La stratificazione prognostica

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La PROGNOSI ovvero….

…dal generale al particolare.

t 0 Dolore al fianco destro

PA 130/75mmHg
FC 85 bpm
Sat0^2 99% in aa,
tc 36°C

GB 9.000;
Hb 15,1g/dl;
PLT 270.000;
PCR 0,2 mg/dl
creat, Na, K,
AST, ALT amilasi
Bil tot 2,33 mg/dl
Bil diretta 0,67 mg/dl

OBI in chirurgia

8°h Brivido
Tc 38,5°C

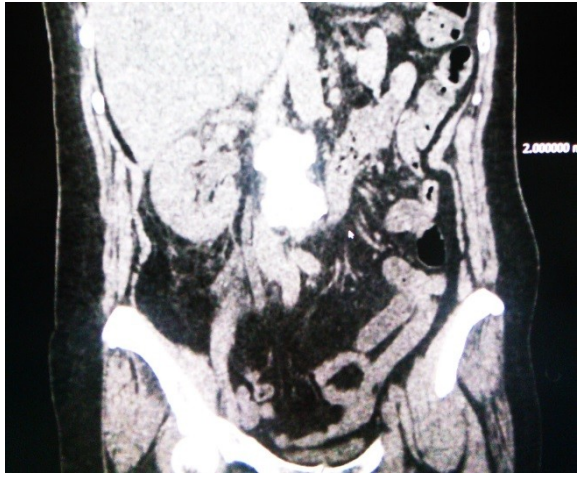
12°h PA 80/40 mmHg
Liquidi

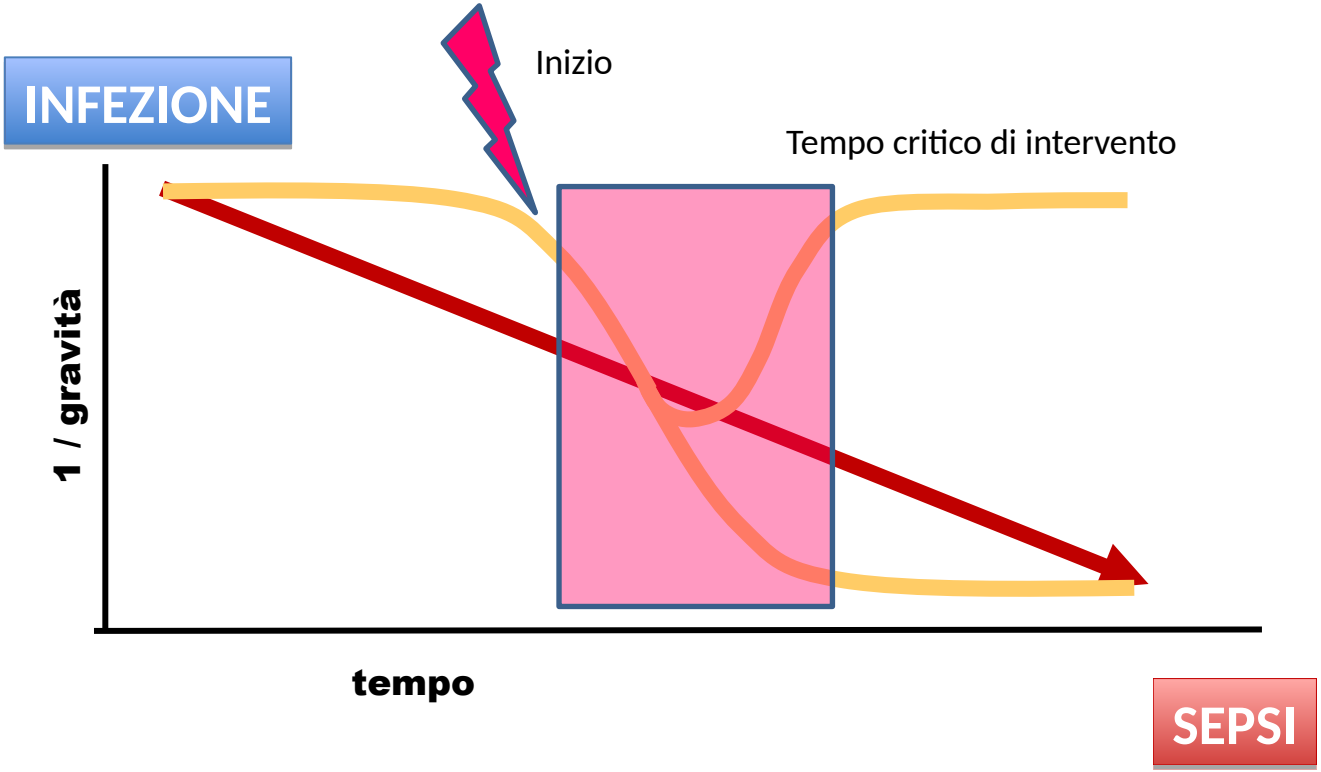
23°h PA 80/60 mmHg
FC 120 bpm
FR 32 apm
Sat02 88% aa

TC addome

25°h Inizia antibiotico

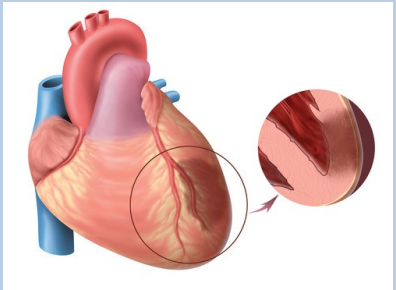
Gestione
emodinamica




INFEZIONE
Inizio
Tempo critico di intervento
1 / gravità
tempo
SEPSI

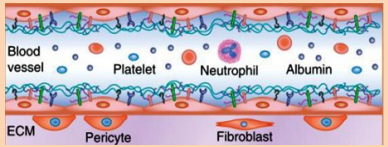
IMA

Il tempo è MUSCOLO



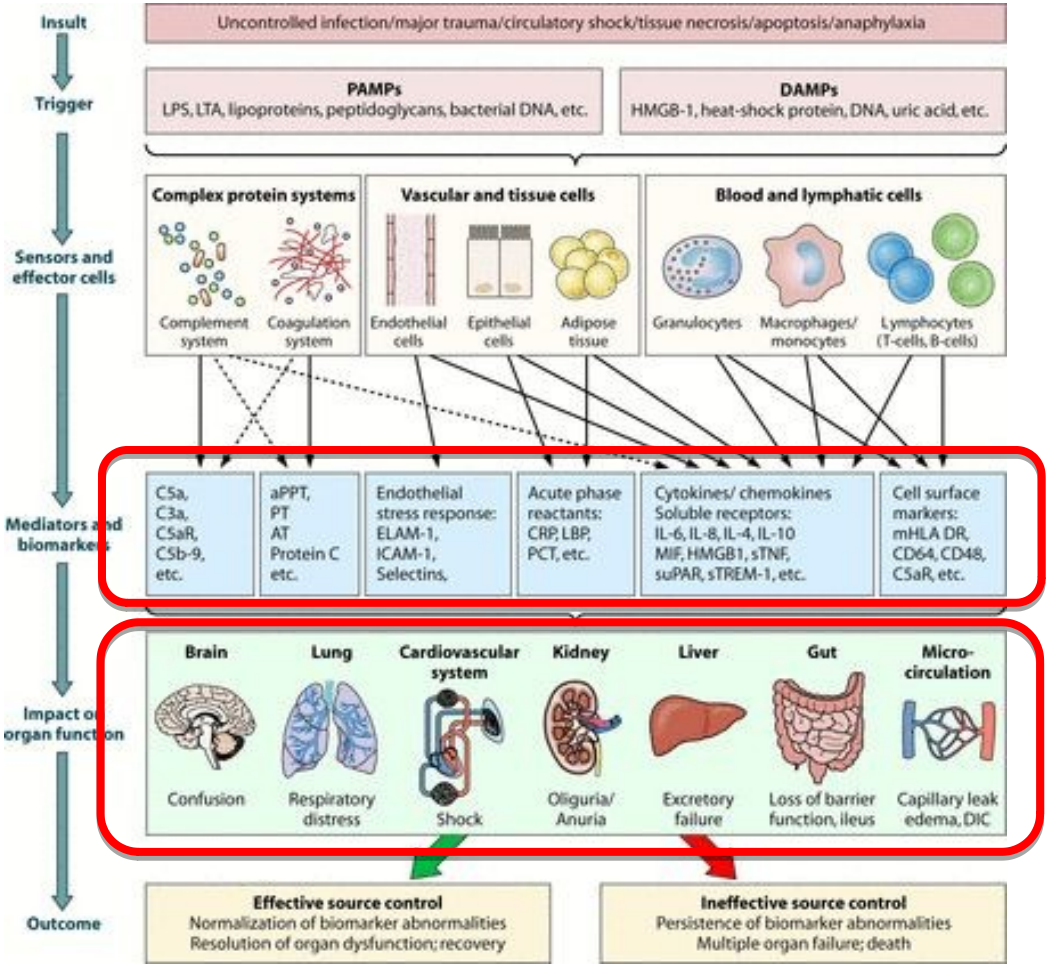
SEPSI

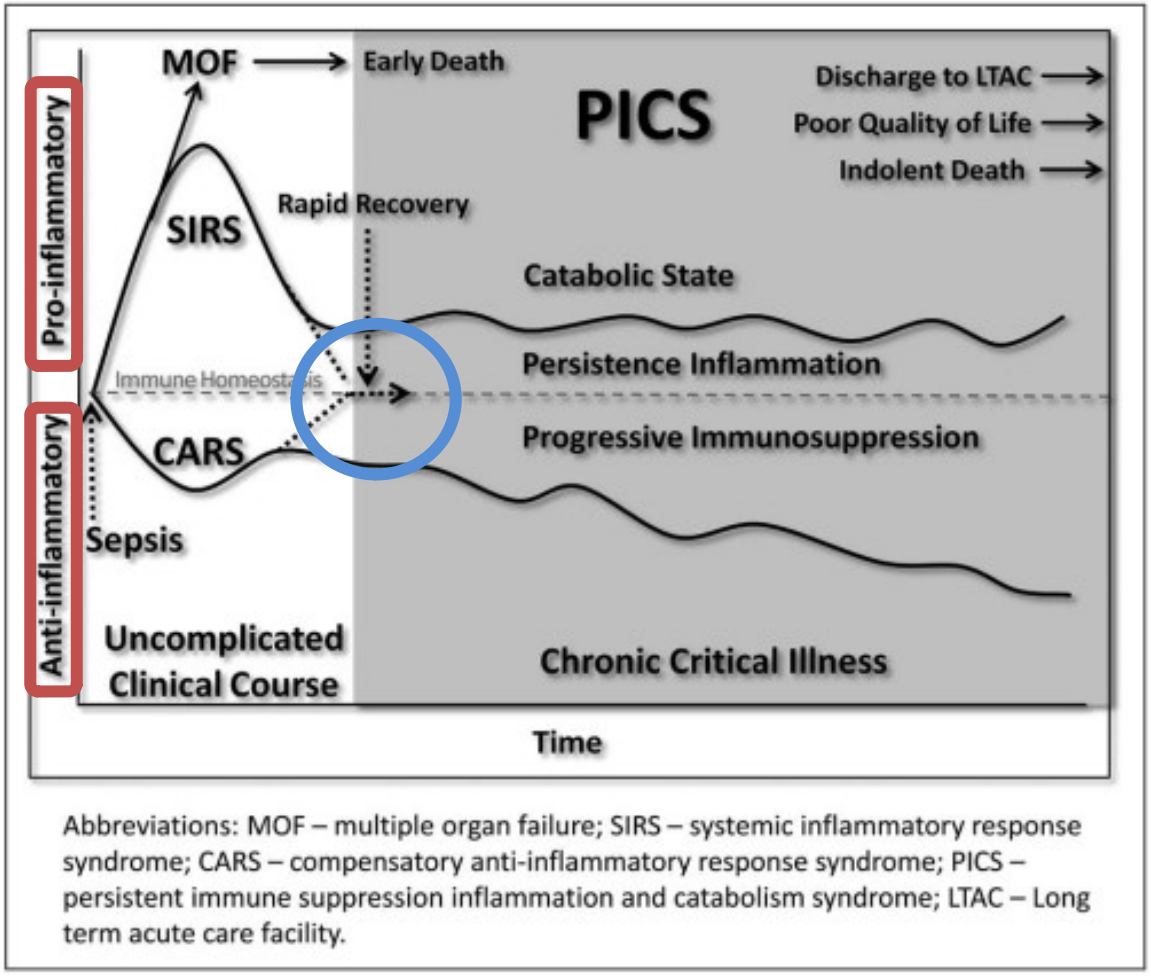
Il tempo è ENDOTELIO



ICTUS

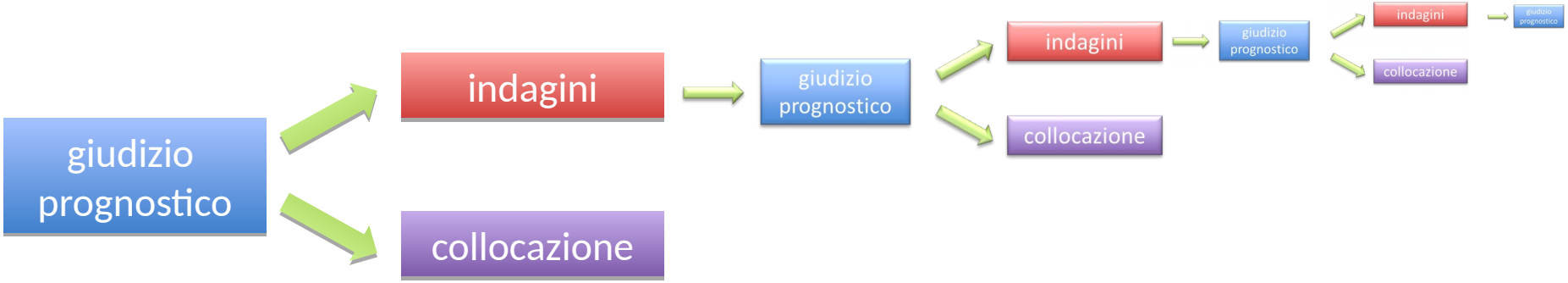
Il tempo è CERVELLO


Insult
Uncontrolled infection/major trauma/circulatory shock/tissue necrosis/apoptosis/anaphylaxia
Trigger
PAMPs
LPS, LTA, lipoproteins, peptidoglycans, bacterial DNA, etc.
DAMPs
HMGB-1, heat-shock protein, DNA, uric acid, etc.
Sensors and effector cells
Complex protein systems
Complement system
Coagulation system
Vascular and tissue cells
Endothelial cells
Epithelial cells
Adipose tissue
Blood and lymphatic cells
Granulocytes
Macrophages/ monocytes
Lymphocytes (T-cells, B-cells)
Mediators and biomarkers
C5a, C3a, C5aR, C5b-9, etc.
aPPT, PT AT Protein C etc.
Endothelial stress response: ELAM-1, ICAM-1, Selectins,
Acute phase reactants: CRP, LBP, PCT, etc.
Cytokines/ chemokines Soluble receptors: IL-6, IL-8, IL-4, IL-10 MIF, HMGB1, sTNF, suPAR, sTREM-1, etc.
Cell surface markers: mHLA DR, CD64, CD48, C5aR, etc.
Impact on organ function
Brain
Confusion
Lung
Respiratory distress
Cardiovascular system
Shock
Kidney
Oliguria/ Anuria
Liver
Excretory failure
Gut
Loss of barrier function, ileus
Micro-circulation
Capillary leak edema, DIC
Outcome
Effective source control
Normalization of biomarker abnormalities
Resolution of organ dysfunction; recovery
Ineffective source control
Persistence of biomarker abnormalities
Multiple organ failure; death



Abbreviations: MOF – multiple organ failure; SIRS – systemic inflammatory response syndrome; CARS – compensatory anti-inflammatory response syndrome; PICS – persistent immune suppression inflammation and catabolism syndrome; LTAC – Long term acute care facility.

