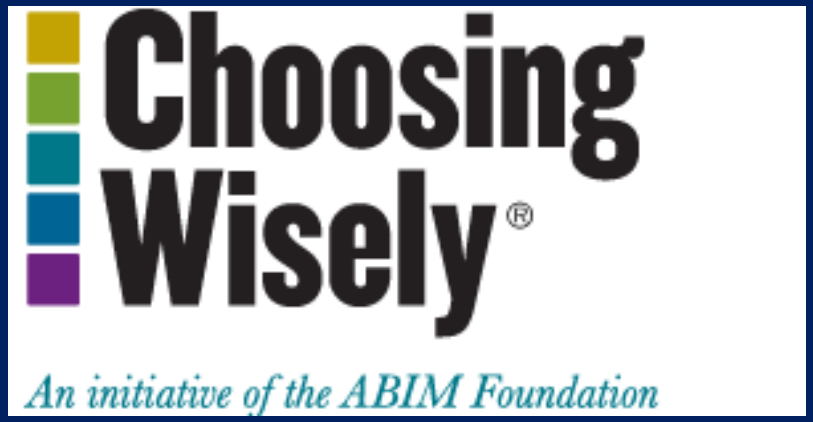
Iniciativa „Choosing wisely“ a panel Sepsis-3

Antonín Jabor, IKEM Praha



- Iniciativa nadace ABIM (http://www.abimfoundation.org/, American Board of Internal Medicine) z roku 2012
- cíl: „podpořit diskusi lékařů a pacientů o moudrém výběru léčby“
- proč: akcelerovaná a rozšiřující se nabídka diagnostických a léčebných postupů, která v konečném důsledku může vést ke plýtvání prostředků na nevhodných místech lékařské péče a v horším případě k ohrožení bezpečnosti a zdraví pacienta
- kdo: v roce 2015 kampaň podporovalo 12 států (USA, Kanada, Austrálie, Itálie a další). Do počátku roku 2017 se ke kampani připojilo 70 odborných společností (400 doporučení a 300 publikací o zbytečných postupech)

Choosing Wisely®
An initiative of the ABIM Foundation

Critical Care Societies Collaborative - **Critical Care**

American Association of Critical-Care Nurses · CHEST American College of Chest Physicians · ATS We help the world breathe · Society of Critical Care Medicine

Five Things Physicians and Patients Should Question

1 Don't order diagnostic tests at regular intervals (such as every day), but rather in response to specific clinical questions.

Many diagnostic studies (including chest radiographs, arterial blood gases, blood chemistries and counts and electrocardiograms) are ordered at regular intervals (e.g., daily). Compared with a practice of ordering tests only to help answer clinical questions, or when doing so will affect management, the routine ordering of tests increases health care costs, does not benefit patients and may in fact harm them. Potential harms include anemia due to unnecessary phlebotomy, which may necessitate risky and costly transfusion, and the aggressive work-up of incidental and non-pathological results found on routine studies.

2 Don't transfuse red blood cells in hemodynamically stable, non-bleeding ICU patients with a hemoglobin concentration greater than 7 g/dL.

Most red blood cell transfusions in the ICU are for benign anemia rather than acute bleeding that causes hemodynamic compromise. For all patient populations in which it has been studied, transfusing red blood cells at a threshold of 7 g/dL is associated with similar or improved survival, fewer complications and reduced costs compared to higher transfusion triggers. More aggressive transfusion may also limit the availability of a scarce resource. It is possible that different thresholds may be appropriate in patients with acute coronary syndromes, although most observational studies suggest harms of aggressive transfusion even among such patients.

3 Don't use parenteral nutrition in adequately nourished critically ill patients within the first seven days of an ICU stay.

For patients who are adequately nourished prior to ICU admission, parenteral nutrition initiated within the first seven days of an ICU stay has been associated with harm, or at best no benefit, in terms of survival and length of stay in the ICU. Early parenteral nutrition is also associated with unnecessary costs. These findings are true even among patients who cannot tolerate enteral nutrition. Evidence is mixed regarding the effects of early parenteral nutrition on nosocomial infections. For patients who are severely malnourished directly prior to their ICU admission, there may be benefits to earlier parenteral nutrition.

4 Don't deeply sedate mechanically ventilated patients without a specific indication and without daily attempts to lighten sedation.

Many mechanically ventilated ICU patients are deeply sedated as a routine practice despite evidence that using less sedation reduces the duration of mechanical ventilation and ICU and hospital length of stay. Several protocol-based approaches can safely limit deep sedation, including the explicit titration of sedation to the lightest effective level, the preferential administration of analgesic medications prior to initiating anxiolytics and the performance of daily interruptions of sedation in appropriately selected patients receiving continuous sedative infusions. Although combining these approaches may not improve outcomes compared to one approach alone, each has been shown to improve patient outcomes compared with approaches that provide deeper sedation for ventilated patients.

5 Don't continue life support for patients at high risk for death or severely impaired functional recovery without offering patients and their families the alternative of care focused entirely on comfort.

