

# Νοσηλευτική αντιμετώπιση βαρέως πάσχοντα σε Κλινικό Τμήμα

Μαρία Καλαμπαλίκη

Κλινική Νοσηλεύτρια ΕΚΠΑ Β ΎΠανεπιστημιακή Καρδιολογική Κλινική  
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## Βαρέως πάσχων ασθενής – Critically ill patient

- Διατρέχει άμεσο κίνδυνο η ζωή του
- Η βαρύτητα της νόσου του οδηγεί σε παθοφυσιολογικές διαταραχές, που αν δεν αναγνωριστούν και αντιμετωπιστούν άμεσα οδηγούν σε ανεπάρκεια ή και θάνατο.



## Early recognition and treatment of sepsis (Dellinger et al., 2008)

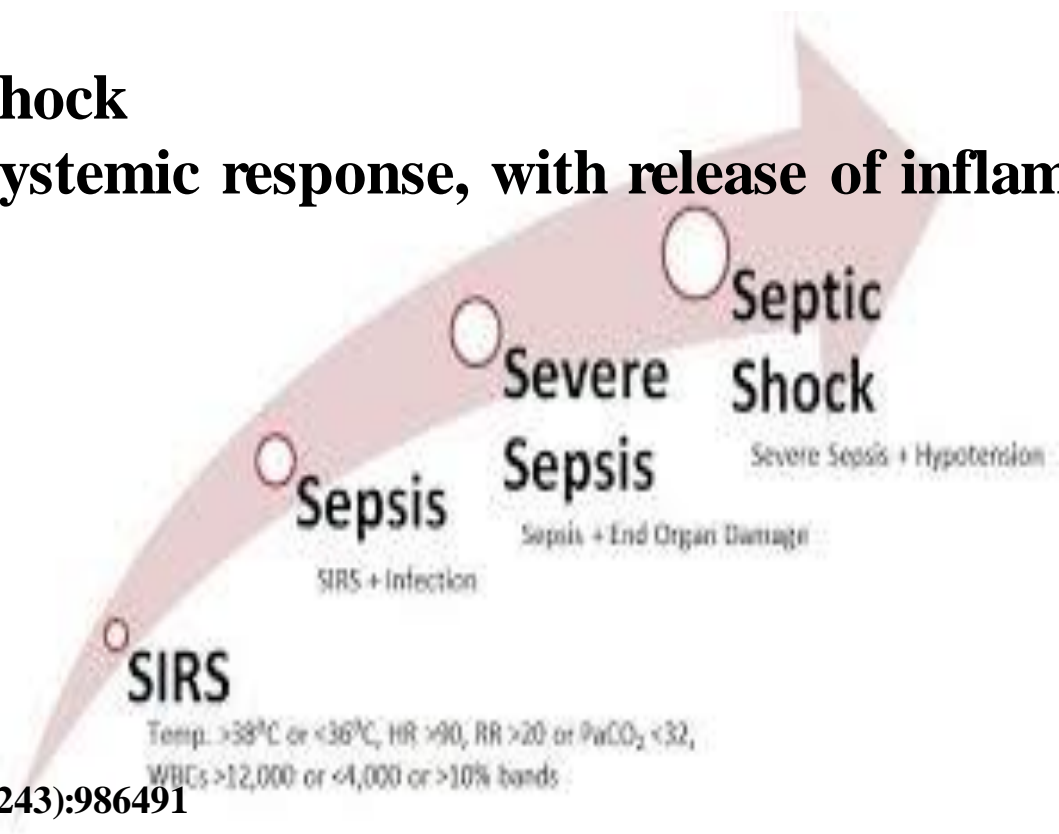
Ο ρόλος του νοσηλευτή είναι κρίσιμος στην πρόληψη

