

# NEJISTOTA TVÁŘÍ V TVÁŘ SEPSI V URGENTNÍ MEDICÍNĚ



**JANA ŠEBLOVÁ**

**Kurz České lékařské komory 16. března 2024**

# PROČ SE ZAJÍMAT O SEPSI V URGENTNÍ MEDICÍNĚ?

V intenzivní medicíně již dlouho v centru pozornosti...  
Surviving sepsis campaign, aktualizace doporučení, Sepsis-3

| System   | 0 bodů              | 1 bod                       | 2 body   | 3 body  | 4 body   |
|--|---------------------|-----------------------------|--|---|--|
| <b>Respirační</b>                                |                     |                             |  |   |  |
| PaO <sub>2</sub> /FiO <sub>2</sub><br>mmHg (kPa) | ≥ 400<br>(53,3)     | <400<br>(53,3)              | <300<br>(40)   | <200<br>26,7) s podporou<br>dýchání   | <100<br>(13,3) s podporou<br>dýchání   |
| <b>Koagulace</b>                                 |                     |                             |  |   |  |
| Trombocyty<br>x 10 <sup>3</sup> /μL              | ≥150                | <150                        | <100   | <50   | <20  |
| <b>Játra</b>                                     |                     |                             |  |   |  |
| Bilirubin<br>mg/dL (μmol/l)                      | <1,2<br>(20)        | 1,2 – 1,9<br>(20 – 32)      | 2,0 – 5,9<br>(33 – 101)  | 6,0 – 11,9<br>102 – 204)  | >12,0<br>(204)   |
| <b>Kardiovaskulární</b>                          | MAP ≥<br>70<br>mmHg | MAP < 70<br>mmHg            | Dopamin < 5 nebo<br>jakákoliv dávka<br>dobutaminu <sup>1</sup> | Dopamin 5,1-15<br>nebo adrenalin ≤ 0,1<br>nebo noradrenalin ≤<br>0,1 <sup>1</sup> | Dopamin > 15 nebo<br>adrenalin > 0,1 nebo<br>noradrenalin > 0,1 <sup>1</sup> |
| <b>Centrální nervový<br/>systém</b>              |                     |                             |  |   |  |
| Glasgow Coma<br>Score                            | 15                  | 13 – 14                     | 10 – 12  | 6 - 9   | <6   |
| <b>Renální funkce</b>                            |                     |                             |  |   |  |
| Kreatinin<br>mg/dL (μmol/L)                      | <1,2<br>(110)       | 1,2 – 1,9<br>(110 –<br>170) | 2,0 – 3,4<br>(171 – 299)                                       | 3,5 – 4,9<br>(300 – 440)  | >5,0 (440)   |
| Diuréza (mL/d)                                   |                     |                             |  | <500  | <200   |

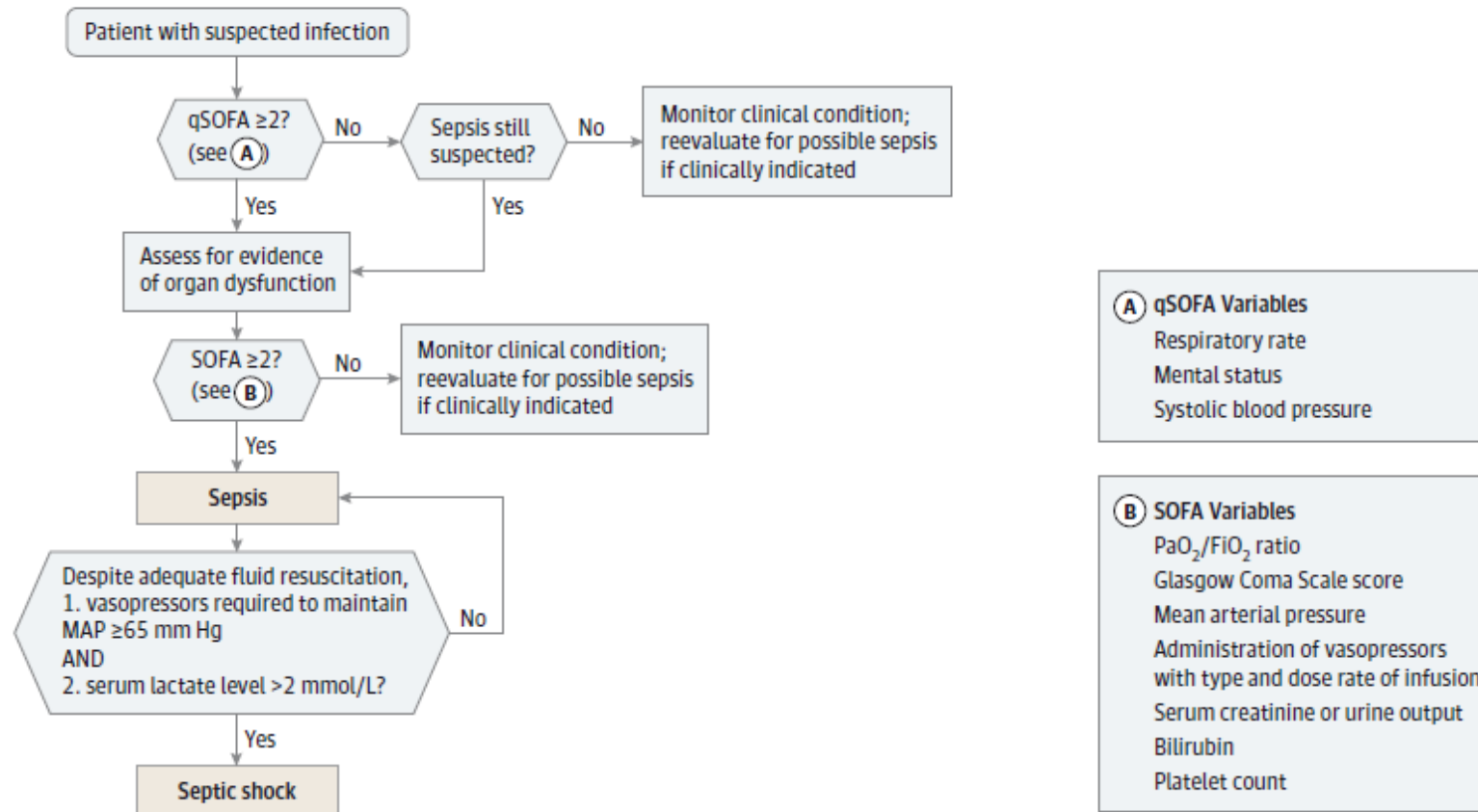
Zkratky: FiO<sub>2</sub> - frakce vdechovaného kyslíku, MAP – (mean arterial pressure) = střední arteriální tlak, PaO<sub>2</sub> - parciální tlak kyslíku

<sup>1</sup> Dávky katecholaminů jsou uvedeny jako μg/kg/min po dobu nejméně jedné hodiny