Patients and their families often value the avoidance of prolonged dependence on life support. However, many of these patients receive aggressive life-sustaining therapies, in part due to clinicians' failures to elicit patients' values and goals, and to provide patient-centered recommendations. Routinely engaging high-risk patients and their surrogate decision makers in discussions about the option of foregoing life-sustaining therapies may promote patients' and families' values, improve the quality of dying and reduce family distress and bereavement. Even among patients pursuing life-sustaining therapy, initiating palliative care simultaneously with ongoing disease-focused therapy may be beneficial.

AMERICAN ASSOCIATION of CRITICAL-CARE NURSES

CHEST® AMERICAN COLLEGE of CHEST PHYSICIANS

ATS® We help the world breathe® PULMONARY · CRITICAL CARE · SLEEP

Society of Critical Care Medicine
The Intensive Care Professionals

Patient Materials

- Search patient-friendly resources by Consumer Reports.

AMERICAN JOURNAL OF CRITICAL CARE, November 2014, Volume 23, No. 6

http://www.choosingwisely.org/societies/critical-care-societies-collaborative-critical-care/

Academic Emergency Medicine
Official Journal of the Society for Academic Emergency Medicine

ORIGINAL CONTRIBUTION

Choosing Wisely in Emergency Medicine: A National Survey of Emergency Medicine Academic Chairs and Division Chiefs

Brandon C. Maughan, MD, MHS, MSHP, Jill M. Baren, MD, MBE, Judy A. Shea, PhD, and Raina M. Merchant, MD, MSHP

Diskutované problémy

- computed tomography (CT) for minor head injury
- unnecessary use of urinary catheters
- promoting use of palliative care services for emergency department (ED) patients
- avoidance of antibiotics for uncomplicated skin abscess after incision and drainage
- encouraging oral fluid trials before intravenous rehydration in children with nonsevere dehydration.

American College of Emergency Physicians (ACEP)
ACADEMIC EMERGENCY MEDICINE 2015;22:1506–1510

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Conclusions

Most academic emergency medicine chairs recognized Choosing Wisely, but only **slightly more than half remembered any** of the American College of Emergency Physicians guidelines for the program. These leaders **anticipated Choosing Wisely will have positive effects**, but they only **infrequently discuss the recommendations with patients.** Future research on ED resource stewardship should measure costs and benefits of consultantrequested tests among ED patients.

American College of Emergency Physicians (ACEP)
ACADEMIC EMERGENCY MEDICINE 2015;22:1506–1510

- **Změna paradigmatu medicíny**
  - Od modelu lékař jako individuum k modelu medicínských týmů složených z odborníků na dílčí problémy
  - Od modelu lékaře provázejícího pacienta onemocněním od počátečních symptomů ke konečnému outcome k modelu střídajících se týmů ve směnném provozu
- Je to dobře?

Změna paradigmatu medicíny

- je to dobře?
- každopádně:
  - expert použije **více (diagnostických) postupů** ve své medicínské oblasti, protože je zná
- ale současně:
  - expert použije (pravděpodobně) nejvhodnější léčbu, protože ji zná
  - ale také: tendence k „**overtreatment**“

Nová povaha medicíny

Overtesting

Overdiagnosis

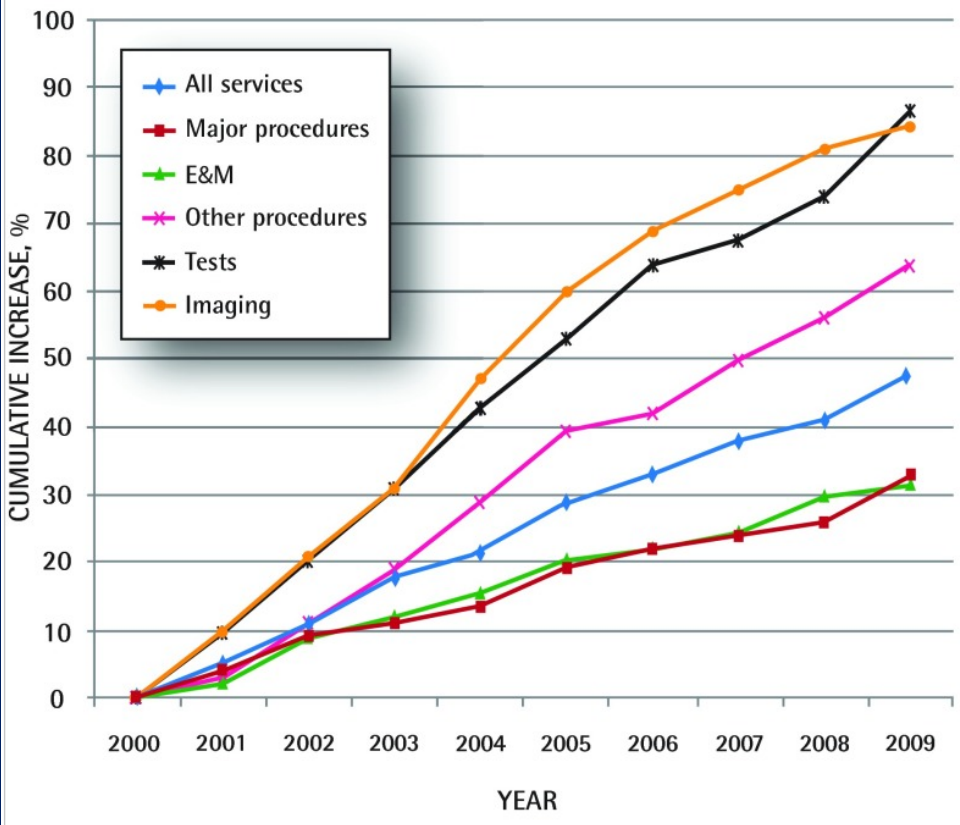
Overtreatment

Nová povaha medicíny

„Miliónům Američanů se nabízejí testy, léky a operace, které jim nepomohou, mohou jim ublížit a stojí miliardy.“