J. Tazbir Published 2012 Medicine

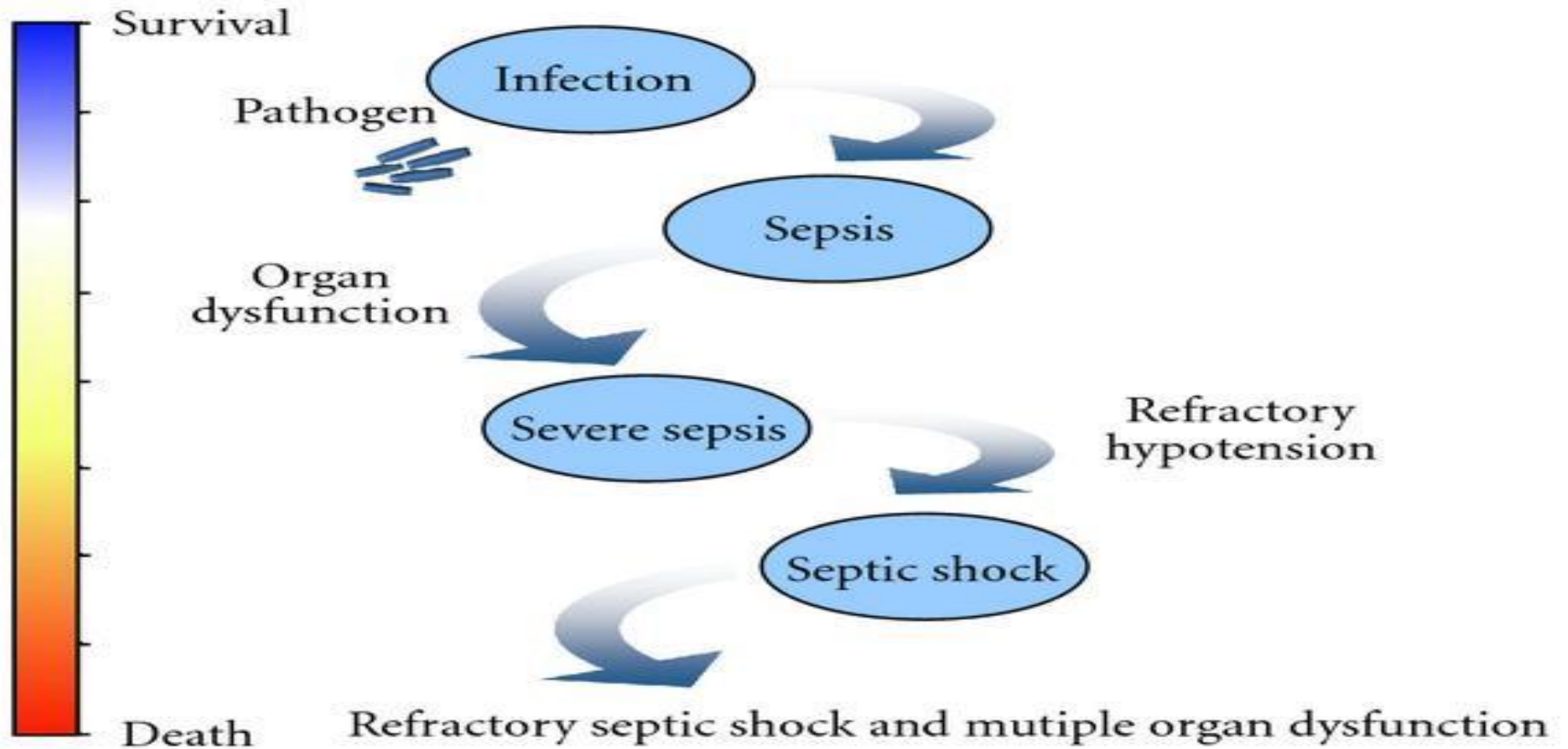
Medsurg nursing : official journal of the Academy of Medical-Surgical Nurses – πηγή :[www.acep.org](http://www.acep.org)

