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## Sepsis mortality score for the prediction of mortality in septic patients

By: [Shukeri, WFM](#) (Shukeri, Wan FadzlinaWan Muhd)<sup>[1,2]</sup>; [Ralib, AM](#) (Ralib, Azrina Md)<sup>[1]</sup>; [Abdulah, NZ](#) (Abdulah, Nor Zamzila)<sup>[3]</sup>; [Mat-Nor, MB](#) (Mat-Nor, Mohd Basri)<sup>[1]</sup>

### JOURNAL OF CRITICAL CARE

Volume: 43 Pages: 163-168

DOI: 10.1016/j.jcrc.2017.09.009

Published: FEB 2018

Document Type: Article

[View Journal Impact](#)

### Abstract

Purpose: To derive a prediction equation for 30-day mortality in sepsis using a multi-marker approach and compare its performance to the Sequential Organ Failure Assessment (SOFA) score.

Methods: This study included 159 septic patients admitted to an intensive care unit. Leukocytes count, procalcitonin (PCT), interleukin-6 (IL-6), and paraoxonase (PON) and arylesterase (ARE) activities of PON-1 were assayed from blood obtained on ICU presentation. Logistic regression was used to derive sepsis mortality score (SMS), a prediction equation describing the relationship between biomarkers and 30-day mortality.

Results: The 30-day mortality rate was 28.9%. The SMS was  $[\text{logit}(p)/(1 + \text{logit}(p))] \times 100$ ;  $\text{logit}(p) = 0.74 + (0.004 \times \text{PCT}) + (0.001 \times \text{IL-6}) - (0.025 \times \text{ARE}) - (0.059 \times \text{leukocytes count})$ . The SMC had higher area under the receiver operating characteristic curve (95% CI) than SOFA score [0.814 (0.736-0.892) vs. 0.767 (0.677-0.857)], but is not statistically significant. When the SMS was added to the SOFA score, prediction of 30-day mortality improved compared to SOFA score used alone [0.845 (0.777-0.899),  $p = 0.022$ ].

Conclusions: A sepsis mortality score using baseline leukocytes count, PCT, IL-6 and ARE was derived, which predicted 30-day mortality with very good performance and added significant prognostic information to SOFA score. (C) 2017 Elsevier Inc. All rights reserved.

### Keywords

**Author Keywords:** Sepsis; Leukocytes count; Interleukin-6; Procalcitonin; Paraoxonase-1; Mortality

**KeyWords Plus:** CRITICALLY-ILL PATIENTS; SERUM PARAOXONASE; SUSPECTED SEPSIS; PROCALCITONIN; SHOCK; INTERLEUKIN-6; RISK; BIOMARKERS; ABILITY; MARKER

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### Funding

| Funding Agency   | Grant Number    |
|--|-----------------|
| International Islamic University Malaysia Endowment B Research Grant | EDWB11-256-0734 |

[View funding text](#)

### Publisher

W B SAUNDERS CO-ELSEVIER INC, 1600 JOHN F KENNEDY BOULEVARD, STE 1800, PHILADELPHIA, PA 19103-2899 USA

### Journal Information

**Impact Factor:** [Journal Citation Reports](#)

### Categories / Classification

**Research Areas:** General & Internal Medicine

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## Cited References: 25

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- Severe Sepsis and Septic Shock** **Times Cited: 959**

By: Angus, Derek C.; van der Poll, Tom  
NEW ENGLAND JOURNAL OF MEDICINE Volume: 369 Issue: 9 Pages: 840-851 Published: AUG 29 2013
- Biomarkers for Sepsis: What Is and What Might Be?** **Times Cited: 17**

By: Biron, Bethany M.; Ayala, Alfred; Lomas-Neira, Joanne L.  
BIOMARKER INSIGHTS Volume: 10 Supplement: 4 Pages: 7-17 Published: 2015
- Low paraoxonase 1 activity predicts mortality in surgical patients with sepsis** **Times Cited: 1**