Nová povaha medicíny

Figure 1. Growth in volume of physician services in the United States per Medicare beneficiary from 2000 to 2009

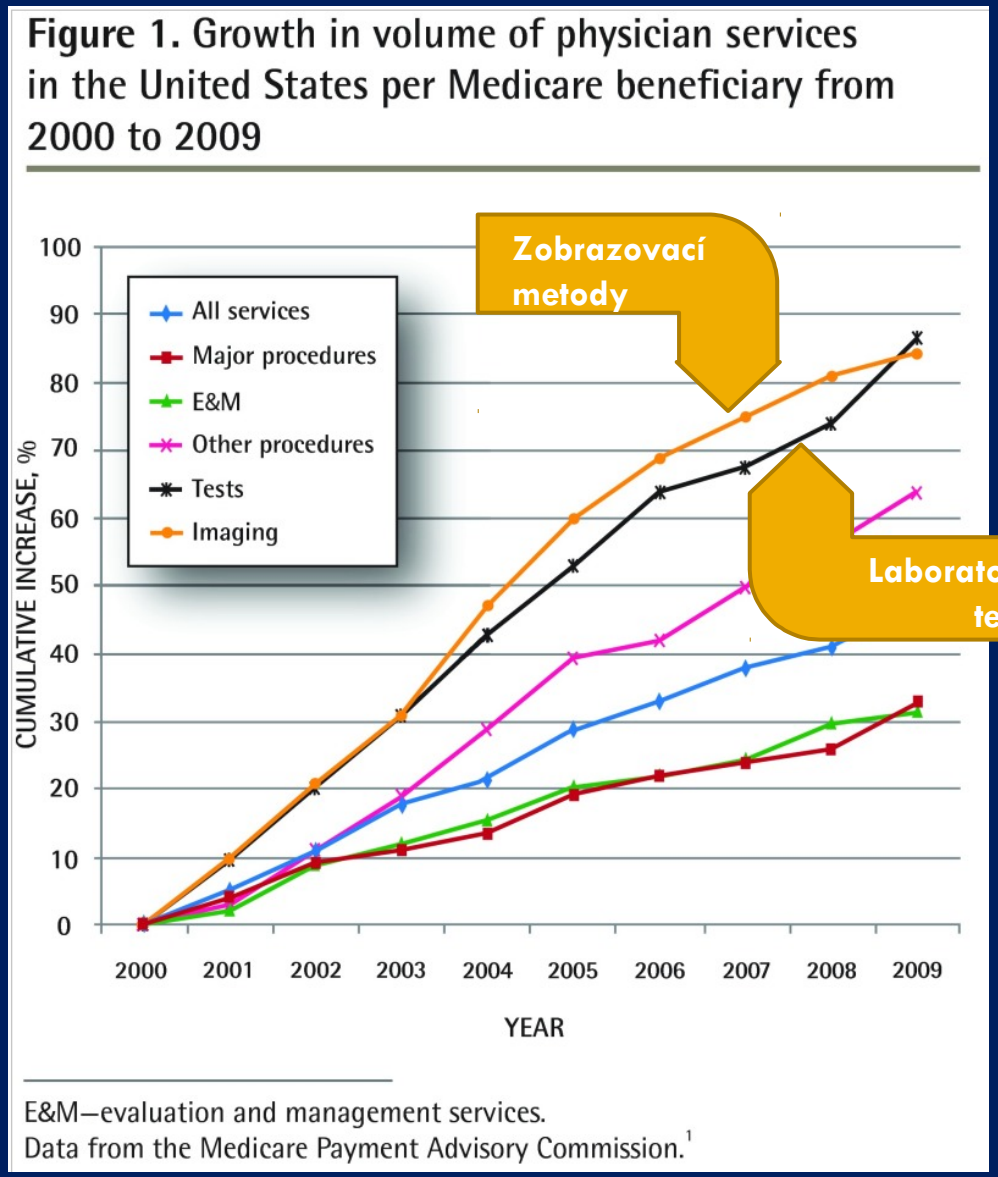


E&M—evaluation and management services.
Data from the Medicare Payment Advisory Commission.[1]

„Miliónům Američanů se nabízejí testy, léky a operace, které jim nepomohou, mohou jim ublížit a stojí miliardy.“