# Continuum from infection to septic shock

the initial response to pathogen is a systemic response, with release of inflam

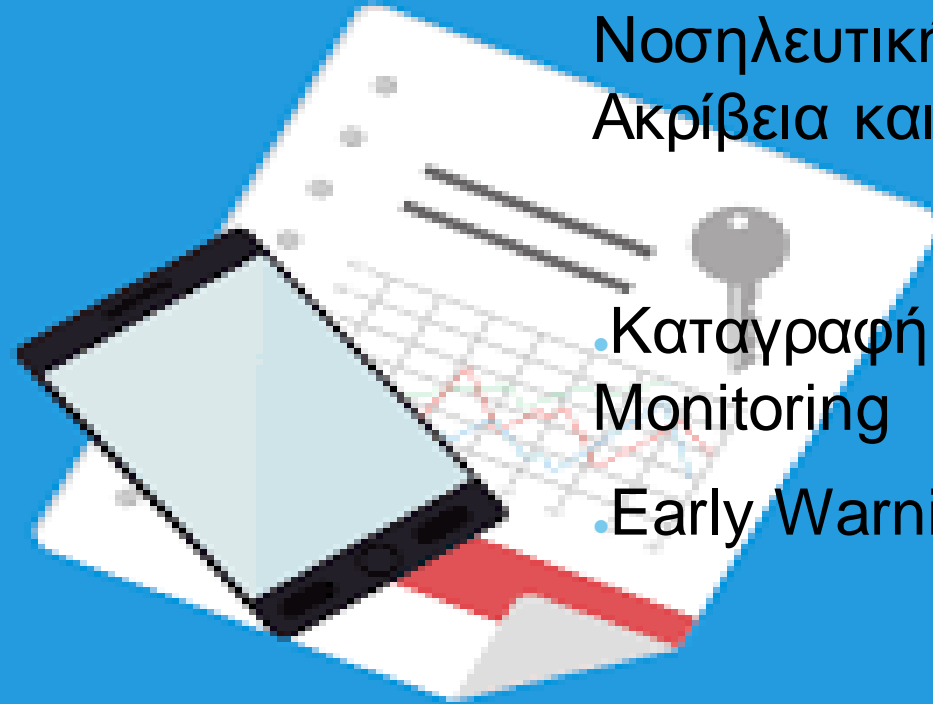


May 2011 *Journal of Biomedicine and Biotechnology* 2011(1110-7243):986491  
DOI: 10.1155/2011/986491 Source PubMed



# Not Documented, Not Done

Νοσηλευτική Αξιολόγηση με  
Ακρίβεια και Επιμέλεια



- Καταγραφή Ζωτικών Σημείων – Monitoring
- Early Warning Systems

Πηγή :CPA HALL TALK

## Φυσιολογικές Τιμές

<b>HR</b>	<b>60 – 100</b> <b>Beats per minute</b>
<b>BP</b>	<b>120/80 mmHg</b>
<b>RR</b>	<b>10 – 20</b> <b>Breaths per minute</b>
<b>O<sub>2</sub></b>	<b>95 – 100%</b>
<b>Θ</b>	<b>36,5 – 38</b> <b>°C</b>



σφυγμοί

Αρτηριακή πίεση

Κορεσμός O<sub>2</sub>

αναπνοές

Θερμοκρασία





**Know the signs and symptoms of sepsis.**

<b>Shivering, fever, or very cold</b>	<b>Extreme pain or discomfort</b>	<b>Clammy or sweaty skin</b>
<b>Confusion or disorientation</b>	<b>Short of breath</b>	<b>High heart rate</b>

# Early warning systems

- early detect Deterioration
- trigger appropriate Clinical response

**Early warning score challenges and opportunities in the care of deteriorating patients**

**Petersen, John Asger**

**CC BY-NC**

**Petersen, J. A. (2018). Early warning score challenges and opportunities in the care of deteriorating patients. Danish Medical Journal, 2018,65(2), [B5439].**

# NATIONAL EARLY WARNING SCORE - NEWS

Physiological Parameters	3	2	1	0	1	2	3
Respiration Rate (BPM)	≤8		9-11	12-20		21-24	≥25
Oxygen Saturations (%)	≤91	92-93	94-95	≥96			
Any Supplemental Oxygen		Yes		No			
Temperature (°C)	≤35		35.1-36.0	36.1-38.0	38.1-39.0	≥39.1	
Systolic Blood Pressure (mmHg)	≤90	19-100	101-110	111-219			≥220
Heart Rate (BPM)	≤40		41-50	51-90	91-110	111-130	≥131
Level of Consciousness				A			V, P or U