By: Bojjic, S; Kotur-Stevuljjevic, J; Kalezic, N; et al.  
Dis Markers Volume: 2014 Published: 2014  
URL: <http://dx.doi.org.ezaccess.library.uitm.edu.my/10.1155/2014/427378>  
[\[Show additional data\]](#)
- Paraoxonase (PON1) in health and disease: basic and clinical aspects** **Times Cited: 3**

By: Costa, L; Furlong, C.  
Prot. action HDL-associated PON1 against LDL Oxid Pages: 125-36 Published: 2002  
Publisher: Kluwer Academic Publishers
- Surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock: 2012** **Times Cited: 2,593**

By: Dellinger, R. Phillip; Levy, Mitchell M.; Rhodes, Andrew; et al.  
Group Author(s): Surviving Sepsis Campaign Guidelin  
CRITICAL CARE MEDICINE Volume: 41 Issue: 2 Pages: 580-637 Published: FEB 2013
- COMPARING THE AREAS UNDER 2 OR MORE CORRELATED RECEIVER OPERATING CHARACTERISTIC CURVES - A NONPARAMETRIC APPROACH** **Times Cited: 7,129**

By: DELONG, ER; DELONG, DM; CLARKEPEARSON, DI

BIOMETRICS Volume: 44 Issue: 3 Pages: 837-845 Published: SEP 1988

7. **Interleukin 6, galectin 3, growth differentiation factor 15, and soluble ST2 for mortality prediction in critically ill patients** Times Cited: 5  
By: Dieplinger, Benjamin; Egger, Margot; Leitner, Isabella; et al.  
JOURNAL OF CRITICAL CARE Volume: 34 Pages: 38-45 Published: AUG 2016
8. **THE HUMAN-SERUM PARAOXONASE ARYLESTERASE POLYMORPHISM** Times Cited: 591  
By: ECKERSON, HW; WYTE, CM; LADU, BN  
AMERICAN JOURNAL OF HUMAN GENETICS Volume: 35 Issue: 6 Pages: 1126-1138 Published: 1983
9. **Early goal-directed resuscitation of patients with septic shock: current evidence and future directions** Times Cited: 23  
By: Gupta, Ravi G.; Hartigan, Sarah M.; Kashiouris, Markos G.; et al.  
CRITICAL CARE Volume: 19 Article Number: 286 Published: AUG 28 2015
10. **Diagnostic value of procalcitonin, interleukin-6, and interleukin-8 in critically ill patients admitted with suspected sepsis** Times Cited: 472  
By: Harbarth, S; Holeckova, K; Froidevaux, C; et al.  
Group Author(s): Geneva Sepsis Network  
AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE Volume: 164 Issue: 3 Pages: 396-402 Published: AUG 1 2001
11. **Paraoxonase 1 Activity and Survival in Sepsis Patients** Times Cited: 3  
By: Inal, Volkan; Yamanel, Levent; Taskin, Gurhan; et al.  
BALKAN MEDICAL JOURNAL Volume: 32 Issue: 2 Pages: 183-188 Published: APR 2015
12. **Procalcitonin as a diagnostic Marker and IL-6 as a prognostic marker for sepsis** Times Cited: 45  
By: Jekarl, Dong Wook; Lee, So-Young; Lee, Jehoon; et al.  
DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE Volume: 75 Issue: 4 Pages: 342-347 Published: APR 2013
13. **Procalcitonin increase in early identification of critically ill patients at high risk of mortality** Times Cited: 209  
By: Jensen, Jens Ulrik; Heslet, Lars; Jensen, Tom Hartvig; et al.  
CRITICAL CARE MEDICINE Volume: 34 Issue: 10 Pages: 2596-2602 Published: OCT 2006
14. **Multi-marker approach using procalcitonin, presepsin, galectin-3, and soluble suppression of tumorigenicity 2 for the prediction of mortality in sepsis** Times Cited: 6  
By: Kim, Hanah; Hur, Mina; Moon, Hee-Won; et al.  
Group Author(s): GREAT Network  
ANNALS OF INTENSIVE CARE Volume: 7 Article Number: 27 Published: MAR 7 2017
15. **Prognostic value of serum paraoxonase and arylesterase activity in patients with sepsis** Times Cited: 9  
By: Li, Yunhui; Zhai, Rubo; Li, Haifeng; et al.  
JOURNAL OF INTERNATIONAL MEDICAL RESEARCH Volume: 41 Issue: 3 Pages: 681-687 Published: JUN 2013
16. **The diagnostic ability of procalcitonin and interleukin-6 to differentiate infectious from noninfectious systemic inflammatory response syndrome and to predict mortality** Times Cited: 8  
By: Mat-Nor, Mohd Basri; Ralib, Azrina M. D.; Abdulah, Nor Zamzila; et al.  
JOURNAL OF CRITICAL CARE Volume: 33 Pages: 245-251 Published: JUN 2016
17. **Procalcitonin clearance for early prediction of survival in critical ill patients with severe sepsis** Times Cited: 2  
By: Mat-Nor, MB; Ralib, AM.  
Crit Care Res Pract. Volume: 2014 Published: 2014  
URL: <https://doi-org.ezaccess.library.uitm.edu.my/10.1155/2014/819034>
18. **Decreased paraoxonase activity in critically ill patients with sepsis** Times Cited: 39  
By: Novak, Frantisek; Vavrova, Lucie; Kodydkova, Jana; et al.  
CLINICAL AND EXPERIMENTAL MEDICINE Volume: 10 Issue: 1 Pages: 21-25 Published: MAR 2010

