Novos Critérios de Sepse

Hugo Morales
Responsável pelo Serviço de Infectologia – HEG
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Abril/2016
A cada segundo...
alguém morre de sepsis

No mundo

20.000.000
de pacientes são acometidos a cada ano, com mais de 6 milhões de casos de sepsis neonatal e na primeira infância e mais de 100.000 casos de sepsis materna

30.000.000

13 setembro
DIA MUNDIAL DA SEPSE

SUA INSTITUIÇÃO QUER PARTICIPAR?
PROCURE O ILAS
www.sepsisnet.org
secretaria@sepsisnet.org

Apoio:

Combater o câncer com humanismo, ciência e afeto
## NO BRASIL

N= 10262 pacientes

<table>
<thead>
<tr>
<th>Característica</th>
<th>Brasil públicos (n=5638)</th>
<th>Brasil privados (n=4624)</th>
<th>Valor de p*</th>
<th>Brasil geral</th>
<th>Mundo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepse grave</td>
<td>48,9%</td>
<td>27,0%</td>
<td>&lt;0,001</td>
<td>38,5%</td>
<td>23,9%</td>
</tr>
<tr>
<td>Choque séptico</td>
<td>73,8%</td>
<td>55,9%</td>
<td>&lt;0,001</td>
<td>66,2%</td>
<td>37,4%</td>
</tr>
<tr>
<td>Via pronto socorro</td>
<td>57,5%</td>
<td>30,8%</td>
<td>&lt;0,001</td>
<td>44,0%</td>
<td>26,5%</td>
</tr>
<tr>
<td>Via enfermaria</td>
<td>65,5%</td>
<td>45,7%</td>
<td>&lt;0,001</td>
<td>57,5%</td>
<td>39,8%</td>
</tr>
<tr>
<td>Sepse na UTI</td>
<td>60,5%</td>
<td>55,9%</td>
<td>0,11</td>
<td>58,6%</td>
<td>42,8%</td>
</tr>
<tr>
<td><strong>Global</strong></td>
<td><strong>61,5%</strong></td>
<td><strong>40,3%</strong></td>
<td><strong>&lt;0,001</strong></td>
<td><strong>51,9%</strong></td>
<td><strong>30,8%</strong></td>
</tr>
</tbody>
</table>
• O QUE É SEPSE???
acccp/sscm consensus conference

Definitions for Sepsis and Organ Failure and Guidelines for the Use of Innovative Therapies in Sepsis

THE ACCP/SCCM CONSENSUS CONFERENCE COMMITTEE:
Roger C. Bone, M.D., F.C.C.P., Chairman
Robert A. Balk, M.D., F.C.C.P.
Frank B. Cerra, M.D.
R. Phillip Dellinger, M.D., F.C.C.P.

Alan M. Fein, M.D., F.C.C.P.
William A. Knaus, M.D.
Roland M. H. Schein, M.D.
William J. Sibbald, M.D., F.C.C.P.
SIRS – Síndrome da resposta inflamatória sistêmica
SIRS – Presença de 2 ou mais:

• Temperatura > 38ºC ou < 36ºC;

• Freqüência cardíaca > 90 bpm;

• FR > 20 movimentos/minutos ou
  • PaCO2 < 32 mmHg ou paciente sob ventilação mecânica)

• Leucócitos no sangue periférico >
  12.000/mm³ ou < 4.000/mm³ ou
  presença de >10% de formas jovens (bastões).
sepse

- SIRS + presença de um foco infeccioso.
  - Gravidade variável.
  - Evolução variável.

- SEPSE GRAVE =
  - SEPSE + disfunção orgânica
Disfunções Orgânicas

Lactato > 2

- Cardiovascular
- Respiratória
- Metabólica
- Neurológica
- Renal
- Hematológica
- Hepática
CHOQUE SÉPTICO

- Hipotensão arterial refratária à reposição volêmica, necessitando de drogas vasopressoras para estabilizar a pressão arterial.
Infecção

SEPSE

SEPSE GRAVE

Outros

SIRS

Trauma

Queimadura

Pancreatite
Por que necessitamos novas definições?