Sepsis Pathophysiology, Chronic Critical Illness, and Persistent Inflammation-Immunosuppression and Catabolism Syndrome Juan C. Mira, (*Crit Care Med* 2017; 45:253–262)


giudizio prognostico
indagini
collocazione
giudizio prognostico
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collocazione
giudizio prognostico
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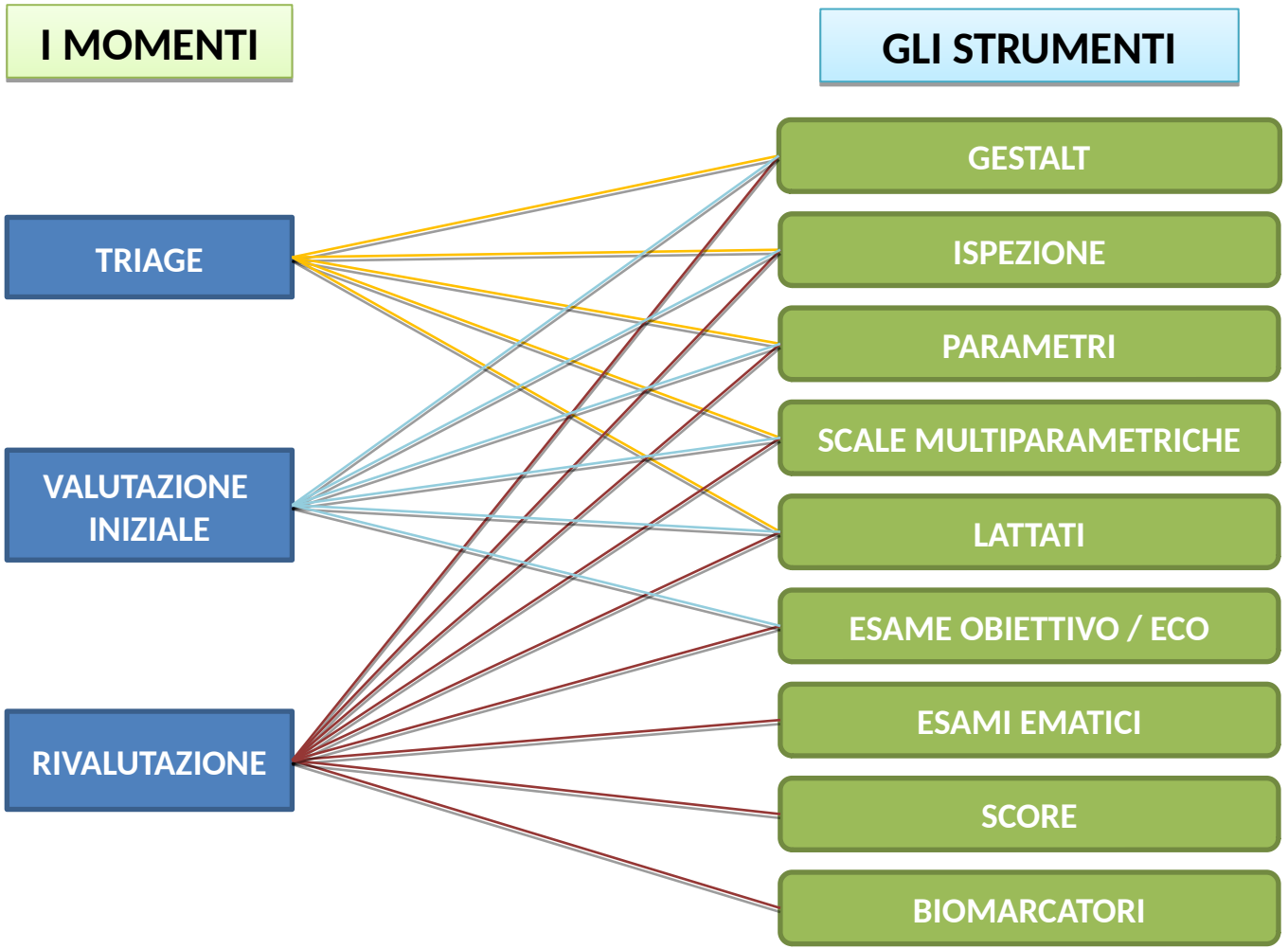
giudizio prognostico


I MOMENTI
GLI STRUMENTI
TRIAGE
VALUTAZIONE INIZIALE
RIVALUTAZIONE
GESTALT
ISPEZIONE
PARAMETRI
SCALE MULTIPARAMETRICHE
LATTATI
ESAME OBIETTIVO / ECO
ESAMI EMATICI
SCORE
BIOMARCATORI

GESTALT

Lopansri et al. Journal of Intensive Care (2019) 7:13
https://doi.org/10.1186/s40560-019-0368-2

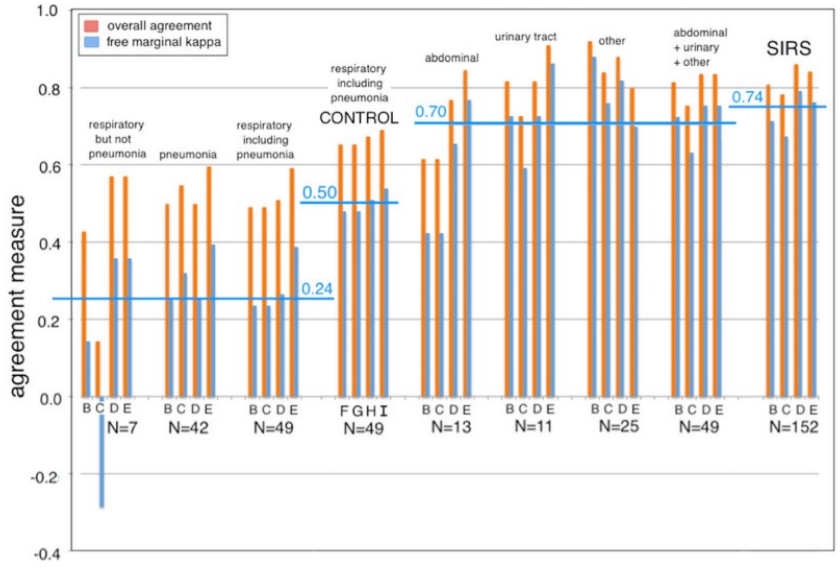
Journal of Intensive Care

RESEARCH Open Access

Physician agreement on the diagnosis of sepsis in the intensive care unit: estimation of concordance and analysis of underlying factors in a multicenter cohort

Bert K. Lopansri[1,2†], Russell R. Miller III[3,4†], John P. Burke[1,2], Mitchell Levy[5], Steven Opal[5], Richard E. Rothman[6],

The fact that antibiotic use was so frequent in patients who did not have infection highlights the need for better strategies to reduce the burden and duration of unnecessary antibiotic use.



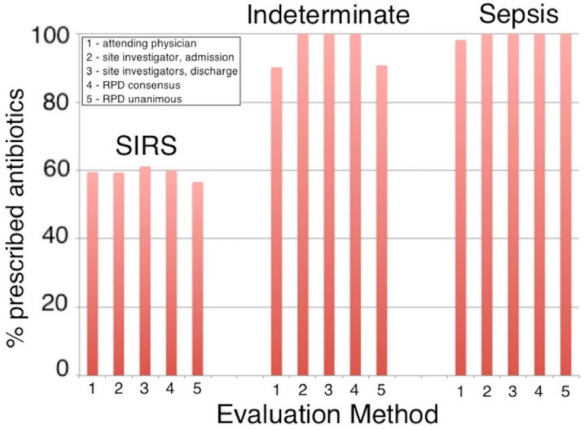
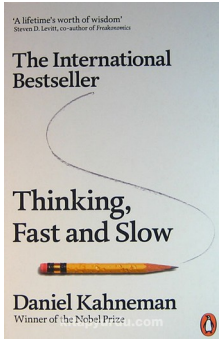
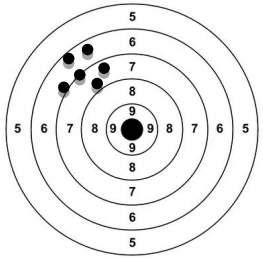
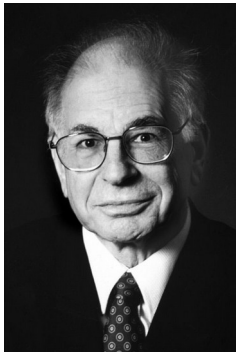


Fig. 4 Analysis of subjects treated with therapeutic antibiotics as a function of diagnosis, evaluation method, and cohort: fraction of subjects treated. The case report forms indicated whether or not particular patients were treated with therapeutic antibiotics. A diagnosis of SIRS, indeterminate, or sepsis was made by (1) attending physician at admission, (2) site investigator at admission, (3) site investigators' consensus at discharge, (4) consensus RPD, or (5) unanimous RPD

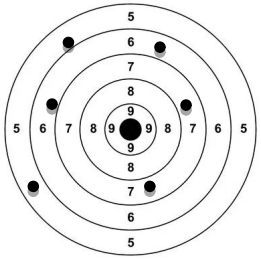


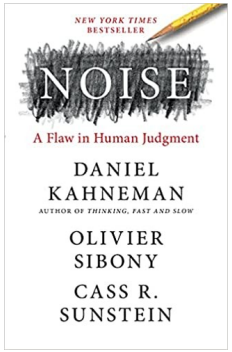
Bias





Rumore





Concentrarsi sui predittori pertinenti, semplificare il modello predittivo e procedere a un'aggregazione meccanica: tutto questo riduce il rumore

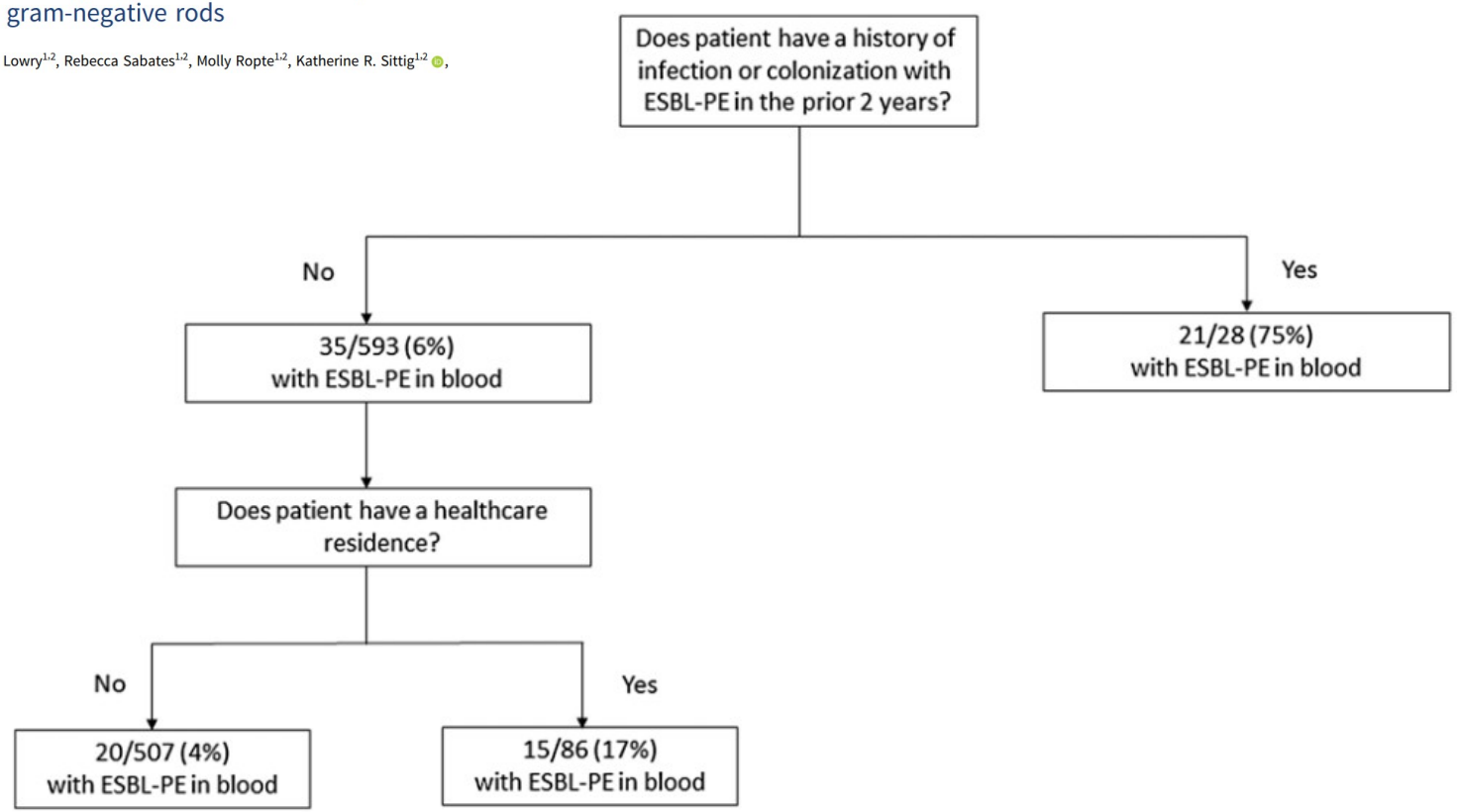
D. Kahneman

Antimicrobial Stewardship & Healthcare Epidemiology (2022), **2**, e35, 1–3
doi:10.1017/ash.2021.253

Concise Communication

Comparison of the performance of a clinical classification tree versus clinical gestalt in predicting sepsis with extended-spectrum beta-lactamase–producing gram-negative rods

Hayden L. Smith[1], Mohamed A. Elfeki[1,2], Dana Lowry[1,2], Rebecca Sabates[1,2], Molly Ropte[1,2], Katherine R. Sittig[1,2],



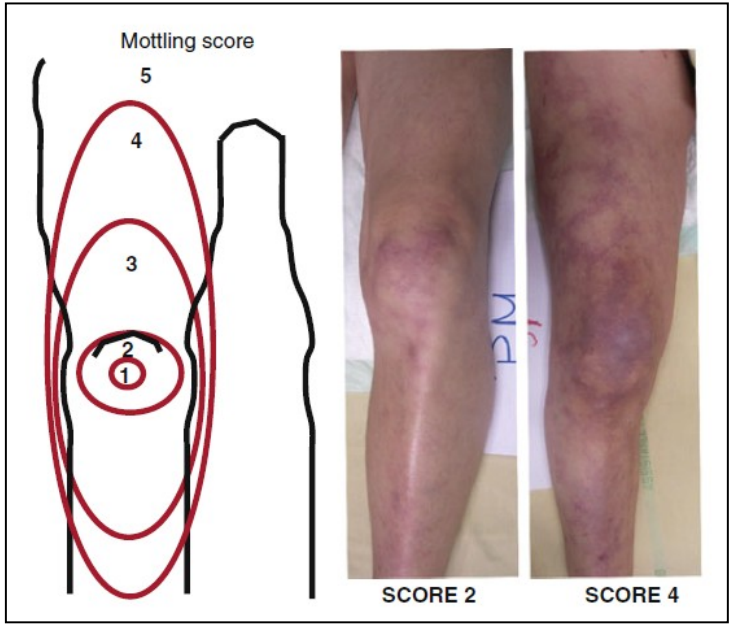
ISPEZIONE

Valutazione della perfusione cutanea

Metodo	Variabile	Vantaggio	Limiti	Significato
Marezzatura cutanea	Presente/ assente	Facile da esaminare	Poco specifico	-
	Punteggio	Facile e riproducibile	Non utile se cute scura	Pz grave se score 4-5
Refill capillare	Refill indice	Facile e riproducibile	Risultati variabili	Shock > 2.5 sec
	Refill ginocchio	Riproducibile	Non utile se cute scura	Shock > 5 sec
Gradiente di temperatura	Avambraccio-dito	Metodo validato	Tecnologia complessa	Significativo se > 4°C
	Centrale-alluce	Metodo validato	Tecnologia complessa	Significativo se > 7°C

Hafid Ait–Oufella, and Jan Bakker.
Understanding clinical signs of poor tissue perfusion during septic shock
Intensive Care Med 2016

Gradi di marezzatura cutanea



H. Ait-Oufella et al.
Mottling score predicts survival in septic shock
Intensive Care Med (2011) 37:801–807

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

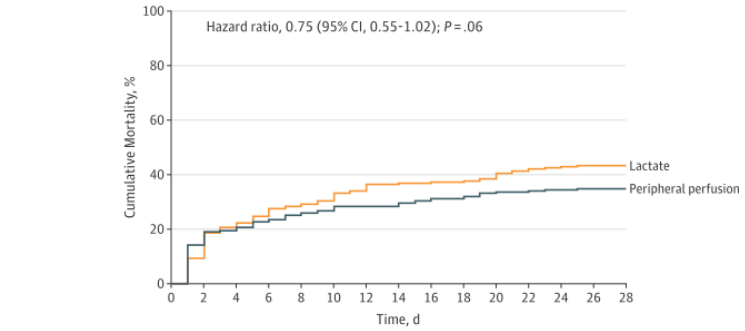
Effect of a Resuscitation Strategy Targeting Peripheral Perfusion Status vs Serum Lactate Levels on 28-Day Mortality Among Patients With Septic Shock

The ANDROMEDA-SHOCK Randomized Clinical Trial

JAMA. doi:10.1001/jama.2019.0071
Published online February 17, 2019.

INTERVENTIONS Patients were randomized to a step-by-step resuscitation protocol aimed at either normalizing capillary refill time (n = 212) or normalizing or decreasing lactate levels at rates greater than 20% per 2 hours (n = 212), during an 8-hour intervention period.

