

Category :**Sepsis: biomarkers**

**A253 - Prediction of safe discharge of emergency department patients with suspected acute infection using a 29-mRNA host response test**

**E Diehl-Wiesenecker<sup>1</sup> ; N Galtung<sup>1</sup> ; F Uhle<sup>2</sup> ; O Liesenfeld<sup>2</sup> ; W Bauer<sup>1</sup>**

<sup>1</sup>Charité - University Medicine, Emergency Department, Berlin, Germany, <sup>2</sup>Inflammatix, Burlingame, United States

**Introduction:**

Unnecessary hospital admission causes increased resource utilization and may harm patients. Therefore, in patients presenting to the emergency department (ED) with suspected infections, the early and reliable identification of those without need for hospitalization is crucial and remains an unmet medical need. We evaluated the 29-host-response-mRNA severity classifier IMX-SEV-2, already validated for identifying critically ill patients, for safe discharge dispositions.

**Methods:**

312 adult patients presenting to a tertiary care ED with suspected acute infection or sepsis were prospectively enrolled [1]. Expression of 29-host mRNAs was measured and interpreted with IMX-SEV-2 from whole blood to determine low, moderate or high risk categories. Results were compared with the clinically adjudicated requirement for hospital-level care based on chart review.

**Results:**

Among 312 patients, 22 patients (7.1%) died in hospital and 56 (17.9%) experienced multi organ failure (MOF). 22 (7.1%) patients were adjudicated as not requiring hospital care. For predicting safe discharge, IMX-SEV-2 had the highest Area under the Receiver Operating Characteristic (AUROC) of 0.81 (95% CI 0.76-0.93), (Figure 1). Of patients with Confusion, Respiratory Rate, Blood Pressure, Age >65 [2] (CRB-65) scores <1 in combination with IMX-SEV-2 low-risk, only one patient (0.3%) had MOF and one (0.3%) died compared to 9 (2.9%) patients with MOF and 3 (1%) deaths when only applying CRB-65.

**Conclusion:**

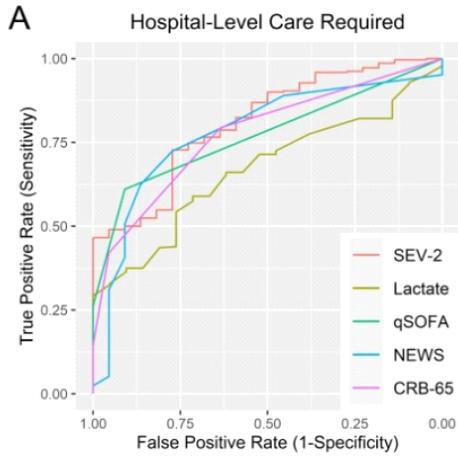
IMX-SEV-2 outperforms established risk prediction systems and biomarkers in identifying low-risk patients with suspected infections or sepsis in the ED. Combined with a clinical score like CRB-65, IMX-SEV-2 enhances severity prediction and could support in patient management.

**References:**

[1] Bauer W et al., CCM 2021

[2] Bauer TT et al., JIM 2006

**Image :**



**B**

	Hospital-Level Care Required
<b>IMX-SEV-2</b>	0.81 (0.73-0.89)
<b>Lactate</b>	0.67 (0.58-0.76)
<b>qSOFA</b>	0.77 (0.72-0.83)
<b>NEWS2</b>	0.78 (0.68-0.88)
<b>CRB-65</b>	0.78 (0.70-0.86)

*AUROC*s of IMX-SEV-2 and comparators for predicting the requirement of hospital-level care (AUROC = Area under the Receiver Operating Characteristic, IMX-SEV-2 = Inflammation Severity Classifier Version 2, qSOFA = quick Sequential Organ Failure Assessment, NEWS2 = National Early Warning Score 2, CRB-65 = Confusion, Respiratory Rate, Blood Pressure, Age >65-Score)