**Sepsis definitions: time for change**

**Prof Jean-Louis Vincent, MD,**
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**Prof Steven M Opal, MD,**
Warren Alpert Medical School of Brown University, Infectious Disease Division, Memorial Hospital of Rhode Island, Pawtucket, RI, USA

**Prof John C Marshall, MD, and**
Department of Surgery, Li Ka Shing Knowledge Institute, St Michael's Hospital, University of Toronto, Toronto, ON, Canada

**Prof Kevin J Tracey, MD**
Laboratory of Biomedical Science, Feinstein Institute for Medical Research, Manhasset, NY, USA
Para que servem os critérios de Sepse?

Sem Sepse  Sepse
Para que servem os critérios de Sepse?
Para que servem os critérios de Sepse?

Sensibilidade

Especificidade
Systemic Inflammatory Response Syndrome Criteria in Defining Severe Sepsis

![Graph showing unadjusted mortality and adjusted odds of death](image)
Diferentes olhares sobre sepse resultaram em diferentes estatísticas.
Benchmarking mundial

Mortalidade de Sepse

- Australia – 22% (Kaukonen et al, 2014)
- Germany – 60.5% (Heublein et al, 2016)
- Holanda – 60% (Klein-Klouwenberg et al, 2012)
SCCM/ESICM Task Force to Re-Define Sepsis

- Co-Chairs – Mervyn Singer, Cliff Deutschman
  - Derek Angus
  - Djilali Annane
  - Michael Bauer
  - Rinaldo Bellomo
  - Gordon Bernard
  - Jean-Daniel Chiche
  - Craig Coopersmith
  - Richard Hotchkiss
  - Mitchell Levy
  - John Marshall
  - Steve Opal
  - Gordon Rubenfeld
  - Tom van der Poll
  - Jean-Louis Vincent
  - Greg Martin
  - Manu Shankar-Hari
  - Chris Seymour
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, MSc, MD, FFICM, Djilali Annane, MD, PhD, Michael E. Biccard, MD, Rino Bello, MD, Gordon R. Bernard, MD, Daniel C. Chiche, MD, PhD, Craig M. Coopersmith, MD, Richard S. Hotchkiss, MD, Mitchell M. Levy, MD, John C. Marshall, MD, Greg S. Martin, MD, MSc, Steven M. Opal, MD, Gordon D. Rubenfeld, MD, MS, Tom van der Poll, MD, PhD, Jean-Louis Vincent, MD, PhD, Philip D. Angus, MD, MPH

Importance Definitions of sepsis and septic shock were last revised in 2001. Considerable advances have since been made into the pathobiology (changes in organ function, morphology, cell biology, biochemistry, immunology, and circulation), management, and epidemiology of sepsis, suggesting the need for reexamination.

Objective To evaluate and, as needed, update definitions for sepsis and septic shock.

Process A task force (n = 19) with expertise in sepsis pathobiology, clinical trials, and epidemiology was convened by the Society of Critical Care Medicine and the European Society of Intensive Care Medicine. Definitions and clinical criteria were generated through meetings, Delphi processes, analysis of electronic health record databases, and voting, followed by circulation to international professional societies, requesting peer review and endorsement (by 31 societies listed in the Acknowledgment).

Key Findings From Evidence Synthesis Limitations of previous definitions included an excessive focus on inflammation, the misleading model that sepsis follows a continuum through severe sepsis to shock, and inadequate specificity and sensitivity of the systemic inflammatory response syndrome (SIRS) criteria. Multiple definitions and terminologies are currently in use for sepsis, septic shock, and organ dysfunction, leading to discrepancies in reported incidence and observed mortality. The task force concluded the term severe sepsis was redundant.

