

Category : **Sepsis/septic shock: management**

**A204 - Performance of ed and discharge diagnosis of sepsis against objective assessments underscores the need for a reliable diagnostic**

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### **Introduction:**

Despite increasing awareness of and consensus guidelines for the treatment of sepsis, there is no reference standard for its diagnosis. Clinical diagnosis at presentation is difficult, resulting in heterogeneity in outcome reporting and trial performance when these diagnoses are used as classifiers.

### **Methods:**

Adult patients presenting to the ED with signs or suspicion of infection were prospectively enrolled at multiple sites in the USA (Feb. 2016 – Sept. 2019) in four discrete but similar cohorts. We compared different standards for sepsis diagnosis (ED Diagnosis, Discharge Diagnosis, and an Objective Assessment) with a reference standard of retrospective physician adjudication. ED diagnosis and Discharge Diagnosis were recorded from the medical record. Objective Assessment for sepsis was based on evidence of an infection defined by modified CDC surveillance definitions *and* an increase in SOFA of 2 or more points over baseline during any of the first three days of hospitalization.

### **Results:**

678 subjects were included in the final analysis with a sepsis prevalence of 17.8% by the adjudication standard. Table 1 includes a comparison of ED diagnosis, discharge diagnosis, and objective assessment of sepsis in predicting adjudicated sepsis. While ED and Discharge Diagnoses performed similarly in comparison to physician adjudication, Objective Assessment had a significantly higher diagnostic odds ratio than either. In general, treating clinicians are more likely to over-diagnose sepsis.

### **Conclusion:**

Treating clinicians are biased toward the over-diagnosis of sepsis, making ED and Discharge Diagnosis less reliable than an Objective Assessment, thus impacting outcome data and trial performance and underscoring the need for a reliable diagnostic biomarker for sepsis at ED presentation.

### **Table:**

	ED Diagnosis	Discharge Diagnosis	Objective Assessment (3 days post presentation)
AUC (95% CI)	0.79 (0.74 - 0.83)	0.78 (0.74 - 0.82)	0.87 (0.83 - 0.90)
Positive Percent Agreement/Sensitivity (95% CI)	65.3 (56.1 - 73.7)	63.6 (54.4 - 72.2)	86.0 (78.5 - 91.6)
Negative Percent Agreement/Specificity (95% CI)	91.7 (85.3 - 96.0)	92.5 (85.3 - 96.0)	87.4 (79.4 - 92.2)

Diagnostic Odds Ratio (95% CI)	20.9 (13.8 - 29.0)	21.5 (13.8 - 29.0)	42.6 (33.2 - 51.5)
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*Comparison of included standards for sepsis diagnosis*