Kumulativní vzestup v %

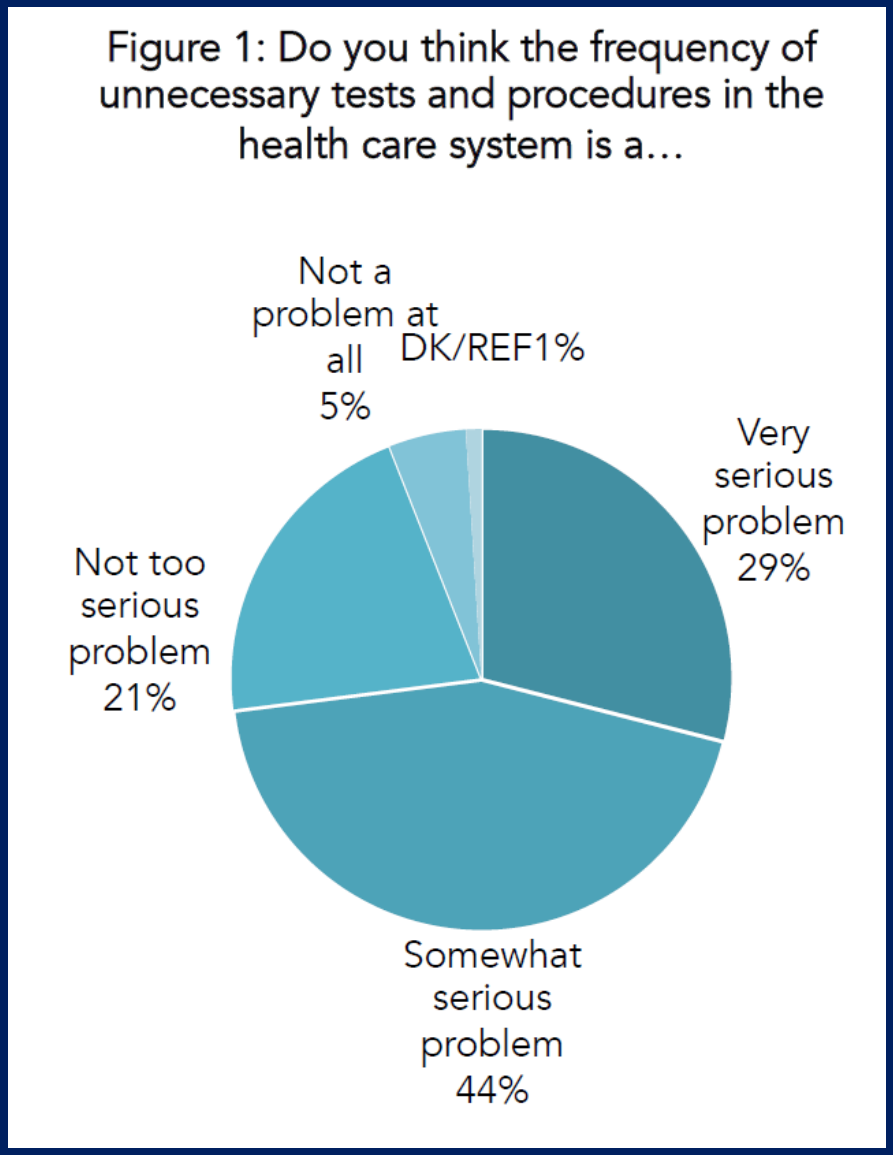
Nová povaha medicíny



„Miliónům Američanů se nabízejí testy, léky a operace, které jim nepomohou, mohou jim ublížit a stojí miliardy.“

Kumulativní vzestup v %

Nová povaha medicíny



Myslíte, že frekvence zbytečných testů a postupů ve zdravotnictví je

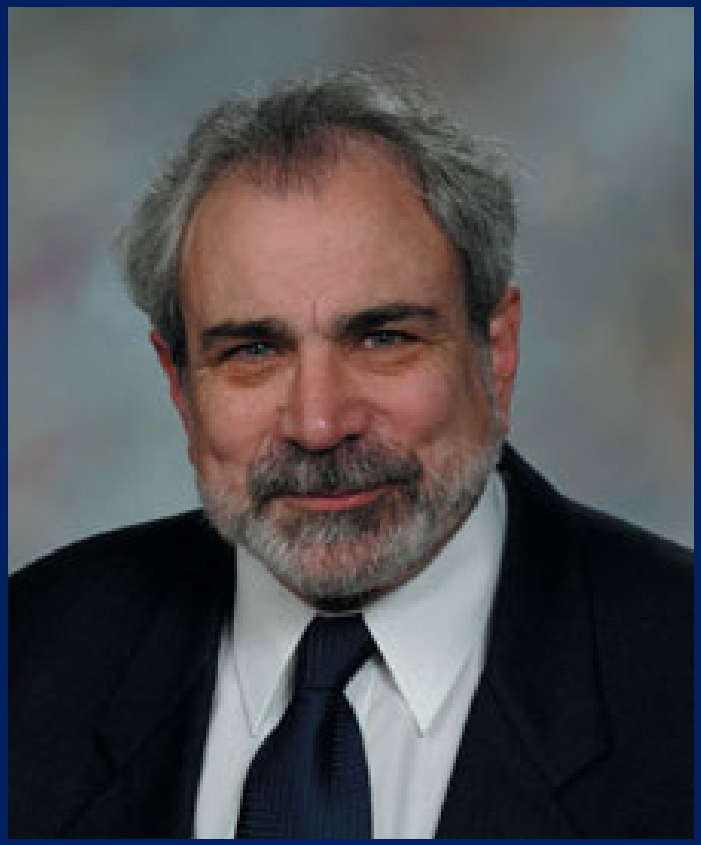
- **velmi závažný problém? (29 %)**
- **spíše závažný problém? (44 %)**
- ne příliš závažný problém? (21 %)
- vůbec není problém? (5 %)
- ostatní (1 %)