# NATIONAL EARLY WARNING SCORE - NEWS

NEWS Scores	Clinical Risk
0 Aggregate 1 - 4	Low
<b>RED Score*</b> (Individual parameter scoring 3) Aggregate 5 - 6	Medium
Aggregate 7 or more	High

# NATIONAL EARLY WARNING SCORE - NEWS

NEWS SCORE	FREQUENCY OF MONITORING	CLINICAL RESPONSE
<b>0</b>	Minimum 12 hourly	<ul style="list-style-type: none"><li>• Continue routine NEWS monitoring with every set of observations</li></ul>
<b>Total: 1-4</b>	Minimum 4-6 hourly	<ul style="list-style-type: none"><li>• Inform registered nurse who must assess the patient;</li><li>• Registered nurse to decide if increased frequency of monitoring and / or escalation of clinical care is required;</li></ul>

# NATIONAL EARLY WARNING SCORE - NEWS

**Total:  
5 or more  
or  
3 in one  
parameter**

Increased frequency  
to a minimum  
of 1 hourly

- Registered nurse to urgently inform the medical team caring for the patient;
- Urgent assessment by a clinician with core competencies to assess acutely ill patients;
- Clinical care in an environment with monitoring facilities;

**Total:  
7  
or more**

Continuous monitoring of  
vital signs

- Registered nurse to **immediately** inform the medical team caring for the patient – this should be at least at Specialist Registrar level;
- Emergency assessment by a clinical team with critical care competencies, which also includes a practitioner/s with advanced airway skills;
- Consider transfer of Clinical care to a level 2 or 3 care facility, i.e. higher dependency or ITU;

# MODIFIED EARLY WARNING SCORE - MEWS

Score	3	2	1	0	1	2	3
Respiratory rate		< 9		9 - 14	15 - 20	21 - 30	> 30
Saturation rate (with therapy)	< 90						
Heart frequency		< 40	40 - 50	51 - 100	101 - 110	111 - 130	> 130
Systolic blood pressure	< 70	70 - 80	81 - 100	101 - 200			
Temperature		< 35.1	35.1 - 36.5	36.5 - 37.5	> 37.5		
Consciousness				A	V	P	U
Urine production	< 75mL in the last 4 hours						
Nurse being worried	1 point						
<b>A = Alert      V = Response to verbal stimulation      P = Response to painful stimulation      U = Unresponsive</b>							

# Early warning systems

<b>Awake</b>	Patient is awake
<b>Verbal</b>	Patient responds to a verbal stimulus
<b>Pain</b>	Patient responds to a pain stimulus
<b>Unresponsive</b>	Patient is unresponsive to stimulus