Figure 2. Kaplan-Meier Estimates of Cumulative Mortality Within 28 Days Among Patients Treated With Peripheral Perfusion–Targeted Resuscitation vs Lactate Level–Targeted Resuscitation



PARAMETRI

SCALE MULTIPARAMETRICHE

Thomas-Rüddel *et al. Crit Care* (2021) 25:368
https://doi.org/10.1186/s13054-021-03776-2

Critical Care

RESEARCH Open Access

Fever and hypothermia represent two populations of sepsis patients and are associated with outside temperature

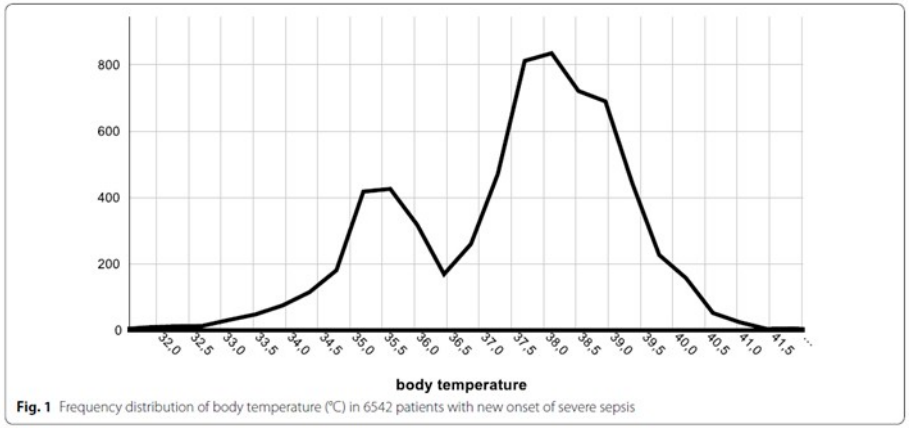


Fig. 1 Frequency distribution of body temperature (°C) in 6542 patients with new onset of severe sepsis

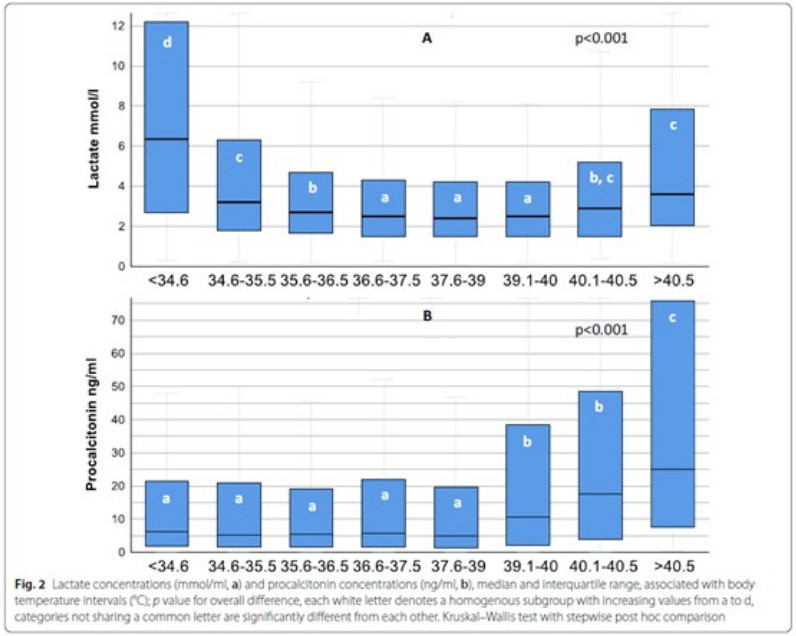


Fig. 2 Lactate concentrations (mmol/ml, **a**) and procalcitonin concentrations (ng/ml, **b**), median and interquartile range, associated with body temperature intervals (°C); *p* value for overall difference, each white letter denotes a homogenous subgroup with increasing values from a to d, categories not sharing a common letter are significantly different from each other. Kruskal–Wallis test with stepwise post hoc comparison

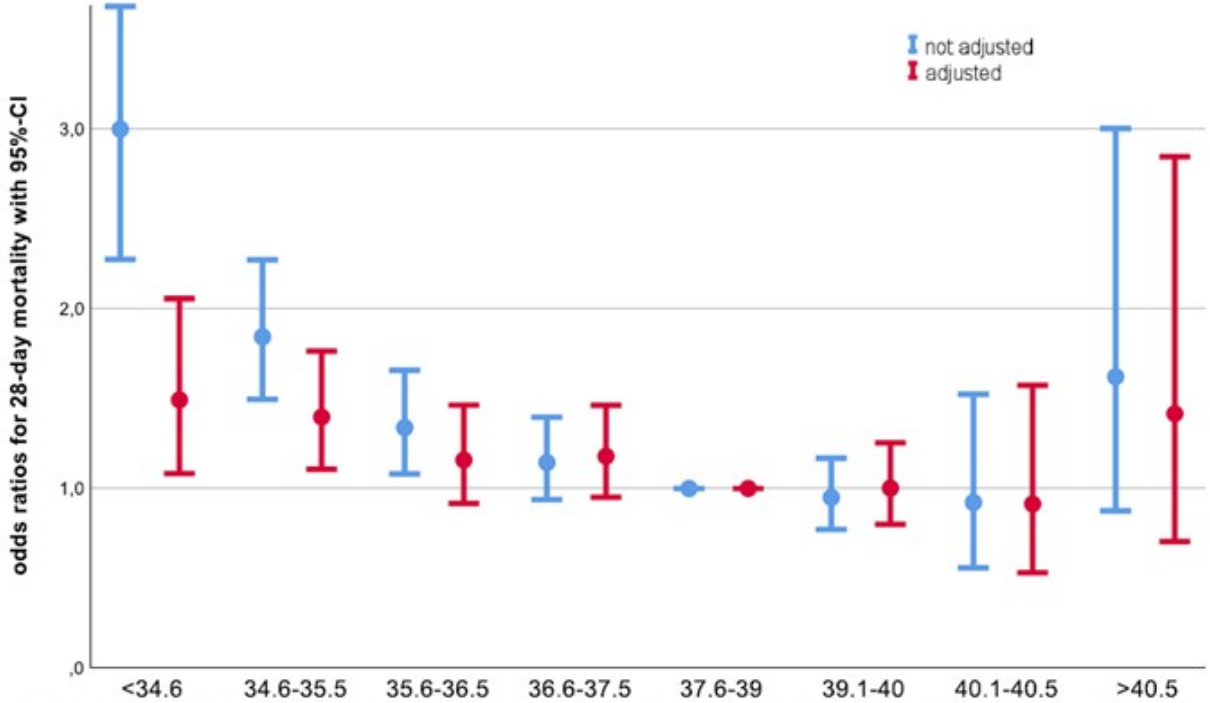


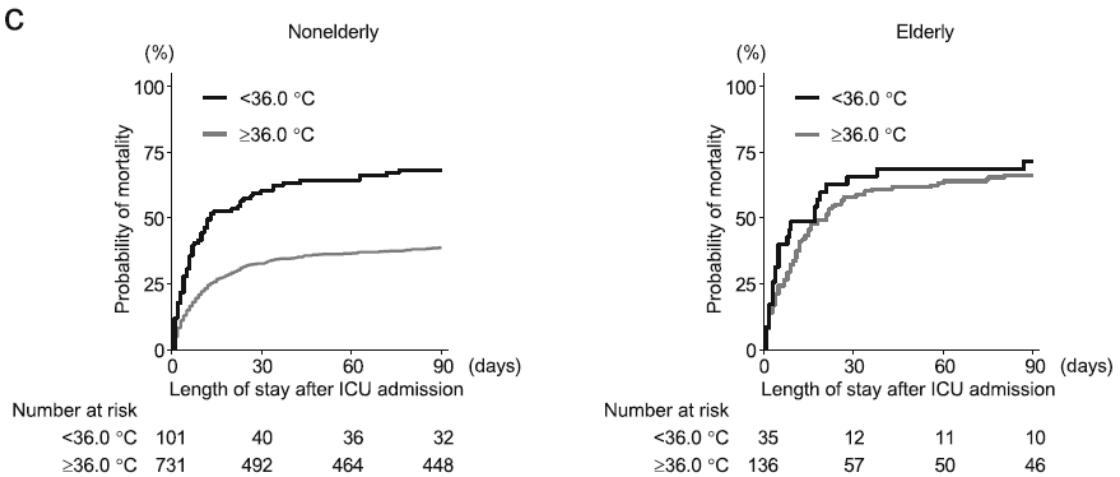
Fig. 4 Odds ratios for 28-day mortality from a logistic regression model without and with adjustment for other predictors of mortality (see Additional file 2: aT1&aT2)

Shimazui *et al. Critical Care* (2020) 24:387
https://doi.org/10.1186/s13054-020-02976-6

Critical Care

RESEARCH Open Access

Significance of body temperature in elderly patients with sepsis



tients. Interestingly, the other vital sign values were not consistently associated with differences in the outcome in patients of any age. Thus, BT was distinct among the

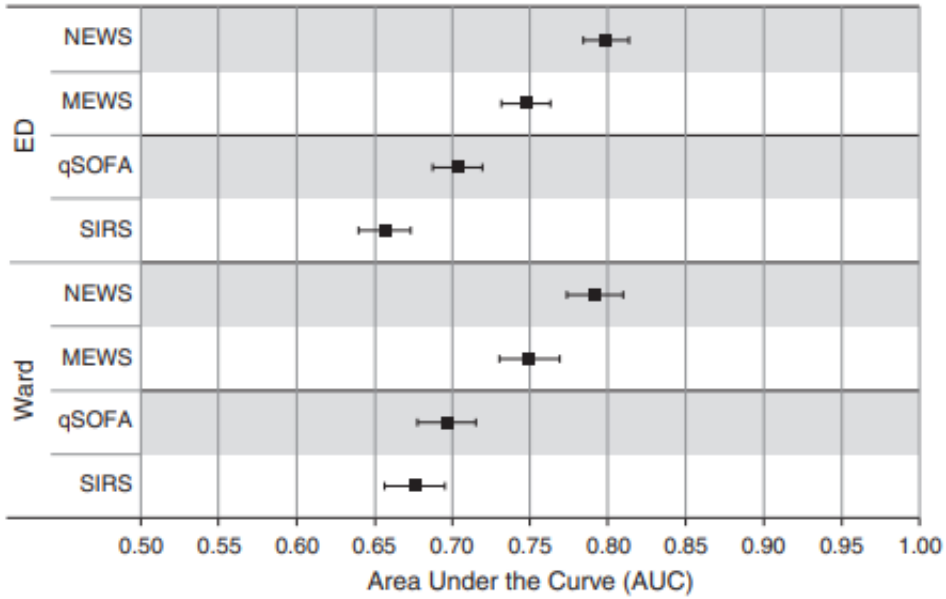
qSOFA


Hypotension
Systolic BP
<100 mmHg
Altered
Mental
Status
Tachypnea
RR >22/Min
Score of ≥2 Criteria Suggests a Greater Risk of a Poor Outcome

Quick Sepsis-related Organ Failure Assessment, Systemic Inflammatory Response Syndrome, and Early Warning Scores for Detecting Clinical Deterioration in Infected Patients outside the Intensive Care Unit

Matthew M. Churpek[1,2], Ashley Snyder[1], Xuan Han[1], Sarah Sokol[3], Natasha Pettit[3], Michael D. Howell[1,2], and Dana P. Edelson[1,2]

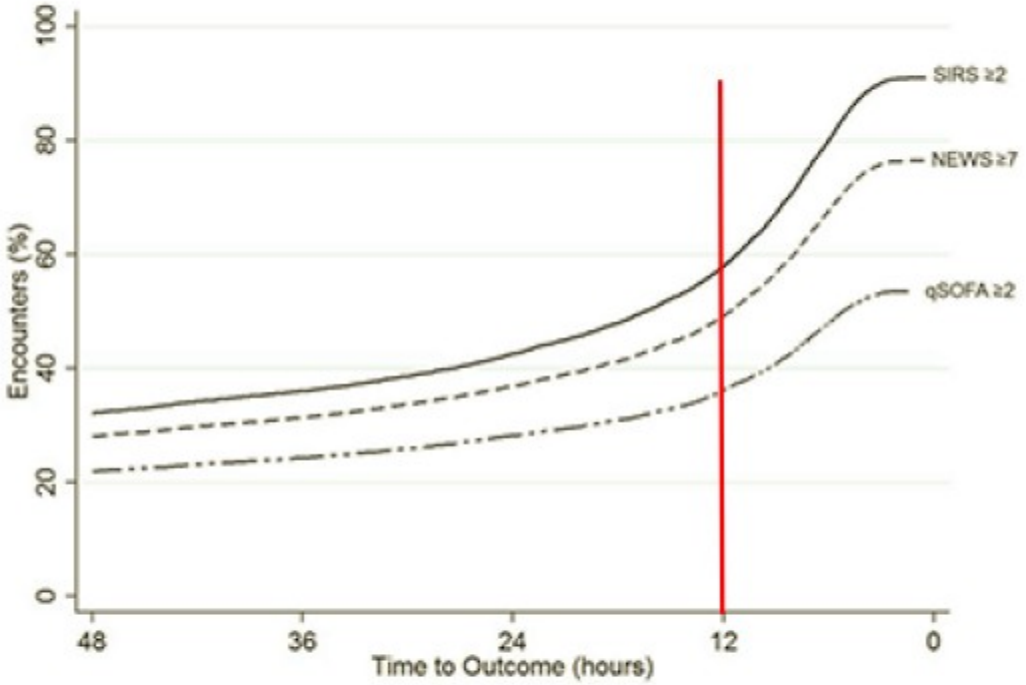
[1]Department of Medicine, [2]Center for Healthcare Delivery Science and Innovation, and [3]Department of Pharmacy, University of Chicago, Chicago, Illinois



NEWS2

National Early Warning Score

	PARAMETRI	Punteggio							
		3	2	1	0	1	2	3	
SIRS	Frequenza Respiratoria /min	≤ 8		9-11	12-20		21-24	≥ 25	qSOFA
	SpO_2 scala 1 (%)	≤ 91	92-93	94-95	≥ 96				
	SpO_2 scala 2 (%)	≤ 83	84-85	86-87	88-92 ≥ 93 aa	93-94 con O2	95-96 con O2	≥ 97 con O2	
	Ossigeno		O_2		Aria				
qSOFA	PA sistolica	≤ 90	91-100	101-110	11-219			≥ 220	qSOFA
SIRS	FC	≤ 40		41-50	51-90	91-110	11-130	≥ 131	
qSOFA	Coscienza				Allert			CVPU	qSOFA
SIRS	Temperatura	≤ 35,0		35,1-36,0	36,1-38,0	38,1-39,0	≥ 39.1		



Cumulative percentage of patients meeting ≥2 qSOFA criteria, ≥7 NEWS criteria, or ≥2 SIRS criteria in the 48 hours prior to the composite outcome

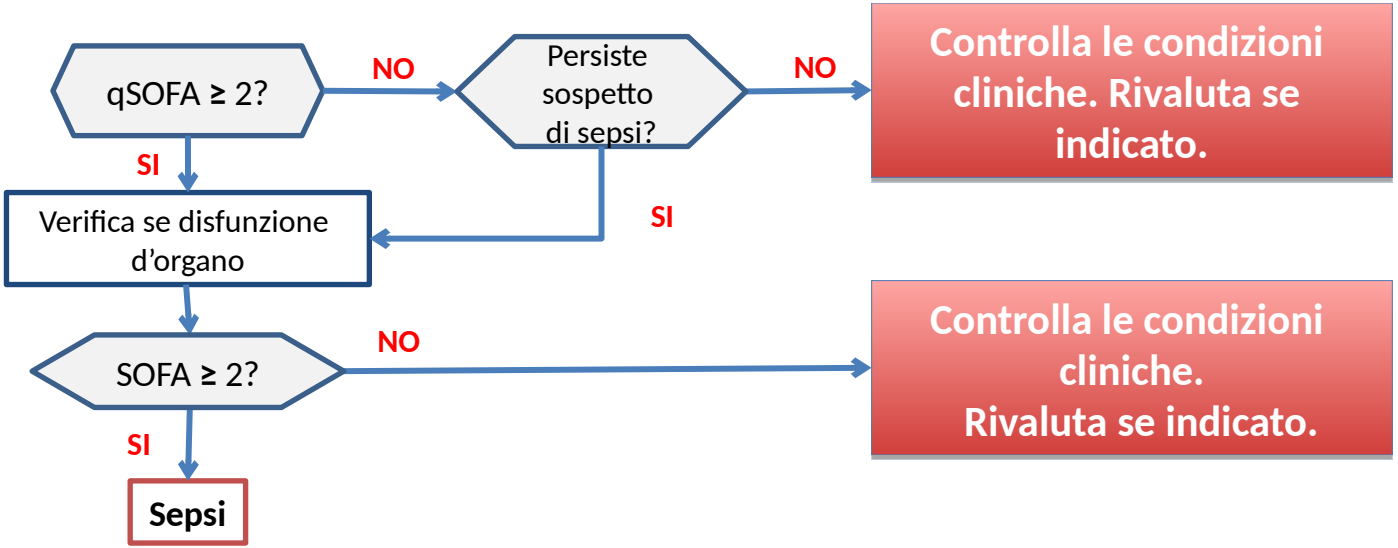
Special Communication | CARING FOR THE CRITICALLY ILL PATIENT

The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Christopher Warren Seymour, MD, MSc; Manu Shankar-Hari, M

JAMA. 2016;315(8):801-810. doi:10.1001/jama.2016.0287

PAZIENTE CON SOSPETTA INFEZIONE



Emerg Med J. 2022 Apr 8;emermed-2021-211271. doi: 10.1136/emermed-2021-211271.
Online ahead of print.