Unnecessary tests and Procedures in the Health Care System, May, 2014

Nová povaha laboratorní medicíny

- **I zde je změna paradigmatu**
  - Od modelu testu, o kterém vím základní charakteristiky, k testu, o němž mám robustní **důkazy** o klinickém významu
  - Od modelu testu, který mi poskytuje informaci o zvýšeném riziku, k modelu používání testu, u kterého mám definovány **akční meze** – co udělat s výsledkem ve prospěch pacienta

„Assays can no longer be used without some understanding of their clinical utility“



...nenabízet testy, o jejichž klinickém významu víme málo nebo nic...

Jaffe, AS. The world is changing –are we ready? JIFCC, 2016, 57:186-188.

1992 – 2017: 25 let od definice sepse

Definice sepse 1992 (Bone et al.)

accp/sccm 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. Sc
William J. Sibbald

An American College of Chest Physicians/Society of Critical Care Medicine Consensus Conference was held in Northbrook in August 1991 with the goal of agreeing on a set of definitions that could be applied to patients with sepsis and its sequelae. New definitions were offered for some terms, while others were discarded. Broad definitions of sepsis and the systemic inflammatory response syndrome were proposed, along with detailed physiologic parameters by

scoring methods
recommended as
Appropriate meth
testing of new the
these terms and
researchers who d

1992 - 2017

(Re)definice sepse 2001 (Levy et al.)

Special Articles

2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference

Mitchell M. Levy, MD, FCCP; Mitchell P. Fink, MD, FCCP; John C. Marshall, MD; Edward Abraham, MD; Derek Angus, MD, MPH, FCCP; Deborah Cook, MD, FCCP; Jonathan Cohen, MD; Steven M. Opal, MD; Jean-Louis Vincent, MD, FCCP, PhD; Graham Ramsay, MD; For the International Sepsis Definitions Conference

Objective: In 1991, the American College of Chest Physicians (ACCP) and the Society of Critical Care Medicine (SCCM) convened a "Consensus Conference," the goals of which were "to provide a conceptual and a practical framework to define the systemic inflammatory response to infection, which is a progressive injurious process that falls under the generalized term 'sepsis' and includes sepsis-associated organ dysfunction as well." The general definitions introduced as a result of that conference have been widely used in practice and have served as the foundation for inclusion criteria for numerous clinical trials of therapeutic interventions. Nevertheless, there has been an impetus from experts in the field to modify these definitions to reflect our current understanding of the pathophysiology of these syndromes.

Design: Several North American and European intensive care societies agreed to revisit the definitions for sepsis and related conditions. This conference was sponsored by the SCCM, The European Society of Intensive Care Medicine (ESICM), The American College of Chest Physicians (ACCP), the American Thoracic Society (ATS), and the Surgical Infection Society (SIS).

Methods: The conference was attended by 29 participants from Europe and North America. In advance of the conference, five subgroups were formed to evaluate the following areas: signs and symptoms of sepsis, cell markers, cytokines, microbiologic data, and coagulation parameters. The subgroups corresponded electronically before the conference and met in person during the conference. A spokesperson for each group presented the deliberation of each group to all conference participants during a plenary session. A writing committee was formed at the conference and developed the current article based on executive summary documents generated by each group and the plenary group presentations. The present article serves as the final report of the 2001 International Sepsis Definitions Conference.

Conclusion: This document reflects a process whereby a group of experts and opinion leaders revisited the 1992 sepsis guidelines and found that apart from expanding the list of signs and symptoms of sepsis to reflect clinical bedside experience, no evidence exists to support a change to the definitions. This lack of evidence serves to underscore the challenge still present in diagnosing sepsis in 2003 for clinicians and researchers and also provides the basis for introducing PIRO as a hypothesis-generating model for future research. (Crit Care Med 2003; 31:1250–1256)

Key Words: sepsis; severe sepsis; septic shock; systemic inflammatory response syndrome; PIRO

Příprava nové definice sepse (Woodman et al.)

Příprava nové definice sepse (Woodman et al.)

1990 - 2015

Definice sepse 2016 (Singer et al.)