Recommendations Sepsis should be defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. For clinical operationalization, organ dysfunction can be represented by an increase in the Sequential [Sepsis-related] Organ Failure Assessment (SOFA) score of 2 points or more, which is associated with an in-hospital mortality greater than 10%. Septic shock should be defined as a subset of sepsis in which particularly profound circulatory, cellular, and metabolic abnormalities are associated with a greater risk of mortality than with sepsis alone. Patients with septic shock can be clinically identified by a vasopressor requirement to maintain a mean arterial pressure of 65 mm Hg or greater and serum lactate level greater than 2 mmol/L (18 mg/dL) in the absence of hypovolemia. This combination is associated with hospital mortality rates greater than 40%. In out-of-hospital, emergency department, or general hospital ward settings, adult patients with suspected infection can be rapidly identified as being more likely to have poor outcomes typical of sepsis if they have at least 2 of the following clinical criteria that together constitute a new bedside clinical score termed quickSOFA (qSOFA): respiratory rate of ≥22/min or greater, altered mental status, or systolic blood pressure of 100 mm Hg or less.

Conclusions and Relevance These updated definitions and clinical criteria should replace previous definitions, offer greater consistency for epidemiologic studies and clinical trials, and facilitate earlier recognition and more timely management of patients with sepsis or at risk of developing sepsis.


Author Affiliations Author affiliations are listed at the end of this article.

Group Information The Sepsis Definitions Task Force members are the authors listed above.

Corresponding Author Clifford S. Deutschman, MD, MS, Departments of Pediatrics and Molecular Medicine, Hofstra-Northwell School of Medicine, Feinstein Institute for Medical Research, 269-07 41st Ave, New Hyde Park, NY 11040 (c deutschman@nihe.edu).
Criar Definições

• Sepse é uma disfunção orgânica que pode causar mortalidade causada por uma resposta desregulada do hospedeiro

• Choque Séptico → um subtipo de sepse no qual profundas anormalidades circulatórias, celular e metabólicas são associadas com um risco aumentado de mortalidade em comparação com somente sepse
Assessment of Clinical Criteria for Sepsis
For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Christopher W. Seymour, MD, MSc; Vincent X. Liu, MD, MSc; Theodore J. Iwashyna, MD, PhD; Frank M. Bruninkhorst, MD; Thomas D. Rea, MD, MPH; Andre Schrag, PhD; Gordon Rubenfeld, MD, MSc; Jeremy M. Kahn, MD, MSc; Mansu Shanmugam, MD, MSc; Jeremy M. Kahn, MD, MSc; Merwyn Singlet, MD, FRCPC; Clifford S. Deutschman, MD, MS; Gabriel J. Escobar, MD; Derek C. Angus, MD, MPH

Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

IMPORATANCE The Third International Consensus Definitions Task Force defined sepsis as “life-threatening organ dysfunction due to a dysregulated host response to infection.” The performance of clinical criteria for this sepsis definition is unknown.

OBJECTIVE To evaluate the validity of clinical criteria to identify patients with suspected infection who are at risk of sepsis.

DESIGN, SETTINGS, AND POPULATION Among 1.3 million electronic health record encounters from January 1, 2010, to December 31, 2012, at 12 hospitals in southwestern Pennsylvania, we identified those with suspected infection in whom to compare criteria. Confirmatory analyses were performed in 4 data sets of 76,399 out-of-hospital and hospital encounters at 165 US and non-US hospitals ranging from January 1, 2008, until December 31, 2013.

EXPOSURES Sequential (Sepsis-related) Organ Failure Assessment (SOFA) score, systemic inflammatory response syndrome (SIRS) criteria, Logistic Organ Dysfunction System (LODS) score, and a new model derived using multiple logistic regression in a split sample, the quick Sequential (Sepsis-related) Organ Failure Assessment (qSOFA) score (range, 0-3 points, with 1 point each for systolic hypotension ≤100 mm Hg, tachypnea ≥22/min, or altered mentation).

MAIN OUTCOMES AND MEASURES For construct validity, pairwise agreement was assessed. For predictive validity, the discrimination for outcomes (primary: in-hospital mortality; secondary: in-hospital mortality or intensive care unit [ICU] length of stay ≥3 days) more common in sepsis than uncomplicated infection was determined. Results were expressed as the fold change in outcome over deciles of baseline risk of death and area under the receiver operating characteristic curve (AUROC).