Prognostic accuracy of using lactate in addition to the quick Sequential Organ Failure Assessment score and the National Early Warning Score for emergency department patients with suspected infection

Jade Julienne [1], Delphine Douillet [2 3], Marie-Sophie Mozziconacci [2], Jean-Christophe Callahan [4]

Conclusion: Lactate used in tandem with qSOFA or NEWS yielded higher sensitivities in predicting in-hospital 28-day mortality, as compared with integration of lactate into these prediction tools or usage of the tools independently.

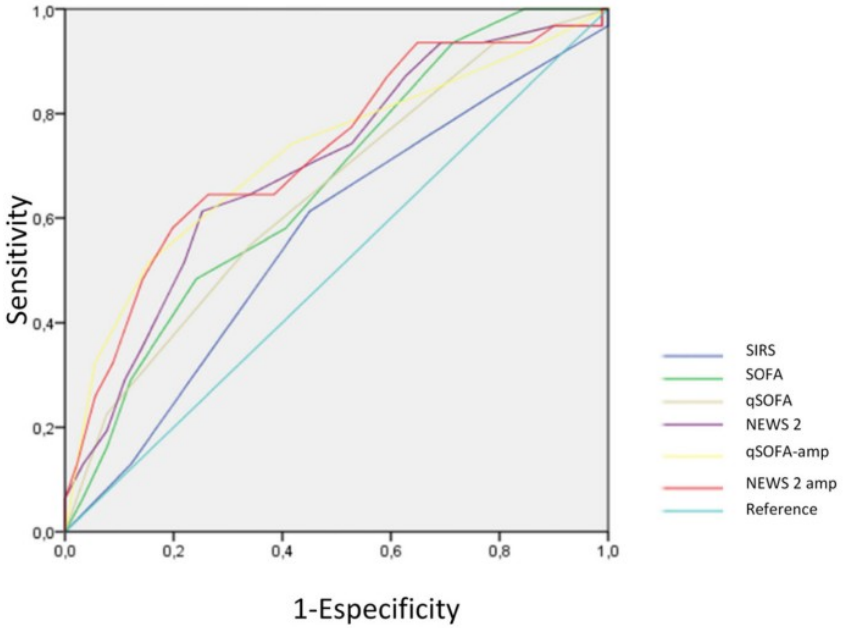
Clar et al. BMC Emergency Medicine (2021) 21:161
https://doi.org/10.1186/s12873-021-00532-1

BMC Emergency Medicine

RESEARCH Open Access

Prognostic value of diagnostic scales in community-acquired sepsis mortality at an emergency service. *Prognosis in community-adquired sepsis*

Jorge Clar[1], María Rosa Oltra[1], Raquel Benavent[1], Carolina Pinto[1], Adrian Ruiz[1], Maria Teresa Sanchez[1], Jose Noceda[1], Josep Redon[1,2,3*] and Maria Jose Forner[1]



Amplified scales with lactate >2mg/dl, glucose, blood level >190mg/dl and PaCO2 <35mmHg improved predictive value.

Conclusion: Amplified-qSOFA and amplified-NEWS2 scales at Emergency Department may offer a better prognostic of septic patients mortality.

LATTATI

RESEARCH Open Access

The association between lactate, mean arterial pressure, central venous oxygen saturation and peripheral temperature and mortality in severe sepsis: a retrospective cohort analysis

Aletta P. I. Houwink[1,2], Saskia Rijkenberg[1], Rob J. Bosman[1] and Peter H. J. van der Voort[1,3*]

Citation
Barfod C, Lundstrøm LH, Lauritzen MMP, Danker JK, Sölétormos G, Forberg JL, Berlac PA, Lippert FK, Antonsen K, Lange KHW. Peripheral venous lactate at admission is associated with in-hospital mortality: a prospective cohort study. Acta Anaesthesiologica Scandinavica 2015

doi: 10.1111/aas.12503

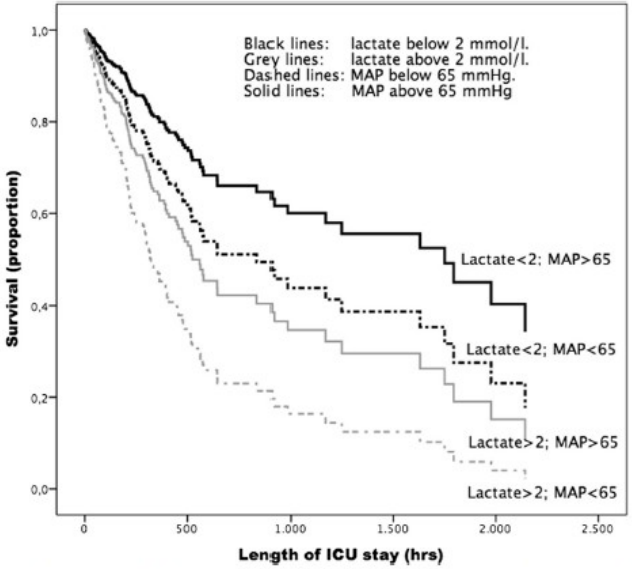


Fig. 1 Cox regression model for ICU survival based on the four categories for mean 24-hour values of lactate and MAP. −2Log-likelihood = 1524; Chi-sqare 32, $p = 0.001$ between groups. *ICU* intensive care unit, *MAP* mean arterial pressure

Developing a New Definition and Assessing New Clinical Criteria for Septic Shock

For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

JAMA. 2016;315(8):775-787. doi:10.1001/jama.2016.0289

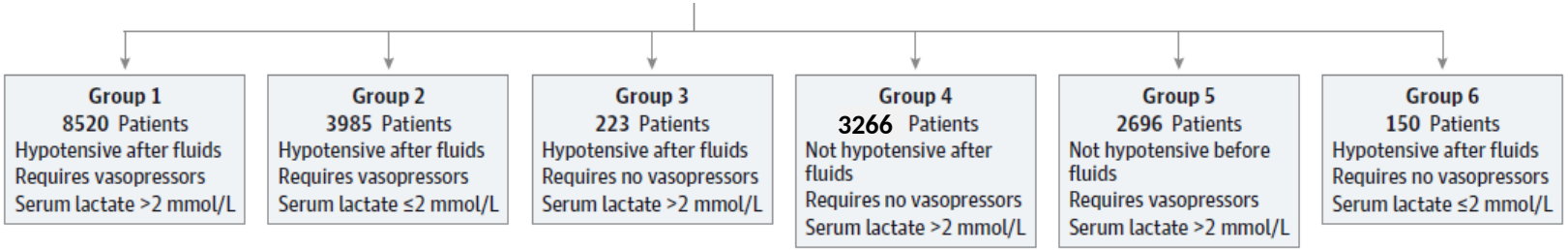
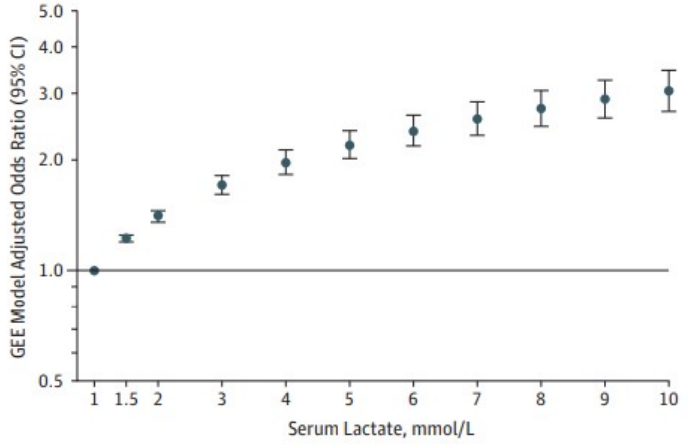


Figure 4. Serum Lactate Level Analysis



ORIGINAL ARTICLE

Peripheral venous lactate at admission is associated with in-hospital mortality, a prospective cohort study

C. Barfod[1], L. H. Lundstrøm[1], M. M. P. Lauritzen[2], J. K. Danker[1], G. Sölétormos[3], J. L. Forberg[4], P. A. Berlac[4], F. K. Lippert[5], K. Antonsen[1] and K. H. W. Lange[1]

Citation
Barfod C, Lundstrøm LH, Lauritzen MMP, Danker JK, Sölétormos G, Forberg JL, Berlac PA, Lippert FK, Antonsen K, Lange KHW. Peripheral venous lactate at admission is associated with in-hospital mortality: a prospective cohort study. Acta Anaesthesiologica Scandinavica 2015

doi: 10.1111/aas.12503

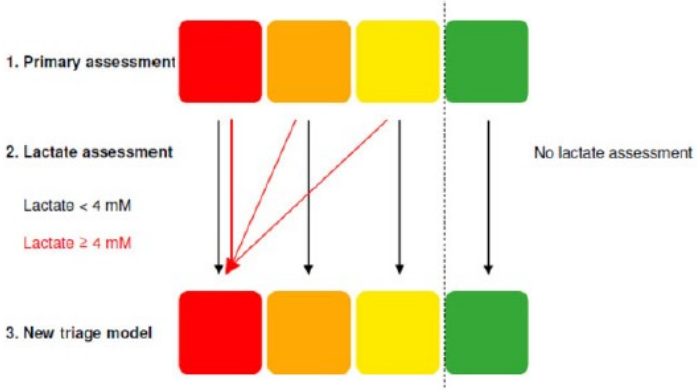


Fig. 2. The suggestion of a new triage model based on the primary assessment supplemented with a peripheral venous lactate value.

Editorial comment: what this article tells us

Venous lactate levels are not routinely measured for use in emergency department triage of patients. These findings show that very high lactate levels in this context are strongly associated with worse hospital survival, and have value for identifying the highest risk patients at triage.

ESAMI EMATICI

Review

The Value of a Complete Blood Count (CBC) for Sepsis Diagnosis and Prognosis

Luisa Agnello [1], Rosaria Vincenza Giglio [1], Giulia Bivona [1], Concetta Scazzone [1], Caterina Maria Gambino [1,2], Alessandro Iacona [2], Anna Maria Ciaccio [3], Bruna Lo Sasso [1,2] and Marcello Ciaccio [1,2,*]

RESEARCH ARTICLE

Evaluation of leukopenia during sepsis as a marker of sepsis-defining organ dysfunction

Samuel H. Belok*, Nicholas A. Bosch, Elizabeth S. Klings, Allan J. Walkey

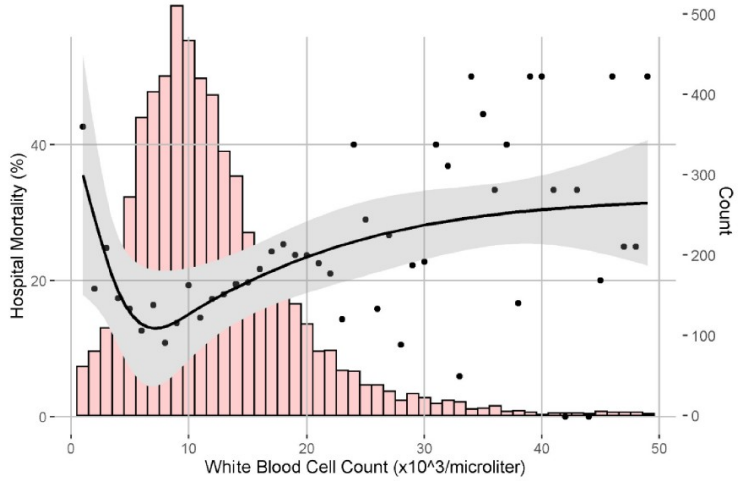
Pulmonary Center, Boston University School of Medicine, Boston, Massachusetts, United States of America

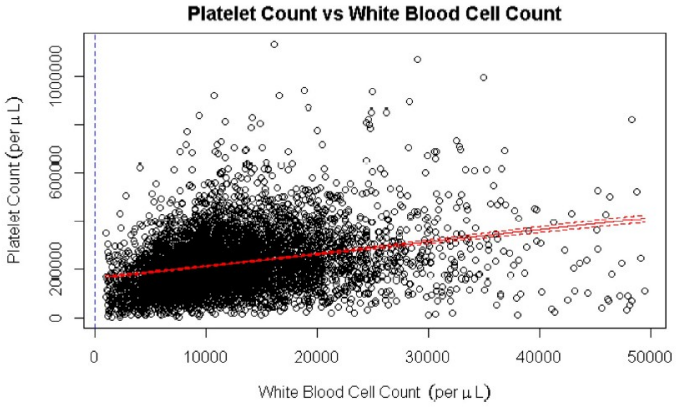
* samuel.belok@bmc.org

Conclusions

Among ICU patients with suspected infection, leukopenia was associated with increased risk of death compared with leukocytosis. Due to correlation with thrombocytopenia, leukopenia did not independently improve the prognostic validity of SOFA; however, leukopenia may present as a sign of sepsis prior to thrombocytopenia in a small subset of patients.

study. However, results from our exploratory analysis showed that neutropenia—but not lymphopenia—was strongly associated with mortality after adjusting for the SOFA scores, suggesting that decreased leukocyte production is a less likely mechanism of the association between leukopenia and mortality during sepsis.





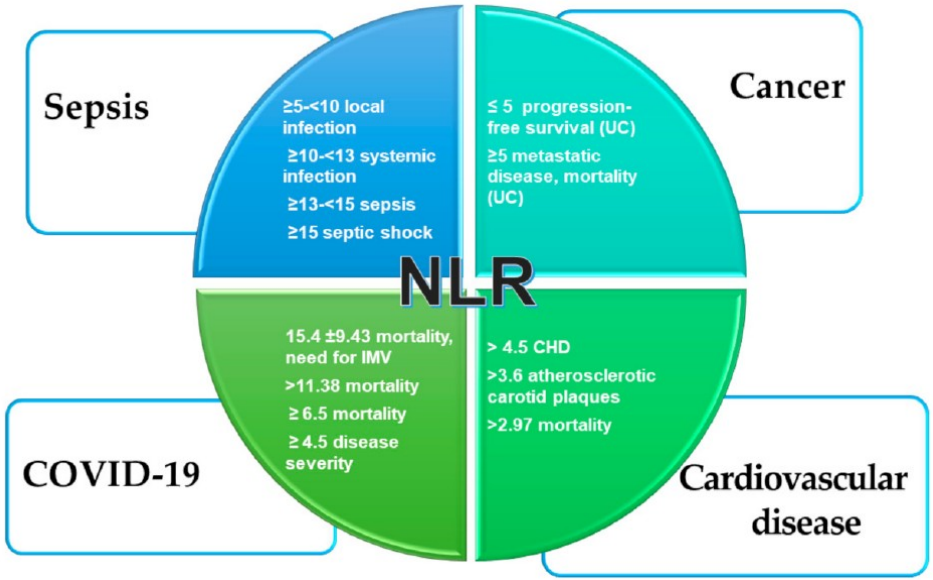
International Journal of
Molecular Sciences

MDPI

Review

Neutrophil to Lymphocyte Ratio: An Emerging Marker of the Relationships between the Immune System and Diseases

Agata Buonacera [1], Benedetta Stancanelli [2], Michele Colaci [3] and Lorenzo Malatino [3,*]



Are There Standardized Cutoff Values for Neutrophil-Lymphocyte Ratios in Bacteremia or Sepsis?

J. Microbiol. Biotechnol. (2015), 25(4), 521–525
http://dx.doi.org/10.4014/jmb.1408.08060

Gonul Gurol[1*], Ihsan Hakki Ciftci[2], Huseyin Agah Terzi[2], Ali Riza Atasoy[2], Ahmet Ozbek[2], and Mehmet Koroglu[2]

[1]*Department of Physiology, Faculty of Medicine, Sakarya University, Sakarya, Turkey*

assess and monitor a situation. This report represents the first study to determine the limits of the use of NLR in the diagnosis of infection or sepsis using a cutoff value of <5 when sufficient exclusion criteria are used.