# JAK PROSTÉ, WATSONE! JAK PROSTÉ????

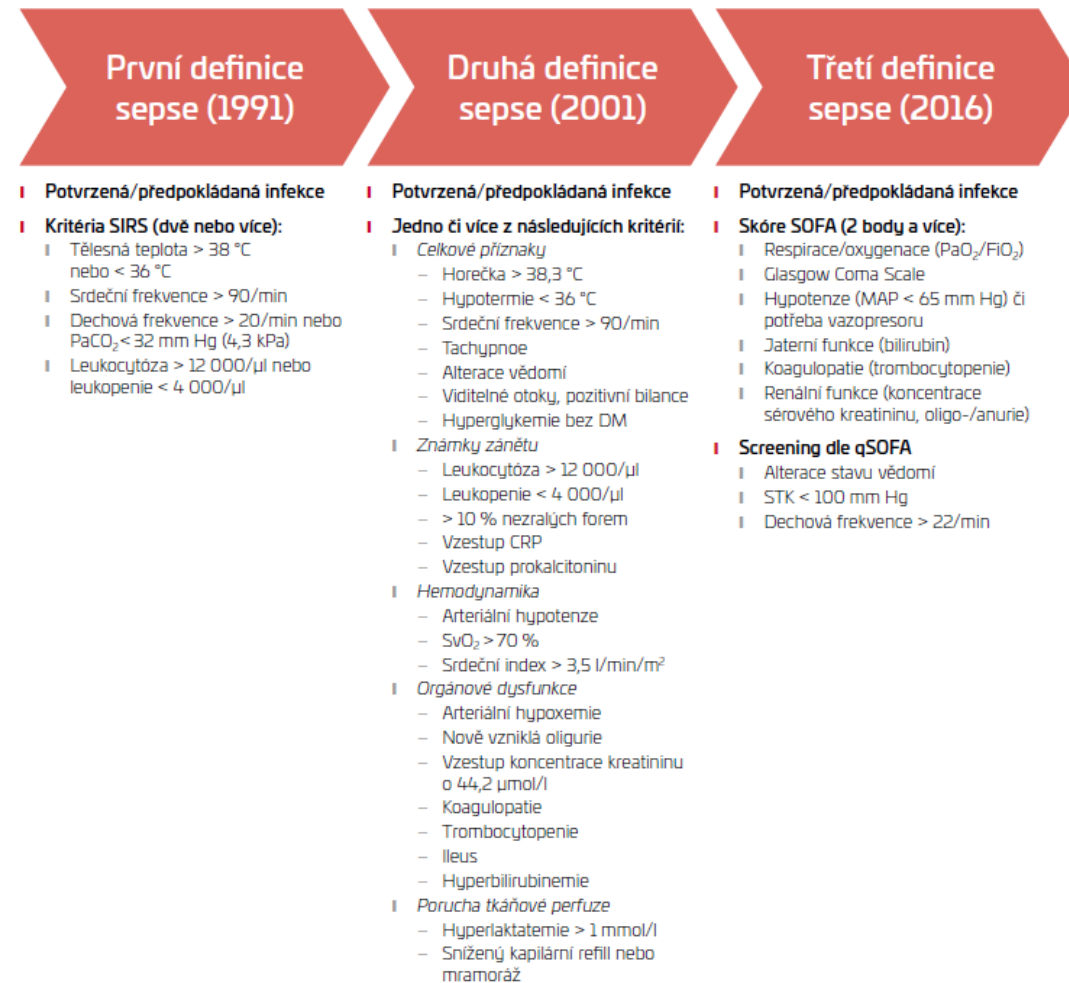
Figure. Operationalization of Clinical Criteria Identifying Patients With Sepsis and Septic Shock



The baseline Sequential [Sepsis-related] Organ Failure Assessment (SOFA) score should be assumed to be zero unless the patient is known to have preexisting (acute or chronic) organ dysfunction before the onset of infection. qSOFA indicates quick SOFA; MAP, mean arterial pressure.

# VÝVOJ DEFINIC SEPSE

(Zdroj: Matějovič M.: Sepse a její nová definice, Postgraduální nefrologie, XV, 2017 (1): 4-7.



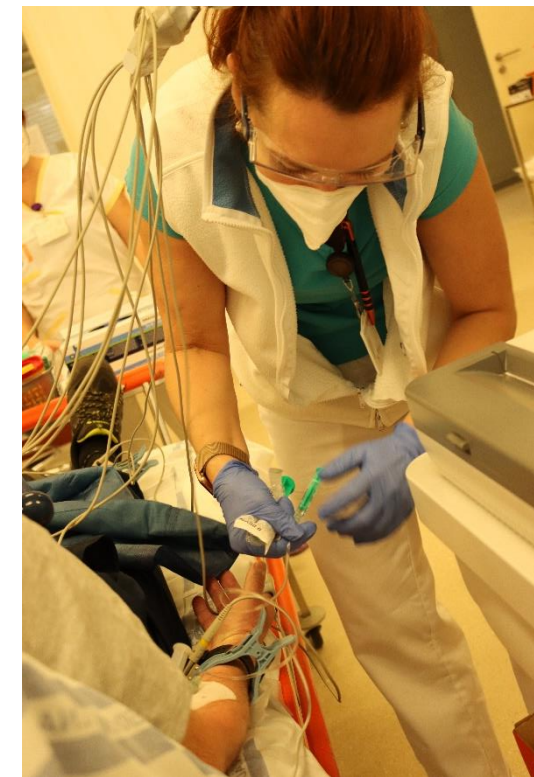
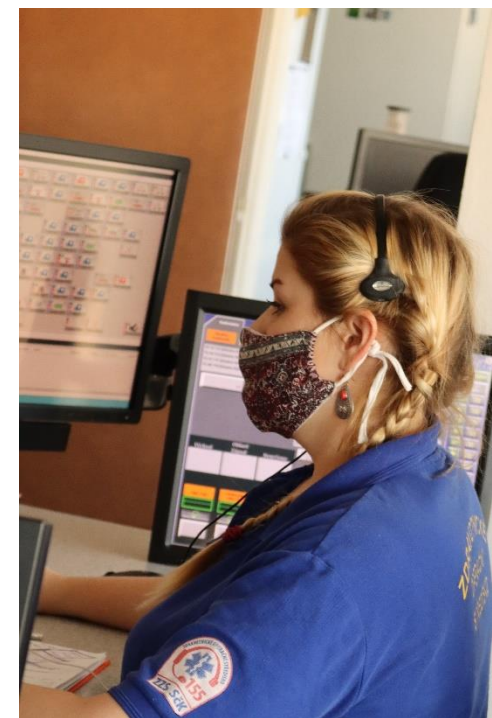
OBR. 1 Srovnání původních definic a nové definice sepse

CRP – C-reaktivní protein; DM – diabetes mellitus; FIO<sub>2</sub> – inspirační koncentrace kyslíku; MAP – střední arteriální tlak; PaCO<sub>2</sub> – parciální tlak oxidu uhličitého v arteriální krvi; PaO<sub>2</sub> – parciální tlak kyslíku v arteriální krvi; SIRS – kritéria systémové zánětlivé odpovědi (systemic inflammatory response syndrome); SvO<sub>2</sub> – saturace smíšené žilní krve; STK – systolický krevní tlak



# ROZDÍLY OPROTI INTENZIVNÍ MEDICÍNĚ

Neselektovaná populace v PNP a na UP, mitigované příznaky nebo zcela matoucí příznaky, prodlevy v diagnostice i v léčbě při přijímání na standardní oddělení...