19. **New Approaches to Sepsis: Molecular Diagnostics and Biomarkers** Times Cited: 167  
By: Reinhart, Konrad; Bauer, Michael; Riedemann, Niels C.; et al.  
CLINICAL MICROBIOLOGY REVIEWS Volume: 25 Issue: 4 Pages: 609-634 Published: OCT 2012
  
20. **Usefulness of procalcitonin clearance as a prognostic biomarker in septic shock. A prospective pilot study** Times Cited: 26  
By: Ruiz-Rodriguez, J. C.; Caballero, J.; Ruiz-Sanmartin, A.; et al.  
MEDICINA INTENSIVA Volume: 36 Issue: 7 Pages: 475-480 Published: OCT 2012
  
21. **A prospective, multicenter derivation of a biomarker panel to assess risk of organ dysfunction, shock, and death in emergency department patients with suspected sepsis** Times Cited: 116  
By: Shapiro, Nathan I.; Trzeciak, Stephen; Hollander, Judd E.; et al.  
CRITICAL CARE MEDICINE Volume: 37 Issue: 1 Pages: 96-104 Published: JAN 2009
  
22. **The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)** Times Cited: 1,464  
By: Singer, Mervyn; Deutschman, Clifford S.; Seymour, Christopher Warren; et al.  
JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Volume: 315 Issue: 8 Pages: 801-810 Published: FEB 23 2016
  
23. **The SOFA (sepsis-related organ failure assessment) score to describe organ dysfunction/failure** Times Cited: 3,811  
By: Vincent, JL; Moreno, R; Takala, J; et al.  
INTENSIVE CARE MEDICINE Volume: 22 Issue: 7 Pages: 707-710 Published: JUL 1996
  
24. **A Multibiomarker-Based Outcome Risk Stratification Model for Adult Septic Shock** Times Cited: 53  
By: Wong, Hector R.; Lindsell, Christopher J.; Pettit, Ville; et al.  
CRITICAL CARE MEDICINE Volume: 42 Issue: 4 Pages: 781-789 Published: APR 2014
  
25. **Limited ability of SOFA and MOD scores to discriminate outcome: a prospective evaluation 1,436 patients** Times Cited: 26  
By: Zygun, DA; Laupland, KB; Fick, GH; et al.  
CANADIAN JOURNAL OF ANAESTHESIA-JOURNAL CANADIEN D ANESTHESIE Volume: 52 Issue: 3 Pages: 302-308  
Published: MAR 2005

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