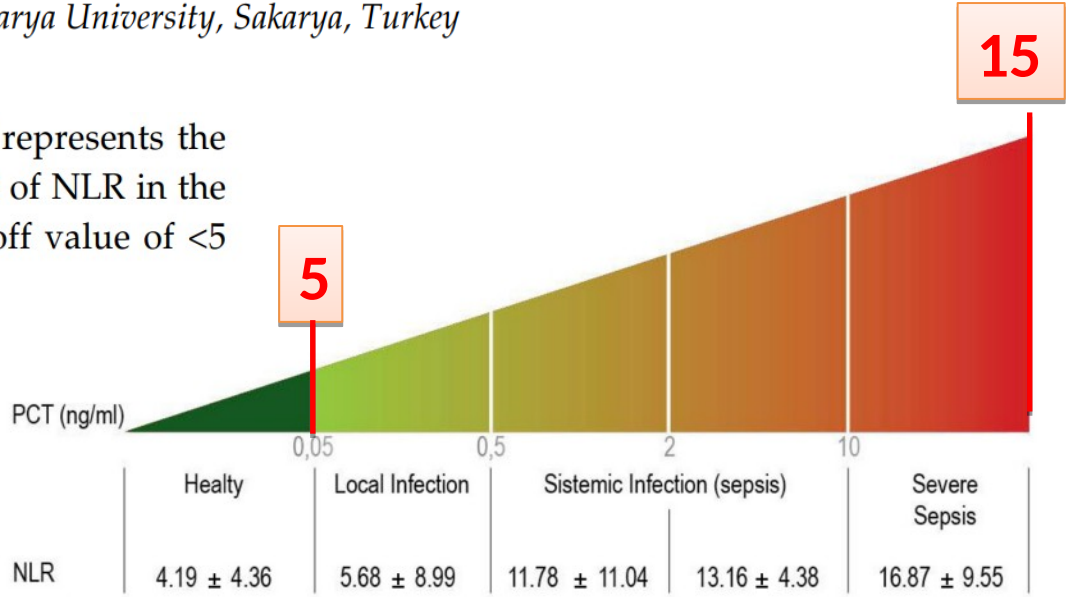


Fig. 2. Vidas B·R·A·H·M·S PCT cutoff and NLR values according to infection status.

frontiers in Surgery

Value of CRP, PCT, and NLR in Prediction of Severity and Prognosis of Patients With Bloodstream Infections and Sepsis

ORIGINAL RESEARCH
published: 07 March 2022
doi: 10.3389/fsurg.2022.857218

*Peipei Liang and Feng Yu**

Department of Emergency Intensive Care Unit, The First Affiliated Hospital of AnHui Medical University, Hefei, China

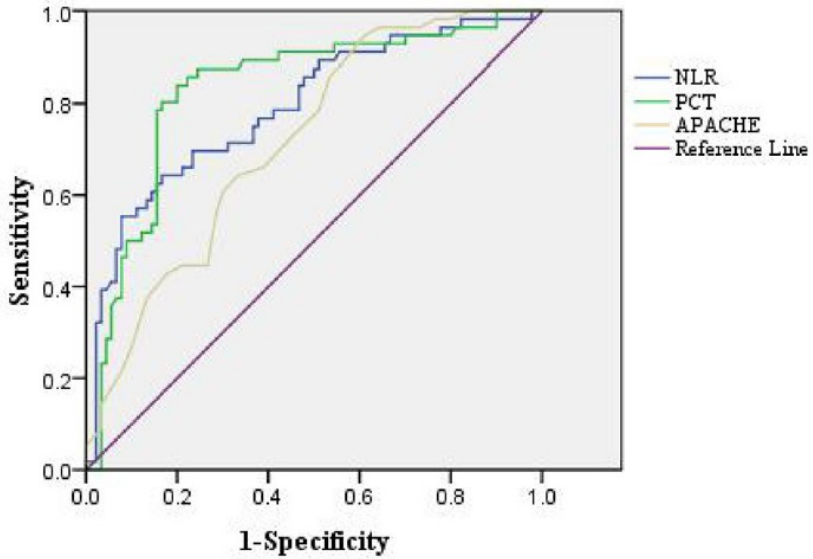
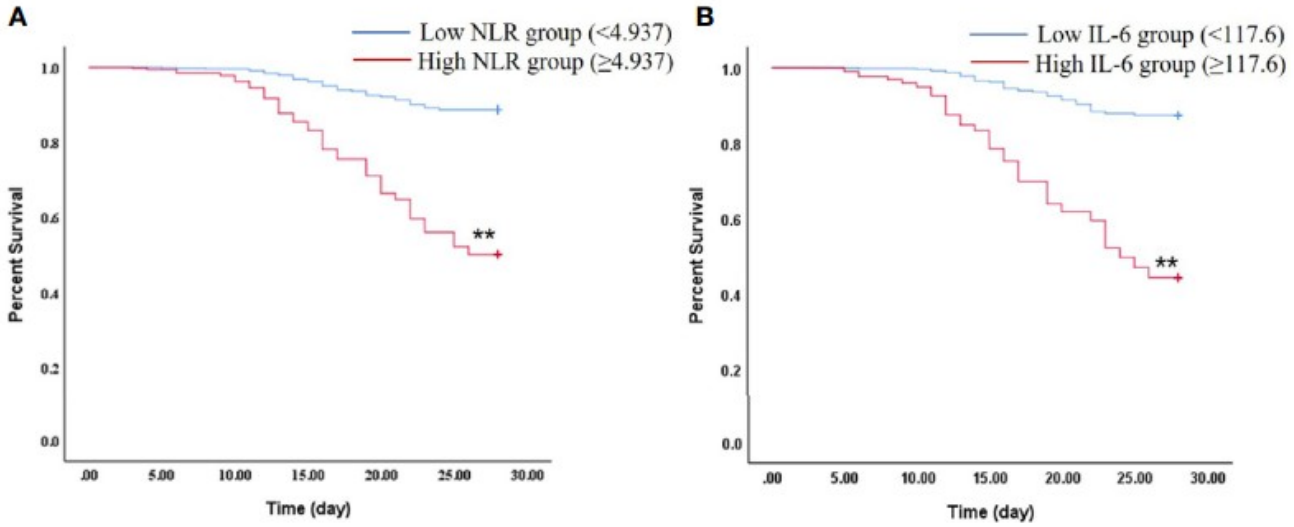


FIGURE 2 | ROC curve of the predictive value of relevant indicators for 28 days death in patients with bloodstream infection and sepsis.

Effects of Neutrophil-to-Lymphocyte Ratio Combined With Interleukin-6 in Predicting 28-Day Mortality in Patients With Sepsis

Shuangqing Liu[1†], Xinkun Wang[2†], Fei She[1], Wei Zhang[1], Hongsheng Liu[1] and Xiaodong Zhao[1]*

Citation:
Liu S, Wang X, She F, Zhang W, Liu H and Zhao X (2021) Effects of Neutrophil-to-Lymphocyte Ratio Combined With Interleukin-6 in Predicting 28-Day Mortality in Patients With Sepsis. Front. Immunol. 12:639735. doi: 10.3389/fimmu.2021.639735



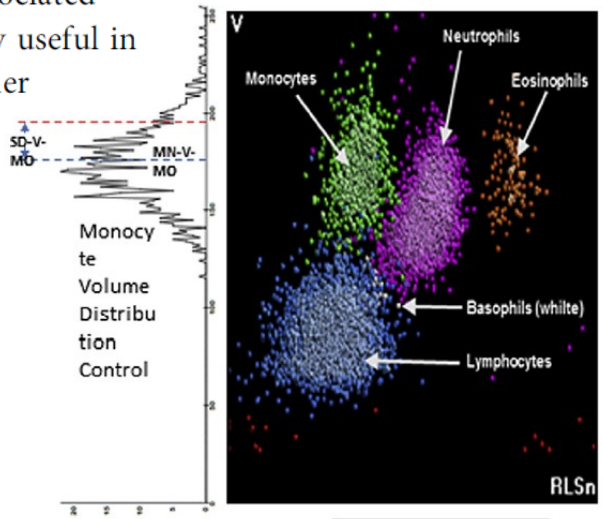
Improved Early Detection of Sepsis in the ED With a Novel Monocyte Distribution Width Biomarker

CHEST 2017; 152(3):518-526

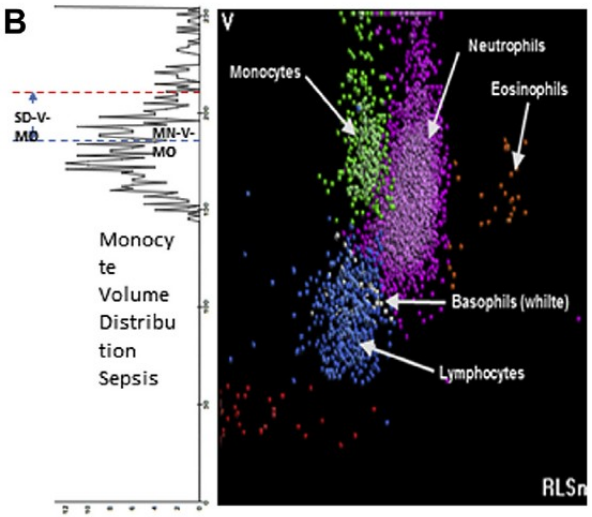
Elliott D. Crouser, MD; Joseph E. Parrillo, MD; Christopher Seymour, MD; Derek C. Angus, MD, MPH,

a normal MDW + WBC count index is associated with a 98% NPV, which may prove clinically useful in excluding a sepsis diagnosis. Although further

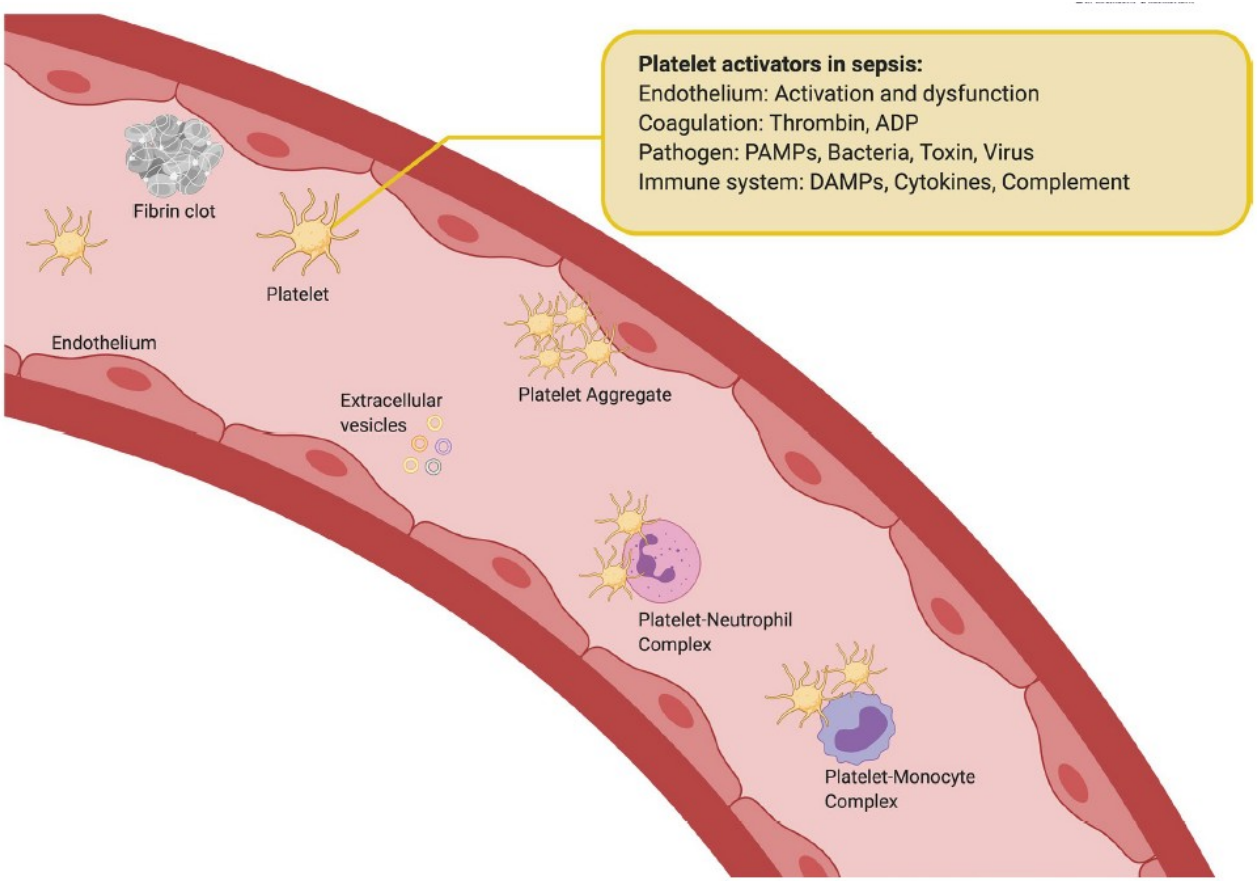
Approvato dalla FDA come biomarker precoce di sepsi per l'elevato valore predittivo negativo



Non-septic



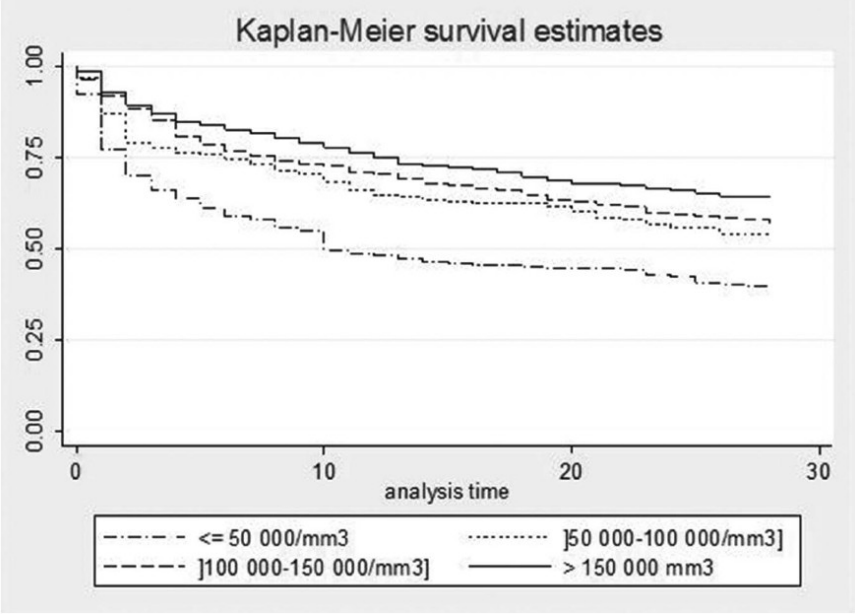
Septic


Platelet activators in sepsis:
Endothelium: Activation and dysfunction
Coagulation: Thrombin, ADP
Pathogen: PAMPs, Bacteria, Toxin, Virus
Immune system: DAMPs, Cytokines, Complement
Fibrin clot
Platelet
Endothelium
Extracellular vesicles
Platelet Aggregate
Platelet-Neutrophil Complex
Platelet-Monocyte Complex

Is Thrombocytopenia an Early Prognostic Marker in Septic Shock?

Nadiejda Thiery-Antier, MD[1]; Christine Binquet, MD, PhD[2]; Sandrine Vinault, MSc[2];

www.ccmjournal.org April 2016 • Volume 44 • Number 4



Conclusions: This is the first study to investigate thrombocytopenia within the first 24 hours of septic shock onset as a prognostic marker of survival at day 28 in a large cohort of ICU patients. Measuring platelet count is inexpensive and easily feasible for the physician in routine practice, and thus, it could represent an easy "alert system" among patients in septic shock. (*Crit Care Med* 2016; 44:764–772)

Prognosis and rescue therapy for sepsis-related severe thrombocytopenia in critically ill patients

Zhigang Zhou[a,1], Tienan Feng[b,1], Yun Xie[a], Xiaoyan Zhang[a], Jiang Du[a], Rui Tian[a], Biyun Qian[b], Ruilan Wang[a,*]

Cytokine 136 (2020) 155227

Table 2
Patients with sepsis-related severe thrombocytopenia had the worst clinical outcomes among the three groups.

Variable	Normal n = 159	mild-moderate thrombocytopenia n = 41	Severe thrombocytopenia n = 49	P value[†]
Blood product transfusion				
Patients with PLT transfusion, n (%)	6 (3.8)	3 (7.3)	25 (51.0)[#$]	< 0.001
Patients with RBC transfusion, n (%)	33 (20.7)	8 (19.5)	31 (63.3)[#$]	< 0.001
Patients with FP transfusion, n (%)	51 (32.1)	15 (36.6)	37 (75.5)[#$]	< 0.001
Number of PLT transfusion (U), median (IQR)	0 (0–0)	0 (0–0)	1 (0–1)[#$]	< 0.001
Number of RBC transfusion (U), median (IQR)	0 (0–0)	0 (0–0)	2 (0–5)[#$]	< 0.001
Number of FP transfusion (U), median (IQR)	0 (0–3)	0 (0–4)	5 (1–14)[#$]	< 0.001
Organ support				
Days free from vasoactive drugs at 28 days (days), median (IQR)	28 (24–28)	26 (8–28)	23 (7–27)[#]	< 0.001
Days free from MV at 28 days (days), median (IQR)	24 (11–28)	20 (3–28)	11 (0–24)[#]	0.001
Days free from RRT at 28 days (days), median (IQR)	28 (25–28)	28 (14–28)	25 (8–28)[#]	< 0.001
Clinical outcome				
Number of the patients died at 28 days, n (%)	34 (21.4)	15 (36.6)	21 (42.9)[*]	0.006
Survival days at 28 days (days), median (IQR)	28 (28–28)	28 (10–28)	28 (11–28)[*]	0.002

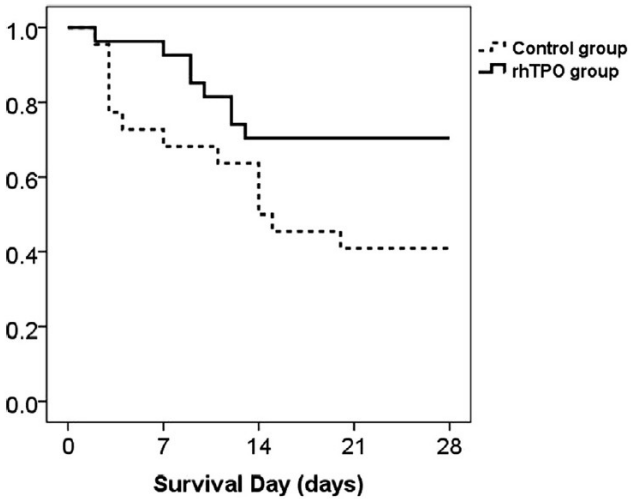


Fig. 1. The 28-day survival curves of the control and rhTPO groups.