# SKÓROVACÍ SYSTÉMY PRO DETEKCI SEPSE

qSOFA pro primární péči včetně přednemocniční a pro urgentní příjmy?

## SIRS = 2 a více faktorů:

- ▣ teplota nad 38° C nebo pod 36° C
- ▣ Tepová frekvence nad 90/min.
- ▣ Dechová frekvence nad 20 dechů/min nebo PaO<sub>2</sub> pod 32 mmHg (4,3 kPa)
- ▣ Leukocyty nad 12 000 nebo pod 4000 nebo více než 10 % nezralých forem



## SOFA / qSOFA = 2 a více bodů

- alterace stavu vědomí – GCS < 15
- dechová frekvence > 22
- systolický tlak ≤ 100

# NĚKTERÉ DALŠÍ SKÓROVACÍ SYSTÉMY

## CIS (Clinical Impression Score), PIRO, NEWS/MEWS, SPEED

### Sepsis patients in the emergency department: stratification using the Clinical Impression Score, Predisposition, Infection, Response and Organ dysfunction score or quick Sequential Organ Failure Assessment score?

Vincent M. Quinten<sup>a</sup>, Matijs van Meurs<sup>b,c</sup>, Anna E. Wolffensperger<sup>a</sup>, Jan C. ter Maaten<sup>a</sup> and Jack J.M. Ligtenberg<sup>a</sup>

**Objective** The aim of this study was to compare the stratification of sepsis patients in the emergency department (ED) for ICU admission and mortality using the Predisposition, Infection, Response and Organ dysfunction (PIRO) and quick Sequential Organ Failure Assessment (qSOFA) scores with clinical judgement assessed by the ED staff.

**Patients and methods** This was a prospective observational study in the ED of a tertiary care teaching hospital. Adult nontrauma patients with suspected infection and at least two Systemic Inflammatory Response Syndrome criteria were included. The primary outcome was direct ED to ICU admission. The secondary outcomes were

predicted in-hospital (AUC = 0.764), 28-day (AUC = 0.784) and 6-month mortality (AUC = 0.695). The qSOFA score also predicted in-hospital (AUC = 0.823), 28-day (AUC = 0.848) and 6-month mortality (AUC = 0.620).

**Conclusion** Clinical judgement is a fast and reliable method to stratify between ICU and general ward admission in ED patients with sepsis. The PIRO and qSOFA scores do not add value to this stratification, but perform better on the prediction of mortality. In sepsis patients, therefore, the principle of 'treat first what kills first' can be supplemented with 'judge first and calculate later'. *European Journal of Emergency Medicine* 25:328–334 Copyright © 2018 The Author(s). Published by Wolters Kluwer Health, Inc.

### Superior performance of National Early Warning Score compared with quick Sepsis-related Organ Failure Assessment Score in predicting adverse outcomes: a retrospective observational study of patients in the prehospital setting

Daniel J. Silcock<sup>a</sup>, Alasdair R. Corfield<sup>b,c</sup>, Kevin D. Rooney<sup>a,d</sup> and Harry Staines<sup>d</sup>

**Background** Early intervention and response to deranged physiological parameters in the critically ill patient improve outcomes. A National Early Warning Score (NEWS) based on physiological observations has been developed for use throughout the National Health Service in the UK. The quick Sepsis-related Organ Failure Assessment Score (qSOFA) was developed as a simple bedside criterion to identify adult patients outwith the ICU with suspected infection who are likely to have a prolonged ICU stay or die in hospital. We aim to compare the ability of NEWS and qSOFA to predict adverse outcomes in a prehospital population.

**Patients and methods** All clinical observations taken by emergency ambulance crews transporting patients to a single hospital were collated along with information relating to mortality over a 2-month period. The performance of the

curve for the primary outcome for qSOFA was 0.679 (95% CI: 0.624–0.733), for NEWS category was 0.707 (95% CI: 0.654–0.761) and for NEWS total score was 0.740 (95% CI: 0.685–0.795). Comparison of the receiver operating characteristic curves between NEWS total score and qSOFA using DeLong's test showed NEWS total score to be superior to qSOFA at predicting combined ICU admission within 48 h of presentation or 30-day mortality ( $P = 0.011$ ).

**Conclusion** Our study shows qSOFA can identify patients at risk of adverse outcomes in the prehospital setting. However, NEWS is superior to qSOFA in a prehospital environment at identifying patients at risk of adverse outcomes. *European Journal of Emergency Medicine* 00:000–000 Copyright © 2018 Wolters Kluwer Health, Inc. All rights reserved.

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

Jan Philipp Bewersdorf<sup>a</sup>, Oliver Hautmann<sup>a</sup>, Daniel Kofink<sup>c</sup>, Alizan Abdul Khalil<sup>a</sup>, Imran Zainal Abidin<sup>b</sup> and Alexander Loch<sup>b</sup>

**Objectives** The aim of the study was to identify covariates associated with 28-day mortality in septic patients admitted to the emergency department and derive and validate a score that stratifies mortality risk utilizing parameters that are readily available.

**Methods** Patients with an admission diagnosis of suspected or confirmed infection and fulfilling at least two criteria for severe inflammatory response syndrome were included in this study. Patients' characteristics, vital signs, and laboratory values were used to identify prognostic factors for mortality. A scoring system was derived and validated. The primary outcome was the 28-day mortality rate.

derivation and 0.81 (0.73–0.90) in the validation set. The SPEED (sepsis patient evaluation in the emergency department) score performed better ( $P = 0.02$ ) than the Mortality in Emergency Department Sepsis score when applied to the complete study population with an area under the curve of 0.81 (0.76–0.85) as compared with 0.74 (0.70–0.79).

**Conclusion** The SPEED score predicts 28-day mortality in septic patients. It is simple and its predictive value is comparable to that of other scoring systems. *European Journal of Emergency Medicine* 24:170–175 Copyright © 2017 The Author(s). Published by Wolters Kluwer Health, Inc.



# TO BE CONTINUED....

## SURVIVING SEPSIS CAMPAIGN GUIDELINES 2021

### ONLINE SPECIAL ARTICLE

## Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2021

**KEY WORDS:** adults; evidence-based medicine; guidelines; sepsis; septic shock

### INTRODUCTION

Sepsis is life-threatening organ dysfunction caused by a dysregulated host response to infection (1). Sepsis and septic shock are major healthcare problems, impacting millions of people around the world each year and killing between one in three and one in six of those it affects (2–4). Early identification and appropriate management in the initial hours after the development of sepsis improve outcomes.

