥ 18) at 2 sites, (Site-1 (S1): Springfield, MA and Site-2 (S2): Milwaukee, WI; Feb.- Jul. 2023). At both sites, ED triage sepsis best practice alerts fired in response to suspicion of infection and ≥ 2 modified SIRS criteria. However, at S1 the test was run on a remnant once the alert fired, whereas at S2, the test was included if ED providers used the sepsis order-set. All blood samples were collected and tested per standard of care within 5 hours. The test generates an Index, stratified into 3 interpretation bands (Bands 1-3) of increasing sepsis likelihood[2]. Sepsis status was determined through blinded retrospective physician adjudication.

Results:

At S1, 189 patients (sepsis prevalence: 12.2%), were stratified as 131 (69.3%) in Band 1, 44 (23.3%) in Band 2, and 14 (7.4%) in Band 3. At S2, 120 patients (sepsis prevalence: 35.0%), were stratified as 39 (32.5%) in Band 1, 42 (35.0%) in Band 2, and 39 (32.5%) in Band 3 (Fig 1-A). Differing site sepsis prevalence and operations yielded differences across the Bands. At both sites, the test achieved comparable negative predictive values for Band 1 (97.7% & 97.4%) and positive predictive values for Band 3 (71.4% & 59.5%). While the percentage of patients within each Band that received SEP-1 care elements increased across Bands, a similar number of patients received the care metric independent of the Band (Fig 1-B).

Conclusion:

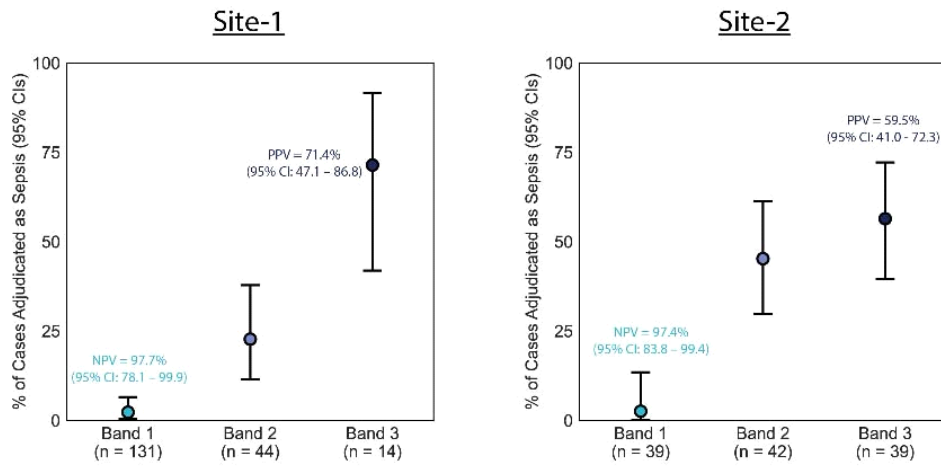
Our findings suggest that this host response test may improve risk stratification and resource utilization despite different ED sepsis protocols.

References:

1. Paoli, C.J., et al.CCM 46(2018)
2. US FDA(2022).510(k):K220991

Image :

(A)



(B)

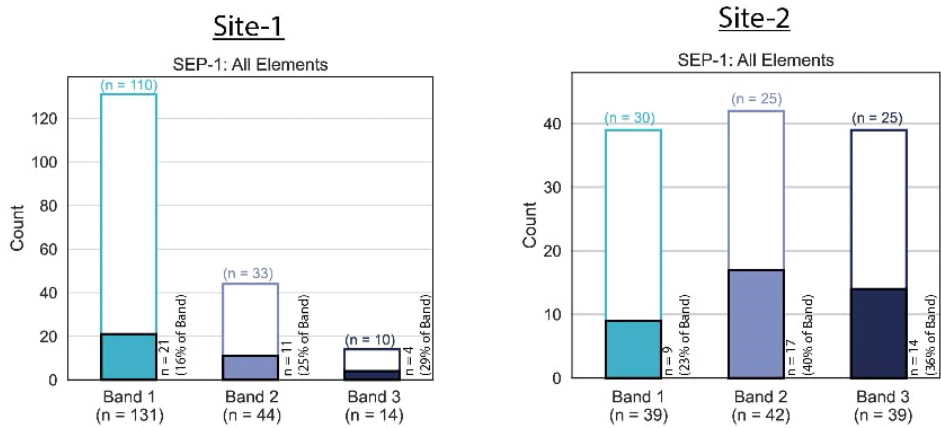


Figure 1 - (A) Incidence of adjudicated sepsis (per sepsis-3 definition), and (B) Administration of all SEP-1 elements (order for blood cultures, order for lactate, administration of antibiotics, all within 3-hours), across interpretation bands for the two study sites. Solid bars denote the number of patients in each Band that received the care metric, outlined bars denote the remainder of the patients in each Band that did not receive the care metric.