RESULTS In the primary cohort, 148,907 encounters had suspected infection (n = 74,453 derivation; n = 74,454 validation), of whom 6,347 (9%) died. Among ICU encounters in the validation cohort (n = 79,322 with suspected infection, of whom 12,899 [16%] died), the predictive validity for in-hospital mortality was lower for SIRS (AUROC = 0.64; 95% CI, 0.62-0.66) and qSOFA (AUROC = 0.66; 95% CI, 0.64-0.68) vs SOFA (AUROC = 0.74; 95% CI, 0.73-0.76; P < .001 for both) or LODS (AUROC = 0.75; 95% CI, 0.73-0.76; P < .001 for both). Among non-ICU encounters in the validation cohort (n = 66,522 with suspected infection, of whom 18,856 [3%] died), qSOFA had predictive validity (AUROC = 0.81; 95% CI, 0.80-0.82) that was greater than SOFA (AUROC = 0.79; 95% CI, 0.78-0.80; P < .001) and SIRS (AUROC = 0.76; 95% CI, 0.75-0.77; P < .001). Relative to qSOFA scores lower than 2, encounters with qSOFA scores of 2 or higher had a 3- to 14-fold increase in hospital mortality across baseline risk deciles. Findings were similar in external data sets and for the secondary outcome.

CONCLUSIONS AND RELEVANCE Among ICU encounters with suspected infection, the predictive validity for in-hospital mortality of SOFA was not significantly different than the more complex LODS but was statistically greater than SIRS and qSOFA, supporting its use in clinical criteria for sepsis. Among encounters with suspected infection outside of the ICU, the predictive validity for in-hospital mortality of qSOFA was statistically greater than SOFA and SIRS, supporting its use as a prompt to consider possible sepsis.
• **Sepse**: disfunção orgânica potencialmente fatal causada por uma resposta imune desregulada a uma infecção
Infecção

Realmente doente
Qual Banco de Dados foi Utilizado?

• Derivação ➔ Prontuário Eletrônico (1,3 milhão)

• Validação – 6 milhões de prontuários
  – KPNC
  – VA
  – “ALERTS”
  – King County (Seattle) EMS
Identificação de Infecção?

• Primeiro episódio de cultura e ATM
• Derivação → Prontuário Eletrônico (1,3 milhão)
  – 148.000 casos suspeitos de infecção

• Validação – 6 milhões de prontuários
  – KPNC
  – VA
  – “ALERTS”
  – King County (Seattle) EMS
Qual foi o critério clínico escolhido?

- SIRS
- SOFA
  - 0-24
- LODS
  - 0-22
# SOFA Score

<table>
<thead>
<tr>
<th>Variables/Points</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological Coma Score: Glasgow</td>
<td>13-14</td>
<td>10-12</td>
<td>6-9</td>
<td>&lt; 6</td>
</tr>
<tr>
<td>Pulmonary PaO₂ (mmHg) / FiO₂</td>
<td>&lt; 400</td>
<td>&lt; 300</td>
<td>&lt; 200 with respiratory support</td>
<td>&lt; 100 with respiratory support</td>
</tr>
<tr>
<td>Cardiological Mean Systolic Arterial Pressure (mmHg)</td>
<td>&lt; 70</td>
<td>Dopamine = 5 or Dobutamine (whatever dose)</td>
<td>Dopamine &gt; 5 or Adrenaline = 0.1 or Noradrenaline ≤ 0.1</td>
<td>Dopamine &gt; 15 or Adrenaline &gt; 0.1 or Noradrenaline &gt; 0.1</td>
</tr>
<tr>
<td>Renal</td>
<td>110-170 (1.2-1.9)</td>
<td>171-299 (2.0-3.4)</td>
<td>300-440 (3.5-4.9) or &lt; 500</td>
<td>&gt; 440 (&gt; 5.0) or &lt; 200</td>
</tr>
<tr>
<td>or Diuresis mL/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haematological Platelets 10^9/L</td>
<td>&gt; 150</td>
<td>&gt; 100</td>
<td>&gt; 50</td>
<td>&gt; 20</td>
</tr>
<tr>
<td>Hepatic</td>
<td>20-32 (1.2-1.9)</td>
<td>33-101 (2.0-5.9)</td>
<td>102-204 (6.0-11.9)</td>
<td>&gt; 204 (&gt; 12.0)</td>
</tr>
</tbody>
</table>