Laura Evans<sup>1</sup>  
 Andrew Rhodes<sup>2</sup>  
 Waleed Alhazzani<sup>3</sup>  
 Massimo Antonelli<sup>4</sup>  
 Craig M. Coopersmith<sup>5</sup>  
 Craig French<sup>6</sup>  
 Flávia R. Machado<sup>7</sup>  
 Lauralyn Mcintyre<sup>8</sup>  
 Marlies Ostermann<sup>9</sup>  
 Hallie C. Prescott<sup>10</sup>  
 Christa Schorr<sup>11</sup>  
 Steven Simpson<sup>12</sup>

| Recommendation  |
|---|
| 2. We <b>recommend against</b> using qSOFA compared with SIRS, NEWS, or MEWS as a single screening tool for sepsis or septic shock.<br><i>Strong recommendation, moderate-quality evidence.</i> |

e1064

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Online Special Article

**TABLE 1.**  
 Table of Current Recommendations and Changes From Previous 2016 Recommendations

| Recommendations 2021  | Recommendation Strength and Quality of Evidence  | Changes From 2016 Recommendations  |
|---|--|--|
| 1. For hospitals and health systems, we recommend using a performance improvement program for sepsis, including sepsis screening for acutely ill, high-risk patients and standard operating procedures for treatment. | <b>Strong, moderate-quality evidence (for screening)</b><br><br><b>Strong, very low-quality evidence (for standard operating procedures)</b> | <b>Changed from Best practice statement</b><br><br>“We <b>recommend</b> that hospitals and hospital systems have a performance improvement program for sepsis including sepsis screening for acutely ill, high-risk patients.” |
| 2. We recommend against using qSOFA compared with SIRS, NEWS, or MEWS as a single-screening tool for sepsis or septic shock.  | <b>Strong, moderate-quality evidence</b>   | <b>NEW</b>   |
| 3. For adults suspected of having sepsis, we suggest measuring blood lactate.   | <b>Weak, low quality of evidence</b>   |  |
| <b>INITIAL RESUSCITATION</b>  |  |  |
| 4. Sepsis and septic shock are medical emergencies, and we recommend that treatment and resuscitation begin immediately   | <b>Best practice statement</b>   |  |



# ...URGENTNÍM LÉKAŘŮM VŠAK STÁLE DIAGNOSTIKU NEUSNADŇUJÍ...

## Surviving Sepsis Campaign 2021 guideline: fails to appreciate the challenge of evaluating an undifferentiated patient

Justin Ang and Adrian Boyle

European Journal of Emergency Medicine 2022, 29:99–100

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Received 29 November 2021 Accepted 15 December 2021

The Surviving Sepsis Campaign has recently published an update to their 2016 guideline [1]. These guidelines are influential and important; they are adopted as quality metrics and incorporated into practice standards produced by national bodies. Failure to achieve standards can lead to regulatory penalties for institutions and individual clinician litigation. The guideline is peppered with strong recommendations based on weak, very weak, evidence and 'Best Practice Statements'.

Regrettably, the guideline writing group has produced recommendations from the premise that the diagnosis of sepsis and septic shock is usually straightforward. Most emergency physicians appreciate that the diagnosis of

time and careful clinical evaluation. The European Society For Emergency Medicine has expressed these concerns before, [5] and these still stand. Other professional societies have made alternative recommendations. Notably, the American College of Emergency Physicians states 'that there is insufficient evidence to recommend very short time scales for antibiotic administration for patients without shock' and this is endorsed by the Infectious Diseases Society of America [6].

The guideline fails to make useful recommendations for clinicians working outside intensive care units. The majority of patients who attend EDs with suspected sepsis are not admitted to ICU. The recognition of sepsis is



# Srovnání diagnostických kritérií SIRS a qSOFA pro časnou diagnostiku sepse – **4S** - Prospektivní observační studie

Cíl: 200 pacientů, 1. 2. 2018 – 29. 2. 2020, celkem 203 pacientů

1. 3. 2020 – první tři potvrzené případy infekce SARS-CoV-2

## • HLAVNÍ CÍL:

- porovnání diagnostických kritérií (SIRS versus qSOFA) sepse v urgentní medicíně: porovnat výše uvedené hodnoty vitálních funkcí u zařazených pacientů (SIRS versus SOFA) podle výsledných skupin: bez dg infekce, infekce, sepse;

## • VEDLEJŠÍ CÍLE:

- zjistit dosaženou **diagnostickou přesnost v přednemocniční fázi** na základě výsledné diagnózy v nemocnici (infekční versus neinfekční diagnóza)
- porovnat **hospitalizační letalitu („case-fatality ratio“)** v jednotlivých skupinách



# ZAŘAZOVACÍ KRITÉRIA

Pacienti ve studii 4 S:

204 celkem, 104 sepse, 90 infekce, 9 neinfekční diagnóza

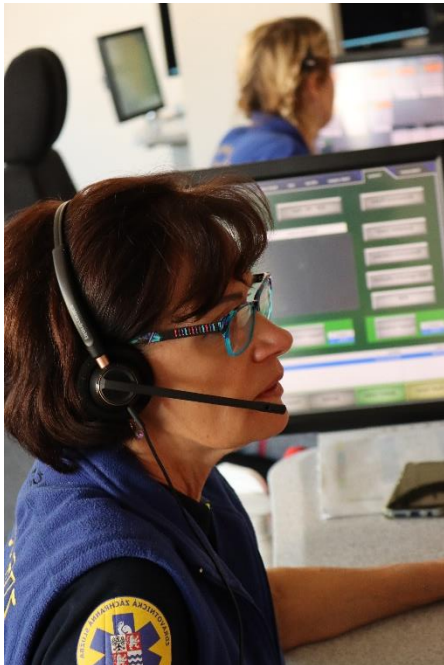
96 % infekční dg (infekce + sepse + septický šok) 51 % sepse + septický šok

- febrilní stav nebo hypotermie
- a současně předpokládaná diagnóza infekčního onemocnění
  - respirační: dušnost, kašel
  - močové infekce – příznaky infekce močových cest, zavedený permanentní močový katetr
  - GIT – průjmy, zvracení
  - dekubity se sekrecí
  - jakýkoliv suspektní zdroj infekce