Dr. Mervyn Singer

Clinical Review & Education

Special Communication | CARING FOR THE CRITICALLY ILL PATIENT

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

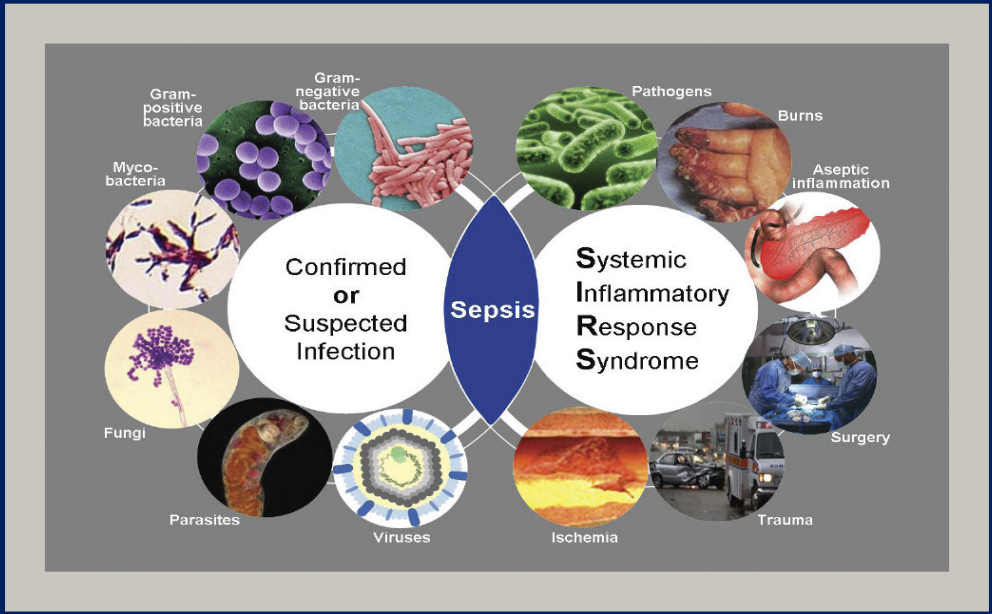
Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Christopher Warren Seymour, MD, MSc; Manu Shankar-Hari, MSc, MD, FFICM; Djillali Annane, MD, PhD; Michael Bauer, MD; Rinaldo Bellomo, MD; Gordon R. Bernard, MD; Jean-Daniel Chiche, MD, PhD; Craig M. Coopersmith, MD; Richard S. Hotchkiss, MD; Mitchell 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; Derek C. 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).

Co přinesla definice sepse z roku 1992?



Systemic Inflammatory Response Syndrome
Syndrom systémové zánětlivé odpovědi

Přítomnost dvou a více známek = SIRS

NÁLEZ	HODNOTA
Teplota	<36 °C nebo >38 °C
Tepová frekvence	>90/min
Dechová frekvence	>20/min nebo $PaCO_2$ < 4.3 kPa
Leukocyty	<4 . 10^9/l nebo >12 . 10^9/l nebo více než 10 % nezralých neutrofilů (tyček)

American College of Chest Physicians/Society of Critical Care Medicine, Consensus Conference 1992

Co přinesla (re)definice sepse z roku 2001?

Table 1. Diagnostic criteria for sepsis

Infection,[a] documented or suspected, and some of the following:[b]

General variables
- Fever (core temperature >38.3°C)
- Hypothermia (core temperature <36°C)
- Heart rate >90 min^{-1} or >2 SD above the normal value for age
- Tachypnea
- Altered mental status
- Significant edema or positive fluid balance (>20 mL/kg over 24 hrs)
- Hyperglycemia (plasma glucose >120 mg/dL or 7.7 mmol/L) in the absence of diabetes

Inflammatory variables
- Leukocytosis (WBC count >12,000 μL^{-1})
- Leukopenia (WBC count <4000 μL^{-1})
- Normal WBC count with >10% immature forms
- Plasma C-reactive protein >2 SD above the normal value
- Plasma procalcitonin >2 SD above the normal value

Hemodynamic variables
- Arterial hypotension[b] (SBP <90 mm Hg, MAP <70, or an SBP decrease >40 mm Hg in adults or <2 SD below normal for age)
- $S\bar{v}O_2$ >70%[b]
- Cardiac index >3.5 $L \cdot min^{-1} \cdot M^{-2}$[3]

Organ dysfunction variables
- Arterial hypoxemia (PaO_2/FIO_2 <300)
- Acute oliguria (urine output <0.5 $mL \cdot kg^{-1} \cdot hr^{-1}$ or 45 mmol/L for at least 2 hrs)
- Creatinine increase >0.5 mg/dL
- Coagulation abnormalities (INR >1.5 or aPTT >60 secs)
- Ileus (absent bowel sounds)
- Thrombocytopenia (platelet count <100,000 μL^{-1})
- Hyperbilirubinemia (plasma total bilirubin >4 mg/dL or 70 mmol/L)

Tissue perfusion variables
- Hyperlactatemia (>1 mmol/L)
- Decreased capillary refill or mottling

Co přinesla definice sepse z roku 2016?

- **Definice podle Sepsis-3**

Sepse = život ohrožující orgánová dysfunkce způsobená dysregulovanou odpovědí hostitele na infekci

  - Identifikace orgánové dysfunkce: akutní změna **SOFA** o 2 a více bodů, která je důsledkem infekce
  - Sepse – jinými slovy: život ohrožující stav, který se objevuje při takové odpovědi organismu na infekci, která poškozuje jeho vlastní tkáně a orgány
- **Těžká sepse – termín již nepoužívat**
- **Koncept SIRS není užitečný**
- **Septický šok: podmnožina sepse, při které související buněčné a metabolické abnormality jsou natolik vyjádřené, že podstatně zvyšují mortalitu**
  - Identifikace septického šoku: persistující hypotenze vyžadující vazopresory k udržení středního arteriálního tlaku 65 torr více a koncentrace **laktátu** nad 2 mmol/l navzdory adekvátní tekutinové resuscitaci

(Singer et al., JAMA 2016;315(8)801-810)

Co přinesla definice sepse z roku 2016?