fppl.com
SOFA

- Respiratory rate ≥ 22 bpm
- Altered mentation
- Systolic blood pressure ≤ 100 mmHg
Como identificar quem está Realmente Doente?

- **Sepse**: disfunção orgânica potencialmente fatal causada por uma resposta imune desregulada a uma infecção
Resultados

ICU encounters
N = 7,932
AUROC in-hospital mortality

<table>
<thead>
<tr>
<th>SIRS</th>
<th>SOFA</th>
<th>LODS</th>
<th>qSOFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.64 (0.62, 0.66)</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Outside the ICU encounters
N = 66,522
AUROC in-hospital mortality

<table>
<thead>
<tr>
<th>SIRS</th>
<th>SOFA</th>
<th>LODS</th>
<th>qSOFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.76 (0.75, 0.77)</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>0.66 (0.64, 0.68)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIRS</th>
<th>SOFA</th>
<th>LODS</th>
<th>qSOFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.01</td>
<td>0.79 (0.78, 0.80)</td>
<td>&lt;0.01</td>
<td>0.81 (0.80, 0.82)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIRS</th>
<th>SOFA</th>
<th>LODS</th>
<th>qSOFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>0.72</td>
<td>0.81 (0.80, 0.82)</td>
</tr>
</tbody>
</table>
E o Lactato?
Sepse

• **Sepse**: disfunção orgânica potencialmente fatal causada por uma resposta imune desregulada a uma infecção

Mudança de 2 critérios no SOFA OU quickSOFA
SOFA

Respiratory rate ≥ 22 bpm
Altered mentation
Systolic blood pressure ≤ 100 mmHg
E choque séptico?

• **Choque Séptico**: sepse acompanhada por profundas anormalidades circulatórias e celulares/metabólicas capazes de aumentar a mortalidade substancialmente
Infecção

Realmente doente

Muito, muito, muito doente
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)

Manu Shankar-Hari, MD, MSc; Gary S. Phillips, MAS; Mitchell L. Levy, MD; Christopher W. Seymour, MD, MSc; Vincent X. Liu, MD, MSc; Clifford S. Deutschman, MD; Derek C. Angus, MD, MPH; Gordon D. Rubinfeld, MD, MSc; Menlyn Singer, MD, FRCP; for the Sepsis Definitions Task Force

**Importance.** Sepsic shock currently refers to a state of acute circulatory failure associated with infection. Emerging biological insights and reported variation in epidemiological evidence challenge the validity of this definition.

**Objective.** To develop a new definition and clinical criteria for identifying septic shock in adults.

**Design, Setting, and Participants.** The Society of Critical Care Medicine and the European Society of Intensive Care Medicine convened a task force (19 participants) to revise current sepsis/septic shock definitions. Three sets of studies were conducted: (1) a systematic review and meta-analysis of observational studies in adults published between January 1, 1992, and December 25, 2015, to determine clinical criteria currently reported to identify septic shock and inform the Delphi process; (2) a Delphi study among the task force comprising 3 surveys and discussions of results from the systematic review, surveys, and cohort studies to achieve consensus on a new septic shock definition and clinical criteria; and (3) cohort studies to test variables identified by the Delphi process using Surviving Sepsis Campaign (SSC) (2005-2010), n = 28,150; University of Pittsburgh Medical Center (UPMC) (2010-2012), n = 13,009 (225); and Kaiser Permanente Northern California (KPNC) (2009-2013), n = 1,847,165) electronic health record (EHR) data sets.