# DIAGNOSTICKÁ PŘESNOST V PNP

## KLASIFIKACE OPERAČNÍHO STŘEDISKA



Tab. č. 3: Klasifikace ZOS

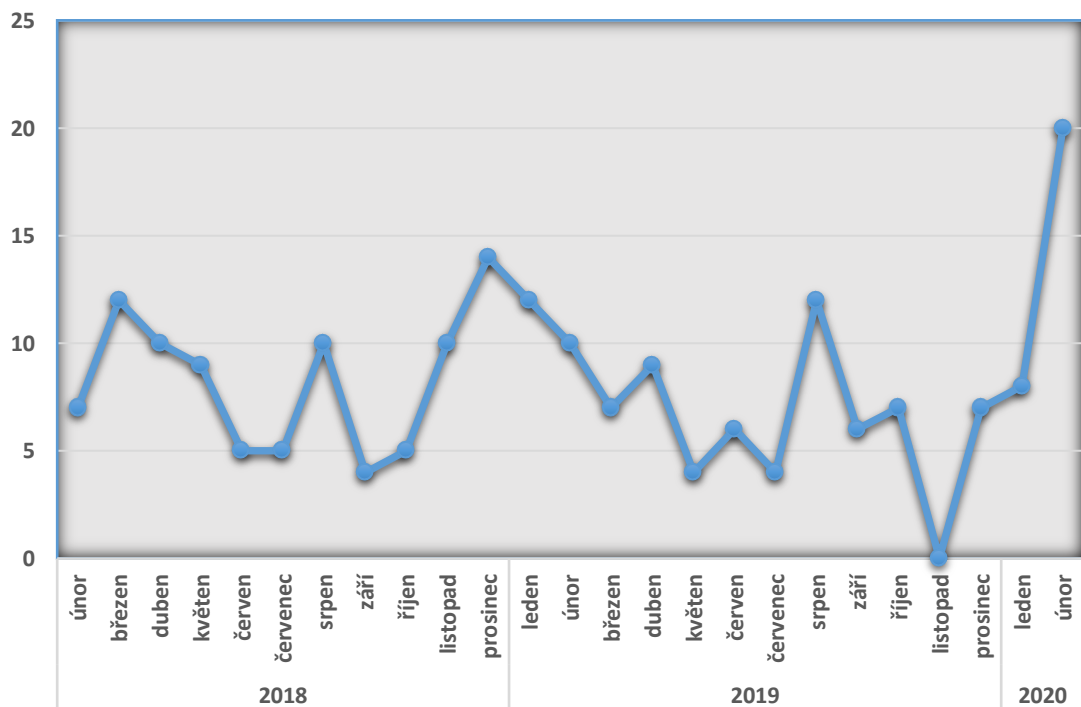
| Klasifikace ZOS ZZS  | Počet<br>= N            | %     |
|--|-------------------------|-------|
| Dušnost  | 75                      | 37 %  |
| Zhoršení stavu   | 46                      | 23 %  |
| Poruchy vědomí/kolaps/bezvědomí  | 25                      | 12 %  |
| Bolest (na hrudi/zad/břicha)   | 21                      | 10 %  |
| Neurologické obtíže nespecifikované  | 10                      | 5 %   |
| Teplota  | 9                       | 4 %   |
| Úraz/pád   | 6                       | 3 %   |
| Psychóza   | 4                       | 2 %   |
| Dehydratace – hypertenze – alergie<br>– hypoglykémie – intoxikace –<br>křeče – ležící osoba – otevírání bytu<br>– NEVÍME | po<br>jednom<br>případu | ∑ 4 % |



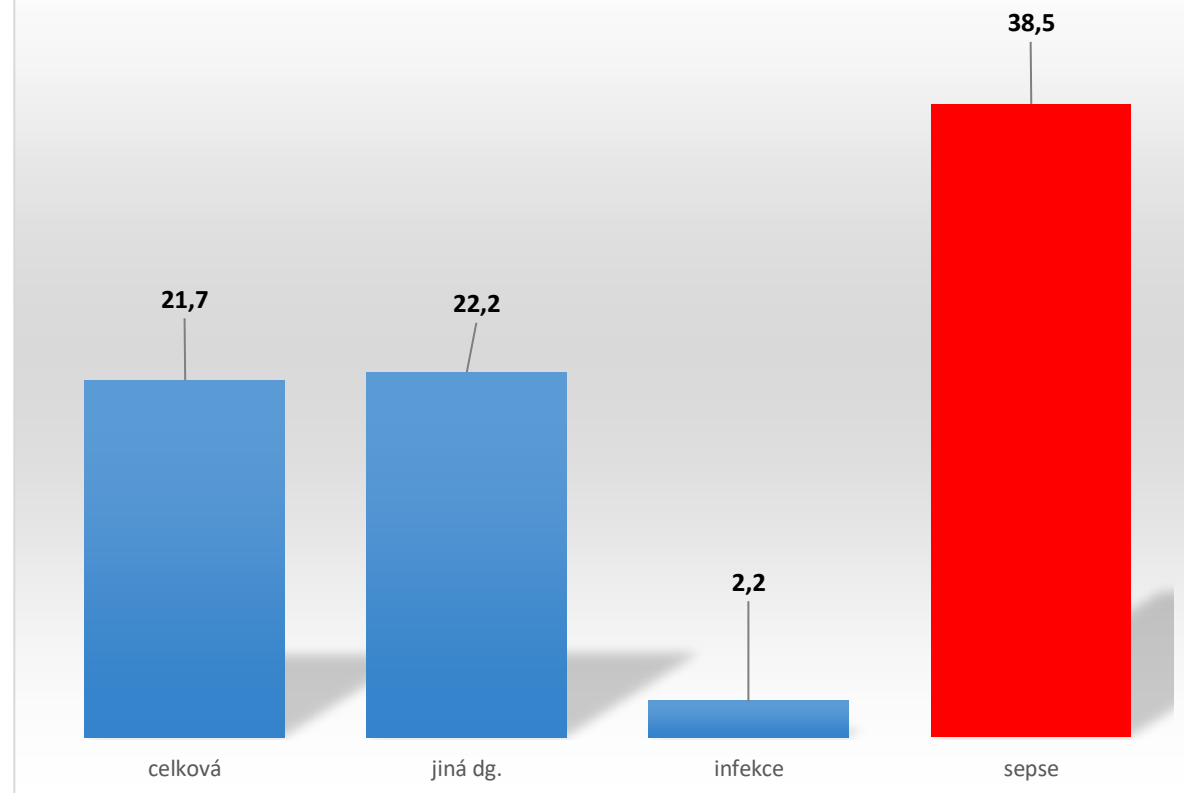
# 1. ROZLOŽENÍ V ČASE

## 2. MORTALITA JEDNOTLIVÝCH SKUPINÁCH

ROZLOŽENÍ V ČASE



CASE-FATALITY RATIO %



# SIRS NEBO qSOFA V DIAGNOSTICE?

*Tab. č. 2: Senzitivita a specificita kritérii SIRS a qSOFA v ZZS a na UP*

|                    | SENZITIVITA                   | SPECIFICITA                   |
|--------------------|-------------------------------|-------------------------------|
| <b>SIRS – ZZS</b>  | 71,2 %<br>(95% CI: 61,5-79,6) | 30,3 %<br>(95% CI: 21,5-40,4) |
| <b>SIRS – UP</b>   | 87,5 %<br>(95% CI: 79,6-93,2) | 34,3 %<br>(95% CI: 25,1-44,6) |
| <b>qSOFA – ZZS</b> | 39,4 %<br>(95% CI: 30,0-49,5) | 84,9 %<br>(95% CI: 76,2-91,3) |
| <b>qSOFA – UP</b>  | 43,3 %<br>(95% CI: 33,6-53,4) | 83,8 %<br>(95% CI: 75,1-90,5) |