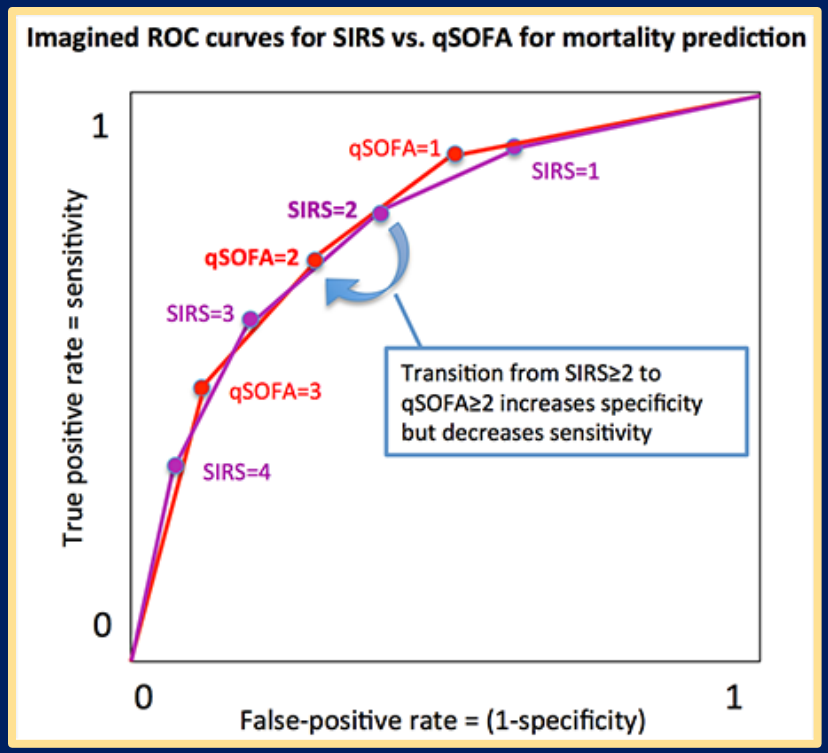
- **Definice podle Sepsis-3**
  - **kce způsobená dysregulovanou**
  - kutní změna **SOFA** o 2 a více bodů,
  - Sepse – jinými s[illegible]: život ohrožující stav, který se objevuje při takové odpovědi orgar[illegible]u na infekci, která poškozuje [illegible]o vlastní tkáně a orgány
- **Těžká sepse – termí[illegible] nepoužívat**
- **Koncept SIRS není už[illegible]ný**
- **Septický šok: podmnoži[illegible]sepse, při které sou[illegible]ející buněčné a metabolické abnormality js[illegible]natolik vyjá[illegible]né, že podstatně zvyšují mortalitu**
  - Identifikace septického šoku: persistující hypotenze vyžadující vazopresory k udržení středního arteriálního tlaku 65 torr více a koncentrace **laktátu** nad 2 mmol/l navzdory adekvátní tekutinové resuscitaci

Oxygenační index, trombocyty, bilirubin, střední arteriální tlak, kreatinin, Glasgow coma scale

(Singer et al., JAMA 2016;315(8)801-810)