5. Conclusions

Severe thrombocytopenia (PC $< 50 \times 10^9$/L), not mild-moderate thrombocytopenia, is closely associated with poor outcomes in sepsis patients. Additionally, rhTPO is likely a rescue therapy that can lead to the quick recovery of the PC and improve the prognosis of patients with sepsis-related severe thrombocytopenia.

Role of immature platelet fraction (IPF) in sepsis patients: A systematic review

Abubakar Tauseef[1], Maryam Zafar[2], Wafa Arshad[2], Joseph Thirumalareddy[1], Akshat Sood[1], Umar Farooque[2], Sunil Nair[1], Mohsin Mirza[1]

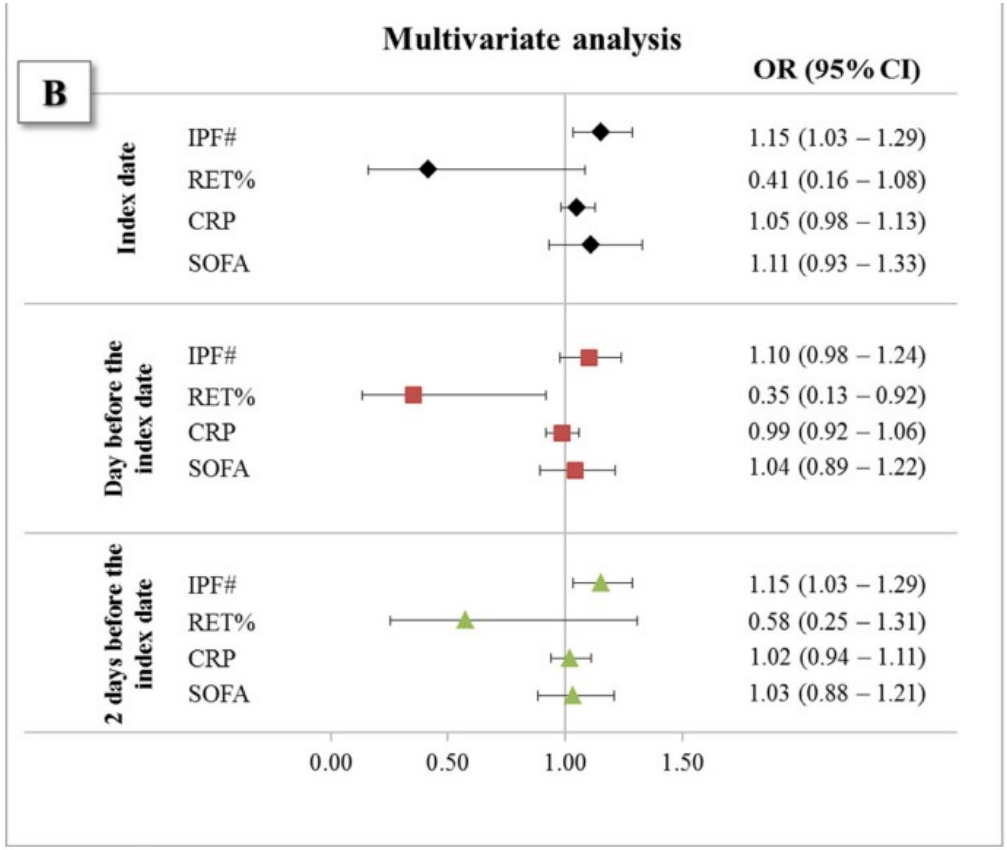
[1]Internal Medicine Department, Creighton University Hospital Program, Omaha, Nebraska, USA, [2]Internal Medicine Department, Dow University of Health Sciences, Karachi, Pakistan

IPF may be a predictor of the disease and gives 100% accuracy when combined with other biomarkers that are currently in use.

IPF was seen to be elevated two days before the onset of sepsis in critically ill patients in theICU.

Innovative haematological parameters for early diagnosis of sepsis in adult patients admitted in intensive care unit

Sabrina Buoro,[1] Barbara Manenti,[1] Michela Seghezzi,[1] Paola Dominoni,[1] Tiziano Barbui,[2] Arianna Ghirardi,[2] Alessandra Carobbio,[2] Gianmariano Ma Ivano Riva,[3] Alessandra Nasi,[3] Cosimo Ottomano,[4] Giuseppe Lippi[5]



SCORE

SOFA

	Punteggio				
Sistema	0	1	2	3	4
Respirazione					
PaO2/Fio2, mmHg	≥ 400	< 400	< 300	< 200 con supporto ventilatorio	< 100 con supporto ventilatorio
Coagulazione					
Piastrine	≥ 150.000	< 150.000	< 100.000	< 50.000	< 20.000
Fegato					
Bilirubina (mg/dl)	< 1,2	1,2 – 1,9	2,0 – 5,9	6,0 – 11,9	≥ 12,0
Cardiovascolare					
	MAP ≥ 70 mmHg	MAP < 70 mmHg	Dopamina < 5* o dobutamina	Dopamina 5,1– 15* o nor. ≤ 0,1*	Dopamina > 15* o noradrenalina > 0,1* *mcg/kg/min
Sistema nervoso centrale					
GCS	15	13 - 14	10 – 12	6 – 9	< 6
Renale					
Creatinina (mg/dl)	< 1,2	1,2 – 1,9	2,0 – 3,4	3,5 – 4,9	> 5,0
Diuresi (ml/die)				< 500	< 200

Positivo se modifica di 2 punti

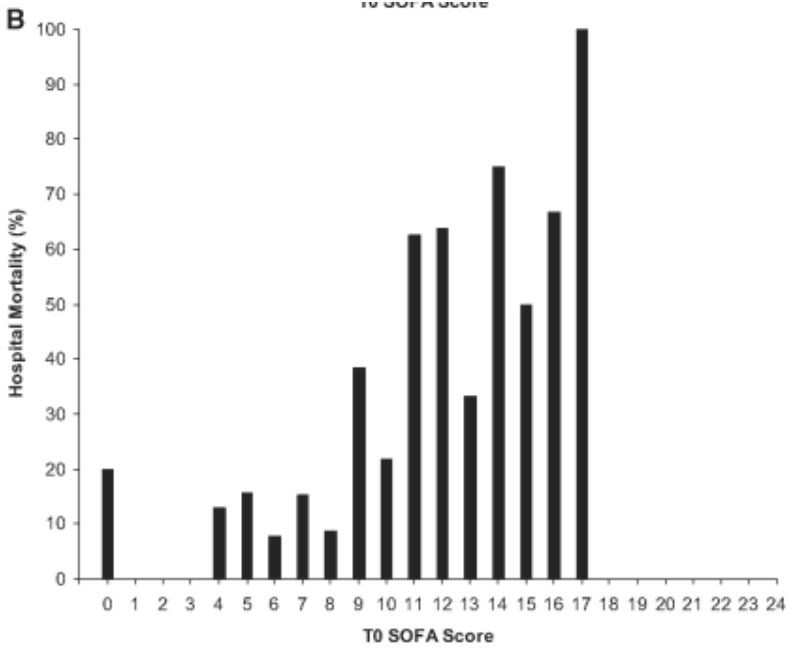
Published in final edited form as:
Crit Care Med. 2009 May ; 37(5): 1649–1654. doi:10.1097/CCM.0b013e31819def97.

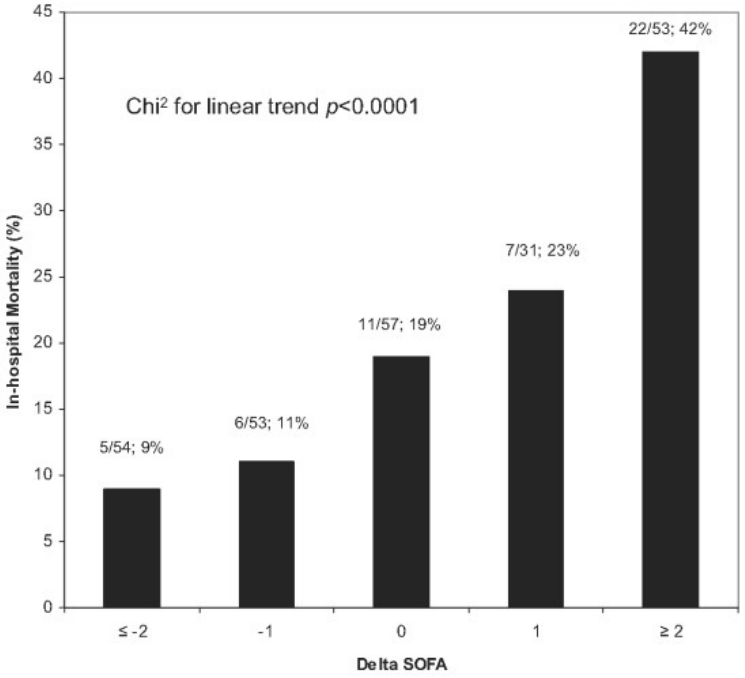
The Sequential Organ Failure Assessment score for predicting outcome in patients with severe sepsis and evidence of hypoperfusion at the time of emergency department presentation*

Alan E. Jones, MD, **Stephen Trzeciak, MD, MPH**, and **Jeffrey A. Kline, MD**
Department of Emergency Medicine (AEJ, JAK), Carolinas Medical Center, Charlotte, NC; Division

CONCLUSIONS

The SOFA score demonstrated fair to good accuracy for predicting in-hospital mortality when applied to patients with severe sepsis with evidence of hypoperfusion at the time of ED presentation. The Δ SOFA over 72 hours has a significant positive relationship to in-hospital mortality. These data suggest that use of the SOFA score is an acceptable method for risk stratification and prognosis of ED patients with severe sepsis with evidence of hypoperfusion and that the Δ SOFA score may be a useful measurement to follow in clinical and research settings.


B
Hospital Mortality (%)
0 10 20 30 40 50 60 70 80 90 100
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
T0 SOFA Score


In-hospital Mortality (%)
0 5 10 15 20 25 30 35 40 45
Chi² for linear trend p<0.0001
5/54; 9%
6/53; 11%
11/57; 19%
7/31; 23%
22/53; 42%
≤ -2
-1
0
1
≥ 2
Delta SOFA

Published in final edited form as:
J Intensive Care Med. 2020 August ; 35(8): 810–817. doi:10.1177/0885066618795400.

Sequential Organ Failure Assessment Component Score Prediction of In-hospital Mortality From Sepsis

Tushar Gupta, MD[1], Michael A. Puskarich, MD[2], Elizabeth DeVos, MD, MPH[1], Adnan Javed, MD[3], Carmen Smotherman, MS[4], Sarah A. Sterling, MD[2], Henry E. Wang, MD, MS[5], Frederick A. Moore, MD[6], Alan E. Jones, MD[2], Faheem W. Guirgis, MD[1]

[1]Department of Emergency Medicine, University of Florida College of Medicine-Jacksonville, Jacksonville, FL, USA

Results: Of 2796 patients, 283 (10%) experienced in-hospital mortality, and 748 (27%) experienced in-hospital mortality or an ICU stay ≥ 3 days. The following components of Sequential Organ Failure Assessment (SOFA) score were most predictive of in-hospital mortality (descending order): coagulation (odds ratio [OR]: 1.60,95% confidence interval [CI]: 1.32–1.93), hepatic (1.58, 95% CI: 1.32–1.90), respiratory (OR: 1.33,95% CI: 1.21–1.47), neurologic (OR: 1.20, 95% CI: 1.07–1.35), renal (OR: 1.14, 95% CI: 1.02–1.27), and cardiovascular (OR: 1.13,

American Journal of Emergency Medicine 45 (2021) 426–432

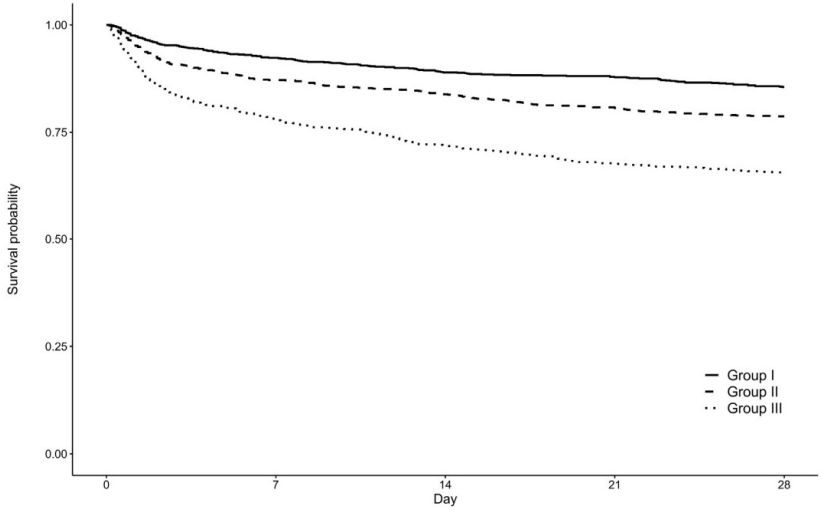
Contents lists available at ScienceDirect

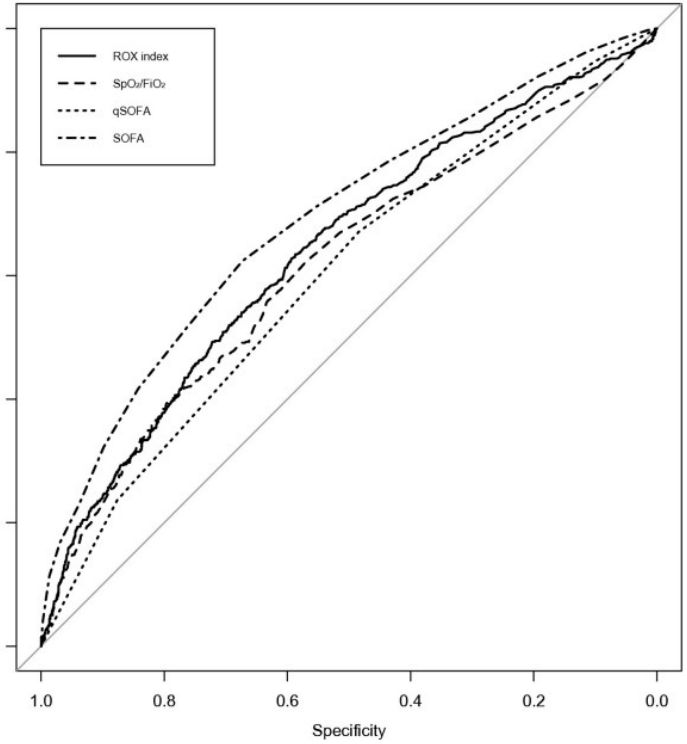
American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

The index of oxygenation to respiratory rate as a prognostic factor for mortality in Sepsis

Che Uk Lee [a], You Hwan Jo [a,b,*], Jae Hyuk Lee [a], Joonghee Kim [a], Seung Min Park [a], Ji Eun Hwang [a], Dong Keon Lee [a], Inwon Park [a], Dong-Hyun Jang [a], Sang-Min Lee [a]





OPEN

The SPEED (sepsis patient evaluation in the emergency department) score: a risk stratification and outcome prediction tool

Jan Philipp Bewersdorf[a], Oliver Hautmann[a], Daniel Kofink[c], Alizan Abdul Khalil[a], Imran Zainal Abidin[b] and Alexander Loch[b]

Open access Original research

BMJ Open

Development and internal validation of a simple prognostic score for early sepsis risk stratification in the emergency department

Bofu Liu ,[1] Dongze Li,[2] Yisong Cheng,[2] Jing Yu,[3] Yu Jia,[2] Qin Zhang,[2] Yanmei Liu,[4] Yu Cao[1]