# JSME VE SHODĚ....

## Recommendation

2. We **recommend against** using qSOFA compared with SIRS, NEWS, or MEWS as a single screening tool for sepsis or septic shock.  
*Strong recommendation, moderate-quality evidence.*

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| 3. For adults suspected of having sepsis, we suggest measuring blood lactate.   | <b>Weak, low quality of evidence</b>   |  |

# KLINICKÝ VÝZNAM qSOFA

January 2018 Volume 71, Issue 1, Pages 1–9.e2

## Low Accuracy of Positive qSOFA Criteria for Predicting 28-Day Mortality in Critically Ill Septic Patients During the Early Period After Emergency Department Presentation

Sung Yoon Hwang, MD, Ik Joon Jo, MD, Se Uk Lee, MD, Tae Rim Lee, MD, Hee Yoon, MD, Won Chul Cha, MD, Min Seob Sim, MD, Tae Gun Shin, MD

PlumX Metrics

DOI: <https://doi.org/10.1016/j.annemergmed.2017.05.022> | Check for updates

Article Info

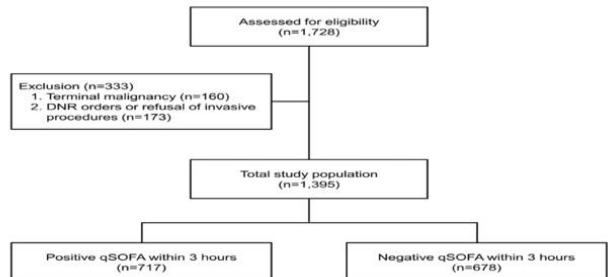


Figure 1. Patients included in the analysis. DNR, Do not resuscitate.

qSOFA found to have a low sensitivity and poor ability to work as a screening test for ED admitted patients who appeared very sick which questions its implementation against the model of early recognition and timely management.

## Prognostic value of prehospital quick sequential organ failure assessment score among patients with suspected infection

Prabakar Vaittinada Ayar<sup>a,b</sup>, Mathieu Delay<sup>b</sup>, Aurélie Avondo<sup>d</sup>, François-Xavier Duchateau<sup>e</sup>, Pierre Nadiras<sup>f</sup>, Frédéric Lapostolle<sup>g</sup>, Tahar Chouihed<sup>h</sup> and Yonathan Freund<sup>b,c</sup>

**Objective** After the third international consensus on sepsis released its new definitions, the prognostic value of quick sequential organ failure assessment (qSOFA) score has been confirmed in the emergency department. However, its validity in the prehospital setting remains unknown. The objective of the study was to assess its accuracy for prehospital patients cared by emergency physician-staffed ambulances (services mobiles d'urgence et de réanimation SMUR).

**Patients and methods** This was a prospective observational multicenter cohort study (N = 6). All consecutive patients with prehospital clinical suspicion of

qSOFA less than 2 (absolute difference 23%; 95% confidence interval: 13–33%, P < 0.001). The overall discrimination for qSOFA was poor, with an area under the receiver operating characteristic curve of 0.69 (95% confidence interval: 0.62–0.74).

**Conclusion** In this large multicenter study, prehospital qSOFA presents a strong association with mortality in infected patient, though with poor prognostic performances in our severely ill sample. *European Journal of Emergency Medicine* 00:000–000 Copyright © 2018 Wolters Kluwer Health, Inc. All rights reserved.



## Early variation of quick sequential organ failure assessment score to predict in-hospital mortality in emergency department patients with suspected infection

Najla Lemachatti<sup>a,b</sup>, Mar Ortega<sup>m</sup>, Andrea Penalzoza<sup>o</sup>, Pierrick Le Borgne<sup>h</sup>, Pierre-Géraud Claret<sup>i</sup>, Céline Occelli<sup>j</sup>, Jennifer Truchot<sup>c</sup>, Florence Dumas<sup>d</sup>, Anne-Laure Feral-Pierssens<sup>e</sup>, Héry Andrianjafy<sup>k</sup>, Sebastien Beaune<sup>f</sup>, Youri Yordanov<sup>a,g</sup>, Pierre Hausfater<sup>a,b</sup>, Bruno Riou<sup>a,b</sup>, Ben Bloom<sup>n</sup>, Evguenia Krastinova<sup>l</sup> and Yonathan Freund<sup>a,b</sup>; for the French Society of Emergency Medicine Collaborators Group and the INFURGSEMES Group

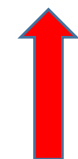
**Background** The quick sequential organ failure assessment (qSOFA) score showed good prognostic performance in patients with suspicion of infection in the emergency department (ED). However, previous studies only assessed the performance of individual values of qSOFA during the ED stay. As this score may vary over short timeframes, the optimal time of measurement, and the prognostic value of its variation are unclear. The objective of the present study was to prospectively assess the prognostic value of the change in qSOFA over the first 3 h ( $\Delta$ qSOFA = qSOFA at 3 h – qSOFA at inclusion).

between patients who died and those who survived (0.15, 95% confidence interval: 0.09–0.22, P < 0.001).

**Conclusion** In patients with suspected infection presenting to the ED with a qSOFA of 2 or higher, the early change in qSOFA is a strong independent predictor of mortality. *European Journal of Emergency Medicine* 00:000–000 Copyright © 2018 Wolters Kluwer Health, Inc. All rights reserved.

European Journal of Emergency Medicine 2018, 00:000–000

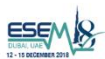
Keywords: emergency department,





# KLINICKÝ VÝZNAM qSOFA

umí identifikovat kritického, ale nikoliv nutně septického pacienta  
studie se shodují na predikci mortality, na nízké senzitivitě a vysoké specificitě



12-13 NOVEMBER 2018



Is (q)SOFA Criteria accurate for Predicting Mortality in sepsis?

**NO**

Dr. Nidal Shawish. MD, MB.ChB., JBEM

Specialist in Accident and Emergency Medicine

Sheikh Khalifa Medical City, Emergency Medicine Institute

Abu Dhabi, United Arab Emirates

chest

Organ Dysfunction and Organ Dysfunction

A Prospective Cohort Study of ED Patients With Sepsis

Background: A proposed revision of sepsis definitions has identified the window to treatment requires evidence (SIRS), defined organ dysfunction as an increase in need for organ function (organ dysfunction) and/or a need for organ dysfunction (SIRS). SIRS, SIRS, and organ dysfunction (SIRS) are the most commonly used criteria for sepsis. SIRS, SIRS, and organ dysfunction (SIRS) are the most commonly used criteria for sepsis. SIRS, SIRS, and organ dysfunction (SIRS) are the most commonly used criteria for sepsis.

Methods: We enrolled 8,871 patients, with SIRS present in 4,176 (47.1%). SIRS was associated with increased risk of organ dysfunction (relative risk [RR] 3.5) and mortality in patients without organ dysfunction (OR 3.2). SIRS and qSOFA showed similar discrimination for organ dysfunction (area under the receiver operating characteristic curve, 0.72 vs 0.73).