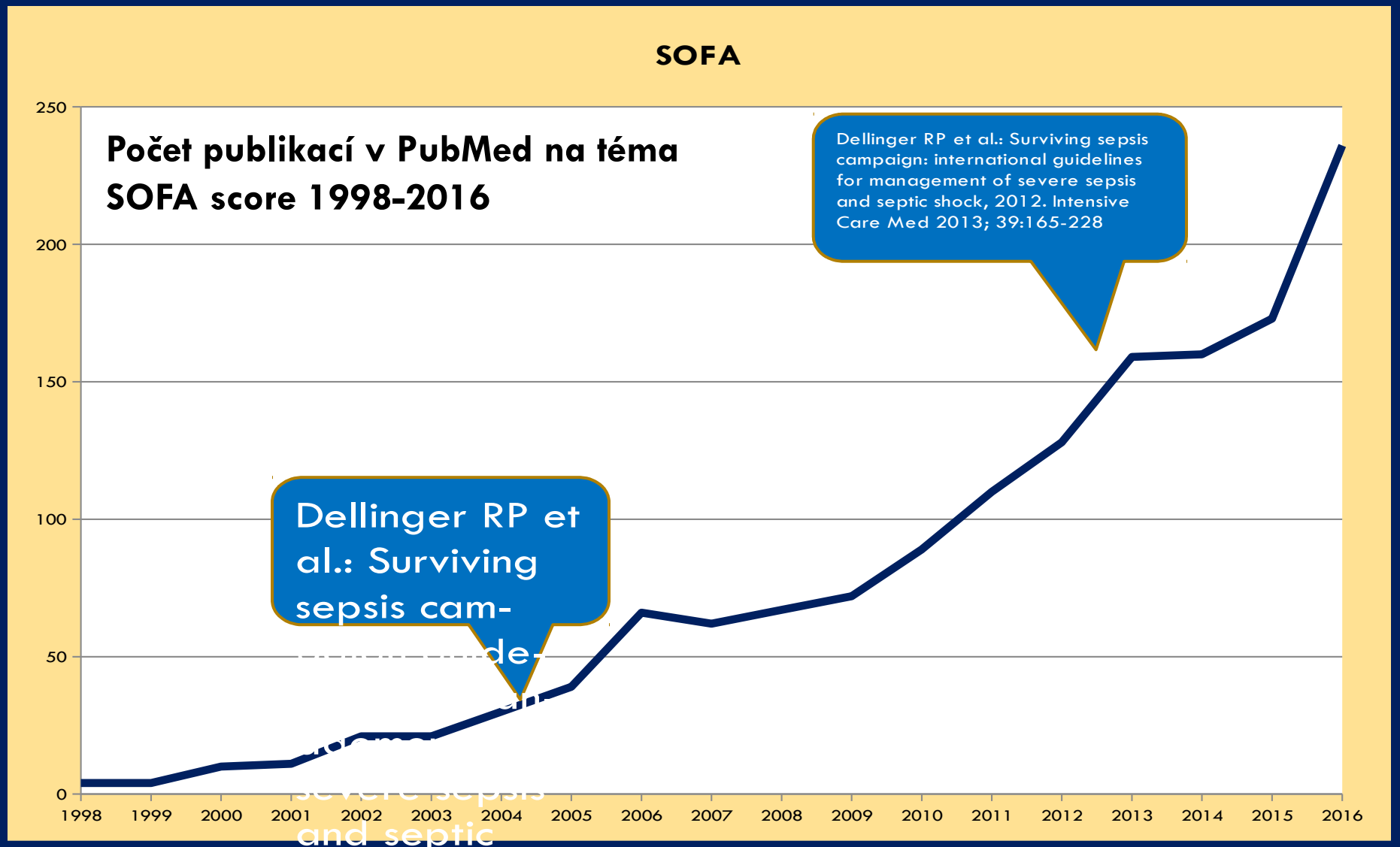
Nová definice sepse
Sepsis-3 (2016)

- Akcentuje jiné biomarkery (ty obsažené v SOFA)
- Připouští použití kritérií SIRS



„qSOFA has similar performance compared to SIRS for mortality prediction“

Josh Farkas, 2016


SOFA
Počet publikací v PubMed na téma SOFA score 1998-2016
Dellinger RP et al.: Surviving sepsis campaign: international guidelines for management of severe sepsis and septic shock, 2012. Intensive Care Med 2013; 39:165-228
Dellinger RP et al.: Surviving sepsis cam-
de-
and septic
shock. Crit
Care Med
2004;32:858-
873.
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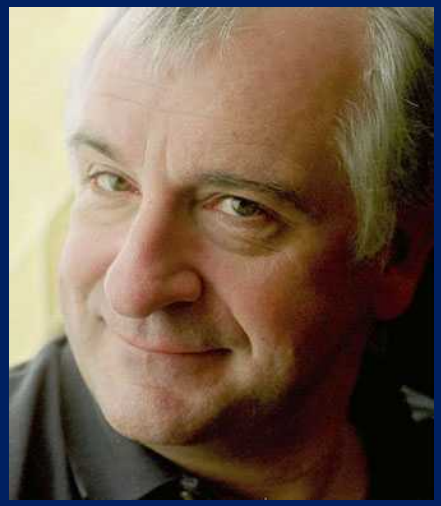
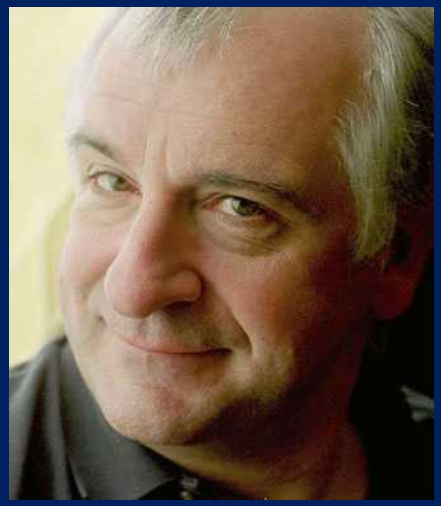
Ford s Arthurem chaoticky dusali za ním, ale sofa uskakovalo a šněrovalo si to, jako by sledovalo svou vlastní komplikovanou matematickou topografii, což také skutečně činilo.



Douglas Adams: The Hitchhiker's Guide to the Galaxy

Zatím se také zdá, že někdy chaoticky dusáme za měřitelnými projevy sepse, která ovšem jakoby sledovala svou vlastní komplikovanou (asi ne matematickou) patofyziologickou topografii, což také skutečně činí.



Douglas Adams: The Hitchhiker's Guide to the Galaxy

Děkuji za pozornost