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Title: Derivation of A New Bioscore for Predicting Mortality in Sepsis**Author(s):** Shukeri, WFWM (Shukeri, W. F. W. M.); Md-Ralib, A (Md-Ralib, A.); Mat-Nor, MB (Mat-Nor, M. B.)**Source:** INTERNATIONAL MEDICAL JOURNAL MALAYSIA **Volume:** 18 **Issue:** 1 **Pages:** 81-87 **Published:** APR 2019**Times Cited in Web of Science Core Collection:** 0**Total Times Cited:** 0**Usage Count (Last 180 days):** 0**Usage Count (Since 2013):** 0**Cited Reference Count:** 12

Abstract: Introduction: Currently, there is a lack of clinically feasible and reliable method for discriminating outcome in sepsis. We aimed to derive a new bioscore for predicting mortality in critically ill patients with sepsis using a combination of biomarkers and clinical indexes. Materials and Methods: This was a secondary analysis from a prospective study involving 159 patients with sepsis admitted to an intensive care unit (ICU). Data for key variables considered for possible inclusion in the score were collected, which included: age, sex, source of admission, comorbidities, microorganism, bacteraemia, site of infection, septic shock status, baseline Simplified Acute Physiological Score II, Sequential Organ Failure Assessment (SOFA) score (total and organ sub-scores), C-reactive protein, procalcitonin and interleukin-6 (IL-6). Approximate quintiles of each variable were given points as per the strength of their association with 30-day mortality. Results: In accordance with the statistical significance in the logistic regression analysis, the final score utilised candidate variables of age, central nervous system and liver SOFA sub-scores and IL-6. The bioscore predicted 30-day mortality with a very good performance [area under the receiver operating characteristic curve 0.814 (95% confidence interval 0.745-0.871, $p < 0.0001$)] in our sepsis cohort. A bioscore greater than 4 predicted 30-day mortality with 80.4% sensitivity, 69.9% specificity, 2.67 positive likelihood ratio and 0.28 negative likelihood ratio. As the score increased, so did mortality rate. Conclusion: A new bioscore combining age, central nervous system and liver SOFA sub-scores and IL-6 measured on ICU admission potentially improves prediction of mortality in sepsis. Further study is warranted to prospectively validate the clinical utility of this bioscore in risk-stratifying patients with suspected sepsis.

Accession Number: WOS:000465628000010**Language:** English**Document Type:** Article**Author Keywords:** sepsis; biomarkers; critical care; mortality**KeyWords Plus:** SERUM BILIRUBIN LEVELS; PROCALCITONIN; RISK**Addresses:** [Shukeri, W. F. W. M.; Md-Ralib, A.; Mat-Nor, M. B.] Int Islamic Univ Malaysia, Kulliyyah Med, Dept Anaesthesiol & Intens Care, Kuantan 25200, Pahang, Malaysia.

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Funding Agency	Grant Number
International Islamic University Malaysia Research Initiative Grant	RIGS 16-113-0277

This work was supported by the International Islamic University Malaysia Research Initiative Grant RIGS 16-113-0277

Open Access: DOAJ Gold**Output Date:** 2019-08-01

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