Conclusions: qSOFA was specific but poorly sensitive for organ dysfunction (96.1% and 29.7%, respectively). Mortality for patients with organ dysfunction was similar for Sepsis-2 and Sepsis-3 (12.5% and 11.4%, respectively), although 29% of patients with Sepsis-3 organ dysfunction did not meet Sepsis-2 criteria. Increasing numbers of Sepsis-2 organ system dysfunctions were associated with greater mortality.

CONCLUSIONS:

SIRS was associated with organ dysfunction and mortality, and abandoning the concept appears premature.

A qSOFA score  $>2$  showed high specificity, but poor sensitivity may limit utility as a bedside screening method. Although mortality for organ dysfunction was comparable between Sepsis-2 and Sepsis-3, more prognostic and clinical information is conveyed using Sepsis-2 regarding number and type of organ dysfunctions.

The SOFA score may require recalibration with patient's data.

který chcete změnit, a nahradit ho něčím jiným.

(Williams et al., 2017) published in Critical Care Medicine found that it was not the right time to abandon SIRS criteria.

# CO DALŠÍHO NÁM DATA UKÁZALA?

Tab. č. 3 – deskriptivní statistika – shrnutí kontinuálních proměných a jejich standardních odchylek

|                     | počet (%)   | věk         | hodnota CRP   | počet leukocytů | počet selhávajících organánů |
|---------------------|-------------|-------------|---------------|-----------------|------------------------------|
| Celý soubor         | 203 (100%)  | 74.1 (14.7) | 122.1 (111.8) | 12.5 (6.0)      | 1.4 (1.2)                    |
| Muži                | 106 (52.2%) | 72.4 (14.5) | 128.3 (126.2) | 12.4 (5.7)      | 1.5 (1.3)                    |
| Ženy                | 97 (47.8%)  | 76.0 (14.7) | 115.4 (93.9)  | 12.7 (6.3)      | 1.3 (1.1)                    |
| Bez sepse           | 99 (48.8%)  | 73.4 (14.0) | 62.6 (64.4)   | 11.4 (4.8)      | 0.7 (0.8)                    |
| Se sepsí            | 104 (51.2%) | 74.8 (15.4) | 178.7 (118.1) | 13.6 (6.7)      | 2.1 (1.1)                    |
| Propuštěn/a         | 159 (78.3%) | 72.5 (14.2) | 109.1 (100.8) | 12.1 (5.5)      | 1.2 (1.1)                    |
| Zemřel/a            | 44 (21.7%)  | 79.9 (15.2) | 169.0 (136.0) | 14.1 (7.4)      | 2.2 (1.1)                    |
| Sepse a propuštěn/a | 64 (61.5%)  | 72.5 (14.2) | 177.4 (106.9) | 13.2 (6.3)      | 2.0 (1.2)                    |
| Sepse a zemřel/a    | 40 (38.5%)  | 79.9 (15.2) | 180.8 (135.4) | 14.4 (7.4)      | 2.3 (1.1)                    |

Legenda: statisticky významné rozdíly zvýrazněny.

# JEDNOTLIVÉ POLOŽKY qSOFA V PNP

Tab. č. 4 - Vitální funkce v přednemocniční fázi – shrnutí kontinuálních proměných a jejich standardních odchylek

|                     | počet (%)   | tlak systolický | tlak diastolický | dechová frekvence | teplota    | GSC         |
|---------------------|-------------|-----------------|------------------|-------------------|------------|-------------|
| Celý soubor         | 203 (100%)  | 131.2 (34.3)    | 73.3 (20.0)      | 24.0 (9.7)        | 38.2 (1.2) | 13.8 (2.47) |
| Muži                | 106 (52.2%) | 132.4 (34.8)    | 74.3 (19.6)      | 24.4 (9.9)        | 38.3 (1.1) | 13.7 (2.4)  |
| Ženy                | 97 (47.8%)  | 130.0 (33.8)    | 72.3 (20.5)      | 23.6 (9.4)        | 38.0 (1.3) | 13.8 (2.6)  |
| Bez sepse           | 99 (48.8%)  | 142.2 (30.1)    | 79.6 (15.9)      | 22.7 (8.5)        | 38.2 (1.1) | 14.4 (1.6)  |
| Se sepsí            | 104 (51.2%) | 120.8 (34.9)    | 67.4 (21.8)      | 25.2 (10.6)       | 38.1 (1.3) | 13.1 (2.9)  |
| Propuštěn/a         | 159 (78.3%) | 135.1 (33.5)    | 75.7 (17.9)      | 23.4 (9.1)        | 38.2 (1.1) | 14.2 (1.9)  |
| Zemřel/a            | 44 (21.7%)  | 117.3 (33.8)    | 65.0 (24.9)      | 26.1 (11.2)       | 37.8 (1.4) | 12.2 (3.4)  |
| Sepse & propuštěn/a | 64 (61.5%)  | 124.4 (35.1)    | 69.3 (19.1)      | 24.6 (9.9)        | 38.2 (1.4) | 13.6 (2.7)  |
| Sepse & zemřel/a    | 40 (38.5%)  | 114.9 (34.0)    | 64.3 (25.4)      | 26.3 (11.6)       | 37.9 (1.2) | 12.5 (3.2)  |

Legenda: statisticky významné rozdíly zvýrazněny.



# JEDNOTLIVÉ POLOŽKY qSOFA NA UP

Tab. č. 5 – Vitální funkce na urgentním příjmu – shrnutí kontinuálních proměných a jejich standardních odchylek

|                     | počet (%)   | tlak systolický | tlak diastolický | dechová frekvence | teplota    | GSC        |
|---------------------|-------------|-----------------|------------------|-------------------|------------|------------|
| Celý soubor         | 203 (100%)  | 134.3 (32.0)    | 78.6 (18.8)      | 24.6 (9.0)        | 37.8 (1.1) | 13.7 (2.4) |
| Muži                | 106 (52.2%) | 135 (33.4)      | 80.9 (18.7)      | 24.5 (9.3)        | 37.9 (1.0) | 13.7 (2.3) |
| Ženy                | 97 (47.8%)  | 133.5 (30.7)    | 76.1 (18.7)      | 24.7 (8.6)        | 37.6 (1.1) | 13.8 (2.6) |
| Bez sepse           | 99 (48.8%)  | 143.6 (27.2)    | 83.5 (16.8)      | 22.9 (7.3)        | 37.9 (0.9) | 14.5 (1.5) |
| Se sepsí            | 104 (51.2%) | 125.4 (33.9)    | 73.9 (19.5)      | 26.1 (10.1)       | 37.7 (1.2) | 13.0 (2.9) |
| Propuštěn/a         | 159 (78.3%) | 137.8 (31.6)    | 79.8 (18.6)      | 24.2 (9.0)        | 37.9 (1.1) | 14.2 (1.8) |
| Zemřel/a            | 44 (21.7%)  | 121.5 (30.8)    | 74.2 (19.2)      | 25.8 (8.6)        | 37.4 (1.1) | 12.1 (3.5) |
| Sepse & propuštěn/a | 64 (61.5%)  | 128.8 (35.3)    | 73.7 (19.4)      | 26.2 (10.8)       | 37.9 (1.2) | 13.5 (2.6) |
| Sepse & zemřel/a    | 40 (38.5%)  | 119.9 (31.1)    | 74.2 (19.9)      | 26.1 (8.9)        | 37.4 (1.1) | 12.3 (3.3) |

Legenda: statisticky významné rozdíly zvýrazněny.