BIOMARCATORI

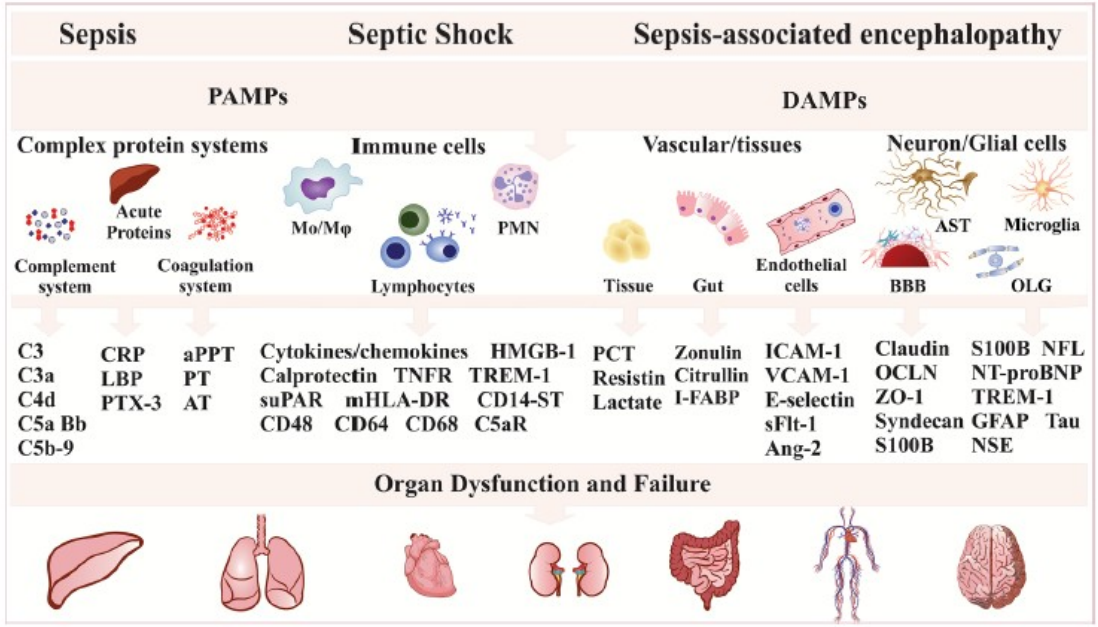


Fig. 1 Sepsis, septic sh
several transcription fa
peptides necessary to
increasing gut and BBE
partial thromboplastin
of differentiation), CD1
fibrillary acidic protein)
protein), LBP (lipopolys
light), NSE (neuron spe
(pathogen-associated
(calcium-binding prote
(tumor necrosis factor
(zonula-occluden 1)

Barichello et al. Critical Care (2022) 26:14
https://doi.org/10.1186/s13054-021-03862-5

Critical Care

REVIEW Open Access

Biomarkers for sepsis: more than just fever and leukocytosis—a narrative review

Tatiana Barichello[1,2*], Jaqueline S. Generoso[1], Mervyn Singer[3] and Felipe Dal-Pizzol[1]

ling pathways that activate
ines, and antimicrobial
othelial damage,
ins), aPPT (activated
a receptor), CD (cluster
atterns), GFAP (glial
al fatty acid binding
ge), NFL (neurofilament
dendrocyte), PAMPs
), PTX-3 (pentraxin-3), S100B
activator receptor), TNFR
dhesion molecule 1), ZO-1

D'Onofrio *et al. Journal of Intensive Care* (2022) 10:13
https://doi.org/10.1186/s40560-022-00602-x

Journal of Intensive Care

RESEARCH Open Access

A prospective observational cohort study to identify inflammatory biomarkers for the diagnosis and prognosis of patients with sepsis

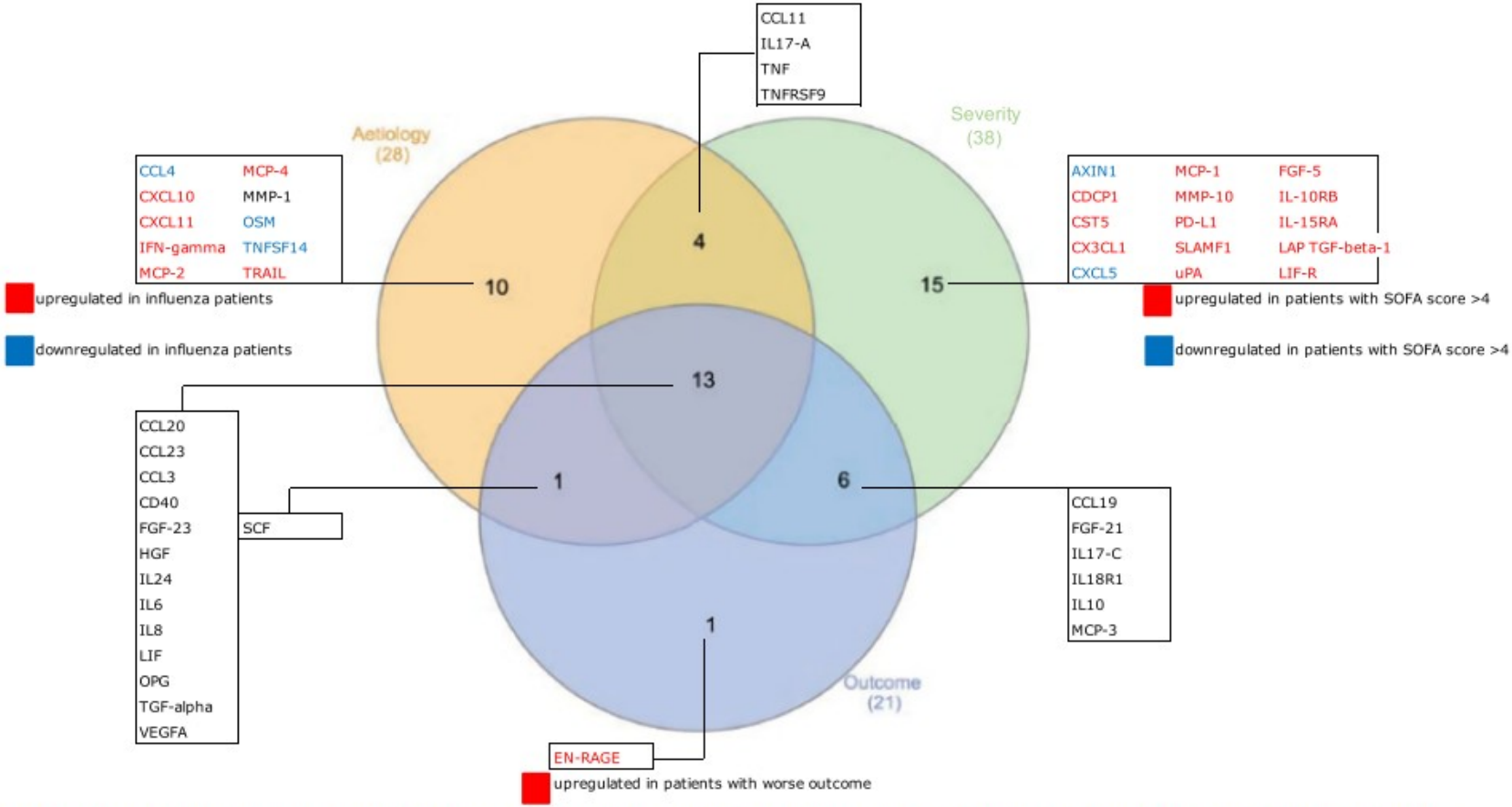


Fig. 1 Venn diagram showing all differentially expressed proteins between three different groupings, together with overlapping findings. Three different groupings are: aetiology (influenza versus bacterial), severity (SOFA score < 2 versus > 4), and outcome (less severe outcome versus worse outcome)

Septic patients presenting with apparently normal C-reactive protein

A point of caution for the ER physician

Medicine (2019) 98:2(e13989)

Asaf Wasserman, MD[a,b], Ruth Karov, MD[a], Shani Shenhar-Tsarfaty, PhD[a,*], Yael Paran, MD[b], David Zeltzer, MD[a], Itzhak Shapira, MD[a], Daniel Trotzky, MD[c], Pinchas Halpern, MD[c], Ahuva Meilik, PhD[d], Eli Raykhshtat, BSc[d], Ilana Goldiner, PhD[e], Shlomo Berliner, MD, PhD[a], Ori Rogowski, MD[a]

Abstract

The presentation of septic patients with low C-reactive protein (CRP) concentrations to the emergency room (ER) might convey an erroneous impression regarding the severity of the disease.

We analyzed a retrospective study of septic patients admitted to the internal medicine departments of a relatively large tertiary medical center, following admission to the ER. These patients had CRP concentrations of <31.9 mg/L, the determined cut-off for CRP concentrations in a large cohort of apparently healthy individuals in the community (n = 17,214, upper limit of mean + 3 standard deviations).

By processing the electronic medical records, we found 2724 patients with a diagnosis of sepsis, 476 of whom had an admission CRP concentration of <31.9 mg/L. Following further analysis of these records, we found that 34 of the 175 patients (19.4%) who fulfilled the definition of sepsis, died within 1 week of hospitalization. Of special interest was the finding that within <24 h, a significant increment from a median CRP of 16.1 mg/L (IQR 7.9–22.5) to 58.6 mg/L (IQR 24.2–134.4), ($P < .001$) was noted, accompanied by a velocity change from 0.4 ± 0.29 to 8.3 ± 24.2 mg/L/h following antibiotic administration ($P < .001$).

ER physicians should take into consideration that septic patients with a high in-hospital mortality rate can present with CRP concentrations that are within the range observed in apparently healthy individuals in the community. A second CRP test obtained within 24 h following antibiotic administration might influence attitudes regarding the severity of the disease.

Abbreviations: CRP = C-reactive protein, ER = emergency room, IQR = interquartile range, TAMCIS = Tel Aviv Medical Center Inflammation Survey, wr = wide range.

Keywords: C-reactive protein, immunosuppression, sepsis, velocity

Sager *et al. BMC Medicine* (2017) 15:15
DOI 10.1186/s12916-017-0795-7

BMC Medicine

MINIREVIEW Open Access

Procalcitonin-guided diagnosis and antibiotic stewardship revisited

Ramon Sager[1,2], Alexander Kutz[1,2], Beat Mueller[1,2] and Philipp Schuetz[1,2*]

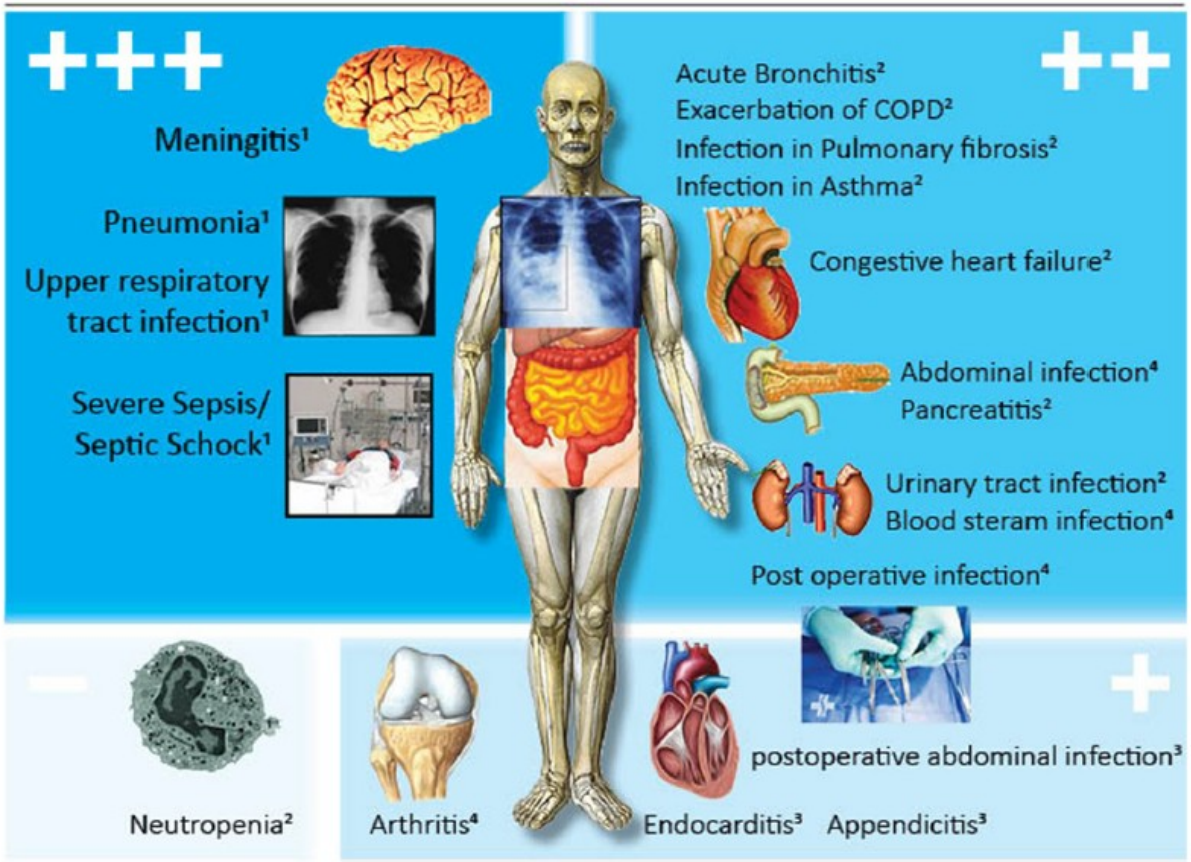


Fig. 1 Summary of evidence regarding procalcitonin (PCT) for diagnosis and antibiotic stewardship in organ-related infections. While for some infections, intervention studies have investigated benefit and harm of using PCT for diagnosis and antibiotic stewardship (*left side*), for other infections only results from diagnostic (observation) studies are available (*right side*). +: moderate evidence in favor of PCT; ++: good evidence in favor of PCT; +++: strong evidence in favor of PCT; – no evidence in favor of PCT

Role of procalcitonin in predicting etiology in bacteremic patients: Report from a large single-center experience

Matteo Bassetti*, Alessandro Russo, Elda Righi, Elisabetta Dolso, Maria Merelli, Federica D'Aurizio, Assunta Sartor, Francesco Curcio

Department of Medicine, University of Udine and Azienda Sanitaria Universitaria Integrata, Udine, Italy

Journal of Infection and Public Health 13 (2020) 40–45

day mortality in the three study groups. Differences were observed about PCT concentrations, that were higher in patients with GN etiology (26.1 ± 14.2 ng/mL), if compared to GP (6.9 ± 4.5 ng/mL) and to fungal (3.3 ± 2.4 ng/mL) isolates. Conversely, similar mean values were reported for CRP in GN, GP, and fungal etiology.

The main findings of this analysis confirm recent data on bacteremic patients with proven GN bacteremia, where higher PCT concentrations have a significant role to predict GN etiology, if compared with patients with GP bacteremia or fungal infection.

Table 4
Logistic regression analysis about CRP and PCT values in predicting positivity of BC for Gram-negative strains and enterobacteriaceae.

Gram-negative	OR	CI 95%	*p*
CRP > 5 mg/L	1.89	0.53–6.73	0.32
PCT > 0.5 ng/mL	3.12	0.62–15.71	0.16
PCT > 2 ng/mL	0.73	0.41–1.29	0.28
PCT > 10 ng/mL	3.84	2.18–6.75	**<0.001**
Enterobacteriaceae			
CRP > 5 mg/L	1.65	0.41–6.69	0.48
PCT > 0.5 ng/mL	6.01	1.16–31.72	**0.03**
PCT > 2 ng/mL	2.52	1.28–3.96	**0.03**
PCT > 10 ng/mL	3.88	2.15–7.03	**<0.001**

CRP: C-reactive protein; PCT: procalcitonin; BC: blood cultures.
In bold are reported p-value statistically significant.

Predictive Value of Procalcitonin and Neutrophil-to-Lymphocyte Ratio Variations for Bloodstream Infection with Septic Shock

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© Med Sci Monit, 2022; 28: e935966
DOI: 10.12659/MSM.935966

This study found that ΔPCT had good predictive performance for bloodstream infections complicated by septic shock and its performance was better than that of PCT, in disagreement with

stream infection are lacking. In this study, we compared the ΔPCT and ΔNLR of patients with bloodstream infections due to different pathogens and found that ΔPCT and ΔNLR levels of patients with gram-negative bacterial infections with shock were significantly higher than those of non-shock patients, thereby indicating a higher predictive value for septic shock. However, ΔPCT and ΔNLR in patients with gram-positive bacteremia showed no statistically significant difference between shock and non-shock patients. This may be related to

Index	Gram-positive cocci		*P* value	Gram-negative bacilli		*P* value
	Shock group (n=35)	Non-shockgroup (n=34)		Shock group (n=45)	Non-shock group (n=32)	
ΔPCT	0.446 (0.194, 1.036)	0.346 (0.120, 0.732)	0.067	0.606 (0.246, 5.038)	0.312 (0.172, 0.806)	0.001
ΔNLR	0.573 (0.213, 2.078)	0.417 (0.101, 0.895)	0.154	0.872 (0.309, 7.061)	0.508 (0.314, 0.975)	0.042

ΔPCT=|(PCT48h-PCT0h)|/PCT0h; ΔNLR=|(NLR48h-NLR0h)|/NLR0h.