**Main Outcomes and Measures.** Evidence for and agreement on septic shock definitions and criteria.

**Results.** The systematic review identified 44 studies reporting septic shock outcomes (total of 166,479 patients) from a total of 92 sepsis epidemiologic studies reporting different cutoffs and combinations for blood pressure (BP), fluid resuscitation, vasopressors, serum lactate level, and base deficit to identify septic shock. The septic shock–associated crude mortality was 46.5% (95% CI, 42.7%-50.3%), with significant between-study statistical heterogeneity ($I^2 = 99.5%$; $P < .001$). The Delphi process identified hypotension, serum lactate level, and vasopressor therapy as variables to test using cohort studies. Based on these 3 variables alone or in combination, 6 patient groups were generated. Examination of the SSC database demonstrated that the patient group requiring vasopressors to maintain mean BP 65 mm Hg or greater and having a serum lactate level greater than 2 mmol/L (18 mg/dL) after fluid resuscitation had a significantly higher mortality (42.3% [95% CI, 41.2%-43.3%]) in risk-adjusted comparisons with the other 5 groups derived using either serum lactate level greater than 2 mmol/L alone or combinations of hypotension, vasopressors, and serum lactate level 2 mmol/L or lower. These findings were validated in the UPMC and KPNC data sets.

**Conclusions and Relevance.** Based on a consensus process using results from a systematic review, surveys, and cohort studies, septic shock is defined as a subset of sepsis in which underlying circulatory, cellular, and metabolic abnormalities are associated with a greater risk of mortality than sepsis alone. Adult patients with septic shock can be identified using the clinical criteria of hypotension requiring vasopres sor therapy to maintain mean BP 65 mm Hg or greater and having a serum lactate level greater than 2 mmol/L after adequate fluid resuscitation.
Choque Séptico

- Sepsis Campaign Database (SSC)
- 28,150 patients with severe sepsis or septic shock (UPMC / KPNC)
- Delphi process – task force
  - Hipotensão Após Reposição Volêmica
  - Dependência de Vasopressor
  - Lactato
<table>
<thead>
<tr>
<th>Group</th>
<th>Hypotension after fluids</th>
<th>Vasopressors</th>
<th>Lactate &gt;2</th>
<th>Prevalence (SSC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>45.2%</td>
</tr>
<tr>
<td>Group 2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>21.2%</td>
</tr>
<tr>
<td>Group 4</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>17.3%</td>
</tr>
<tr>
<td>Group 5</td>
<td>No hypotension pre-fluid</td>
<td>No</td>
<td>Yes</td>
<td>14.3%</td>
</tr>
</tbody>
</table>
Choque Séptico

- **Choque Séptico**: sepsis acompanhada por profundas anormalidades circulatórias e celulares/metabólicas capazes de aumentar a mortalidade substancialmente

- HIPOTENSÃO REFRATÁRIA
- USO DE DROGA VASOATIVA
- LACTATO>2 mmol/L
Patient with suspected infection

qSOFA ≥2? (see A)

No

Sepsis still suspected?

No

Monitor clinical condition; reevaluate for possible sepsis if clinically indicated

Yes

Assess for evidence of organ dysfunction

SOFa ≥2? (see B)

No

Monitor clinical condition; reevaluate for possible sepsis if clinically indicated

Yes

Sepsis

Despite adequate fluid resuscitation, 1. vasopressors required to maintain MAP ≥65 mm Hg AND 2. serum lactate level >2 mmol/L?

No

Septic shock

A qSOFA Variables
Respiratory rate
Mental status
Systolic blood pressure

B SOFA Variables
\(\text{PaO}_2/\text{FiO}_2\) ratio
Glasgow Coma Scale score
Mean arterial pressure
Administration of vasopressors with type and dose rate of infusion
Serum creatinine or urine output
Bilirubin
Platelet count
Suspeita de Infecção

qSOFA

FR>22 irpm
Confusão Mental
PAS<100

ATM, Reposição Volemica
Assessar Disfunção Orgânica
O DESAFIO

Sobrecarga

Heterogeneidade

Adaptação
Obrigado

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