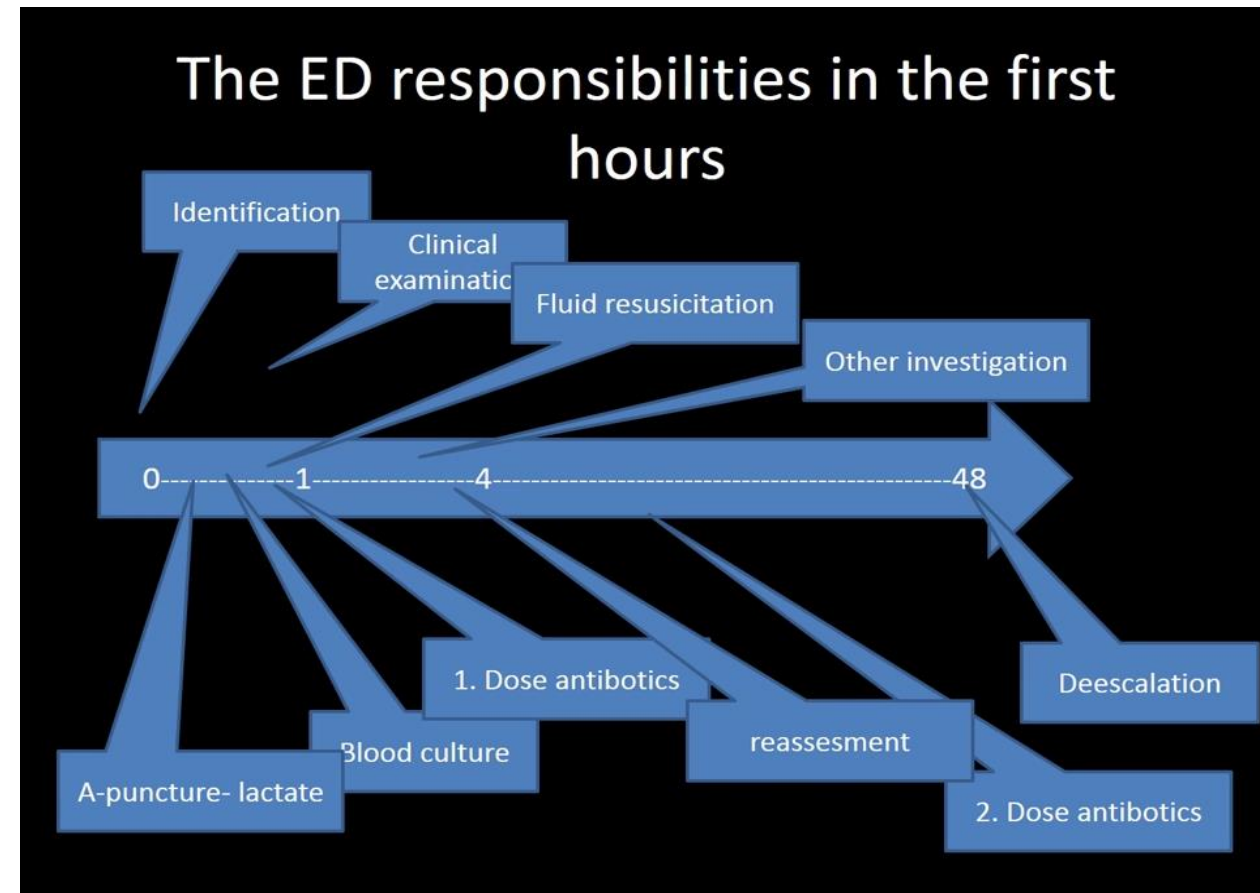


# KONTROVERZE OHLEDNĚ APLIKACE ATB NA UP VERSUS RIZIKO ODKLADU PŘI HOSPITALIZACI NA STANDARDNÍM ODDĚLENÍ

| Recommendations 2021   | Recommendation Strength and Quality of Evidence   | Changes From 2016 Recommendations  |
|--|---|--|
| <b>INFECTION</b>   |   |  |
| 11. For adults with suspected sepsis or septic shock but unconfirmed infection, we recommend continuously re-evaluating and searching for alternative diagnoses and discontinuing empiric antimicrobials if an alternative cause of illness is demonstrated or strongly suspected. | <b>Best practice statement</b>  |  |
| 12. For adults with possible septic shock or a high likelihood for sepsis, we recommend administering antimicrobials immediately, ideally within 1 hr of recognition.  | <b>Strong, low quality of evidence (Septic shock)</b><br><b>Strong, very low quality of evidence (Sepsis without shock)</b> | <b>CHANGED from previous:</b><br>"We recommend that administration of intravenous antimicrobials should be initiated as soon as possible after recognition and within one hour for both a) septic shock and b) sepsis without shock"<br><br><b>strong recommendation, moderate quality of evidence</b> |
| 13. For adults with possible sepsis without shock, we recommend rapid assessment of the likelihood of infectious versus noninfectious causes of acute illness.   | <b>Best practice statement</b>  |  |
| 14. For adults with possible sepsis without shock, we suggest a time-limited course of rapid investigation and if concern for infection persists, the administration of antimicrobials within 3 hr from the time when sepsis was first recognized.                                 | <b>Weak, very low quality of evidence</b>   | <b>NEW from previous:</b><br>"We recommend that administration of IV antimicrobials should be initiated as soon as possible after recognition and within 1 hr for both a) septic shock and b) sepsis without shock"<br><br><b>strong recommendation, moderate quality of evidence</b>                  |
| 15. For adults with a low likelihood of infection and without shock, we suggest deferring antimicrobials while continuing to closely monitor the patient.  | <b>Weak, very low quality of evidence</b>   | <b>NEW from previous:</b><br>"We recommend that administration of IV antimicrobials should be initiated as soon as possible after recognition and within 1 hr for both a) septic shock and b) sepsis without shock"  |

# CO DÁL V URGENTNÍ MEDICÍNĚ A JAK SNÍŽIT LETALITU?

- Pro diagnostiku je potřeba zejména na sepsi myslet
  - a pak lze užít jakékoliv skórovací schéma
- Nejvyšší čas vypracovat doporučené postupy pro urgentní medicínu
  - s ohledem na pacienty, co velmi pravděpodobně budou přijati na standardní oddělení
- Každý UP by měl mít organizační a terapeutický standard
  - Včetně vypracované ATB léčby ve spolupráci s místním ATB střediskem





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