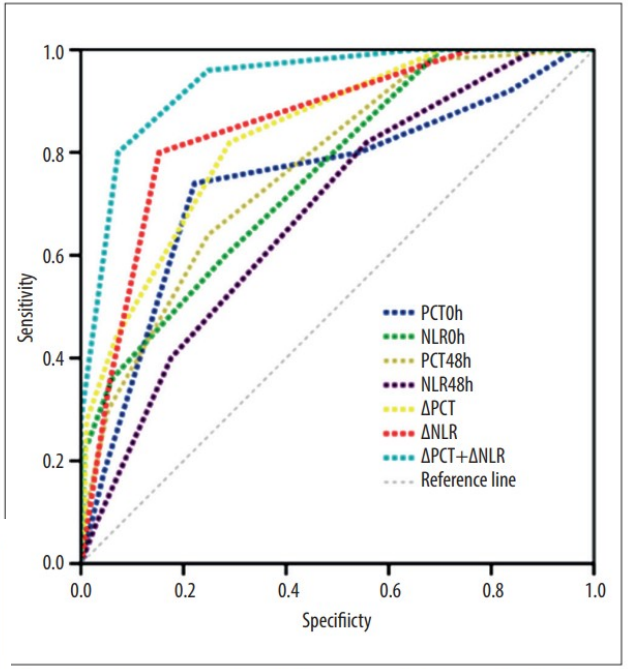


Figure 1. Performance of variables in predicting septic shock in patients with bloodstream infection. (SPSS version 22.0, IBM Corp., USA).

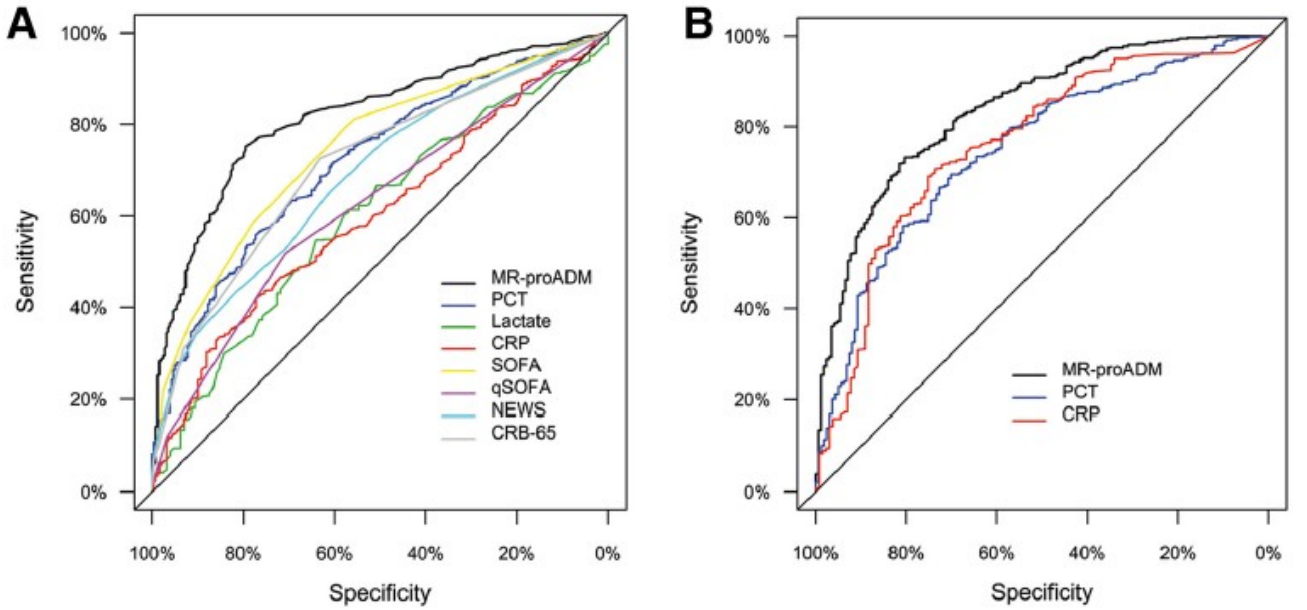
Saeed et al. Critical Care (2019) 23:40
https://doi.org/10.1186/s13054-019-2329-5

Critical Care

RESEARCH Open Access

The early identification of disease progression in patients with suspected infection presenting to the emergency department: a multi-centre derivation and validation study

Kordo Saeed[1,2*], Darius Cameron Wilson[3], Frank Bloos[4,5], Philipp Schuetz[6,7], Yuri van der Does[8], Olle Melander[9,10],



0,87 Dimissione

1,5 Gravità

2,75

European Journal of Internal Medicine 88 (2021) 104–113

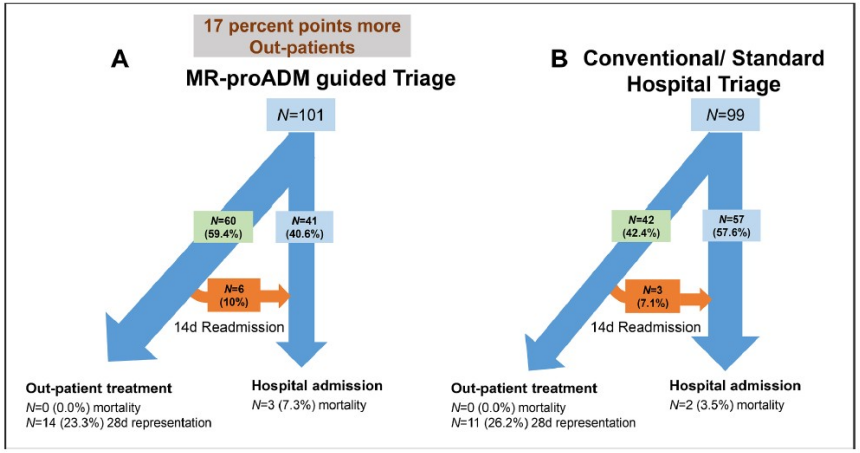
Contents lists available at ScienceDirect

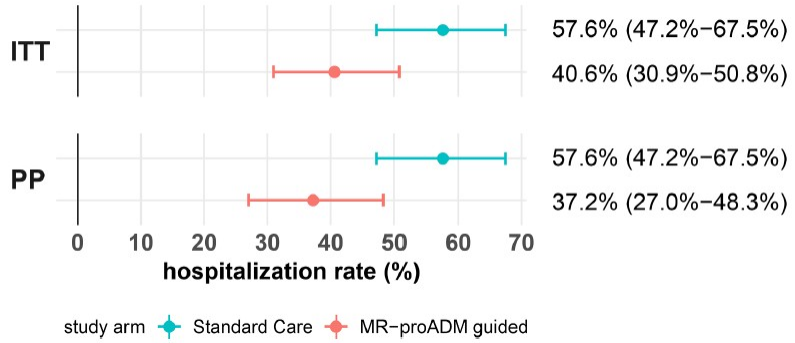
European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

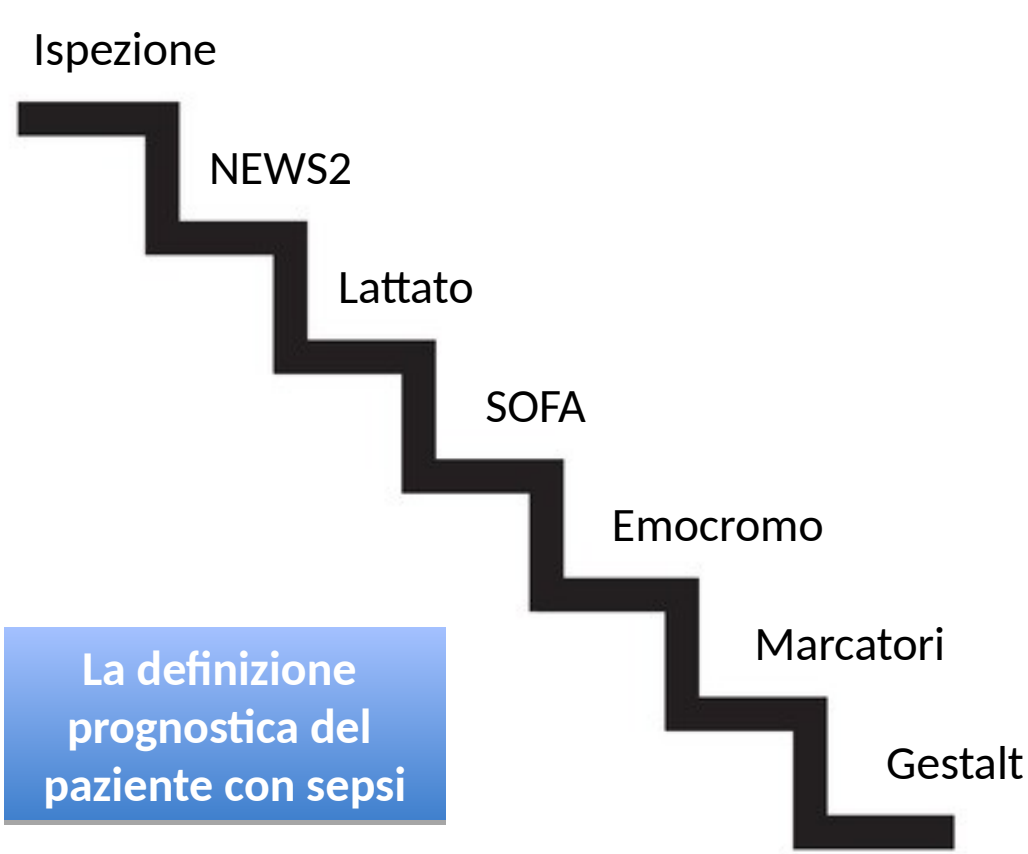
Juan Gonzalez del Castillo

Midregional proadrenomedullin safely reduces hospitalization in a low severity cohort with infections in the ED: a randomized controlled multi-centre interventional pilot study





...concludendo...



La definizione prognostica del paziente con sepsi

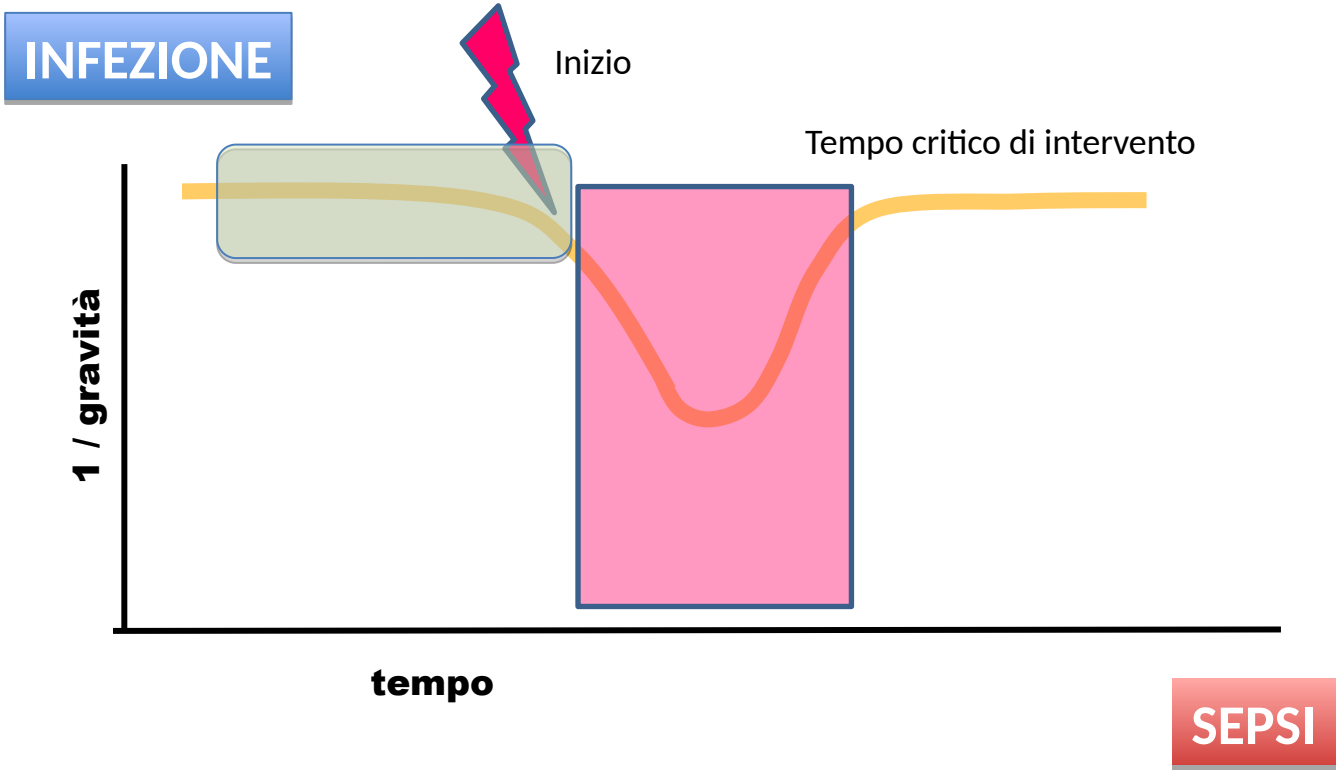
Perfusione

FR, Coscienza

Bilirubina

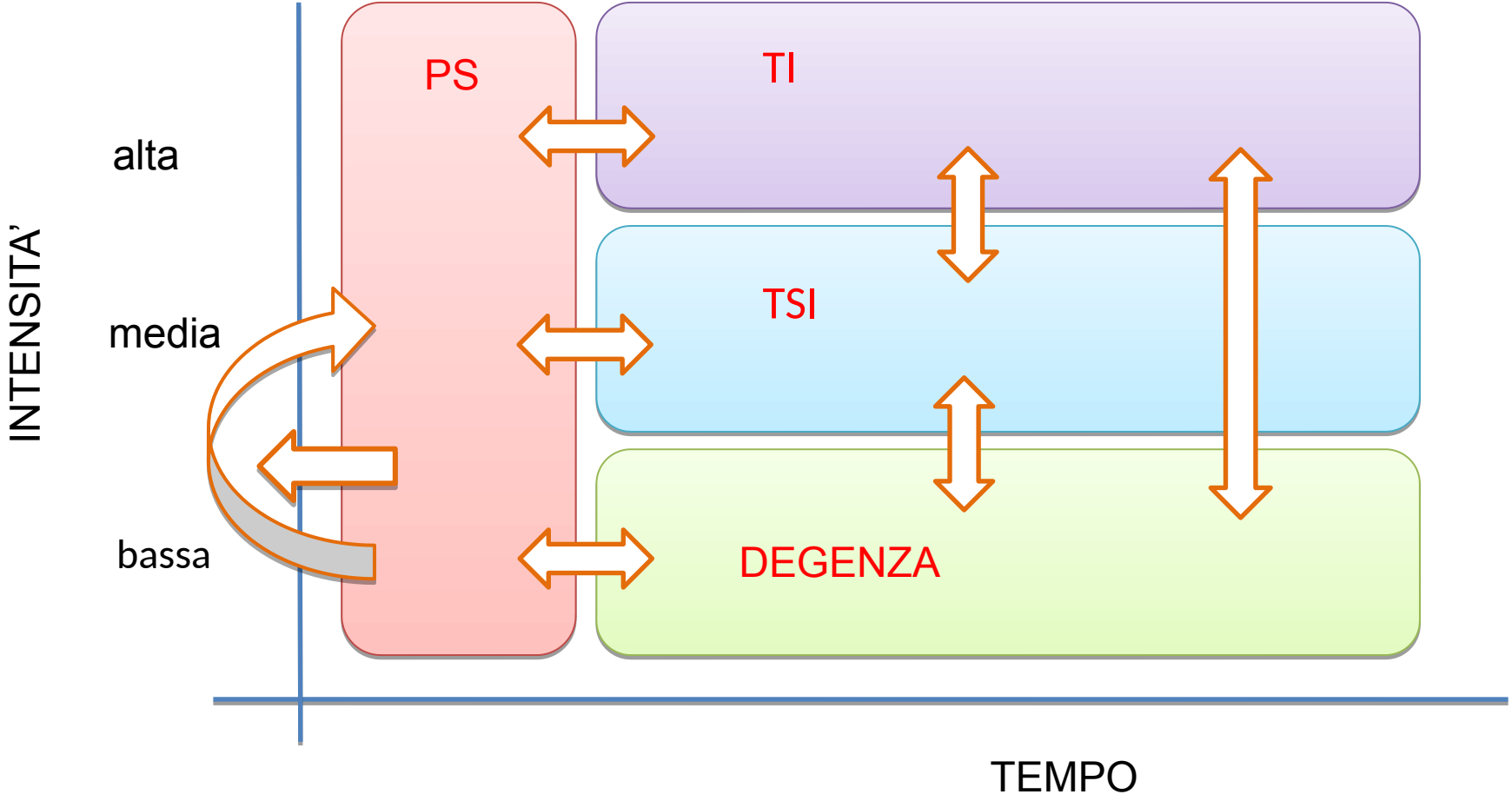
Trombocitopenia, LNR

PCR, PCT, ProADM


INFEZIONE
Inizio
Tempo critico di intervento
1 / gravità
tempo
SEPSI

DOVE?

- Tempo di permanenza in PS non superiore alle 6 ore
- Accoglimento in struttura adeguata (monitoraggio – terapia)
- Adozione di criteri condivisi per accoglimento in TSI / TI


INTENSITA'
alta
media
bassa
PS
TI
TSI
DEGENZA
TEMPO

Doversi misurare costantemente con l'insufficienza cronica delle risorse e l'enormità dei problemi che ci si trova davanti è frustrante,

ma se la cura è un diritto umano allora non c'è altra strada che curare tutti, senza discriminazioni,

curarli al meglio e gratuitamente.

Grazie