Πηγή:EMS1.com



# Early warning systems



**Identification of deteriorating patients on general wards; measurement of vital parameters and p**

**81% των ασθενών που παρουσίασαν  
σοβαρό ανεπιθύμητο σύμβαμα  
είχαν MEWS >3 στο προηγούμενο 48ωρο**

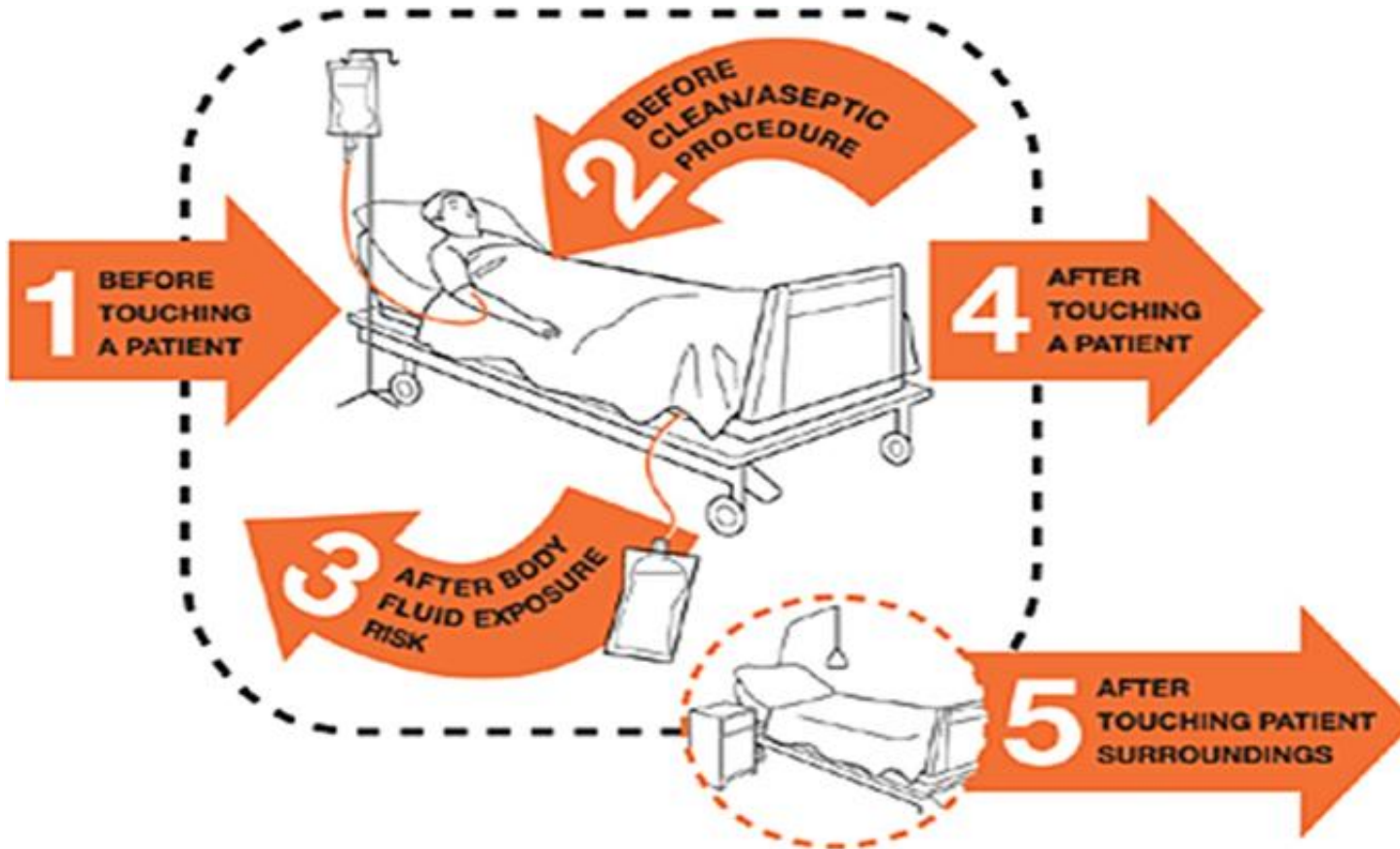
**Journal of Critical Care  
Volume 27, Issue 4, August 2012, Pages 424.e7-424.e13**

# Δέσμη Μέτρων – Care Bundle

Ο νοσηλευτής αξιολογεί

- Αιμοδυναμική κατάσταση
- Ισοζύγιο υγρών
- Διατροφική κατάσταση
- Εργαστηριακά αποτελέσματα
- και χορηγεί
- IV υγρά και φάρμακα

# Δέσμη Μέτρων – Care Bundle



The 5 moments  
of Hand Hygiene

# Δέσμη Μέτρων – Care Bundle – 10 tips

## 1 INITIAL RESUSCITATION

- Fluids: 30 mL/kg within 3 hours.
- Norepinephrine as the initial vasoactive agent: goal MAP > 65 mmHg.

## 2 SOURCE CONTROL

- Identify infectious source ASAP!
- Obtain at least 2 sets of blood cultures before starting antibiotics, if possible.

## 3 ANTIBIOTIC THERAPY

- Broad spectrum coverage ASAP!
- Assess daily to potentially de-escalate antibiotics.

## 4 BLOOD PRODUCTS

- Limit RBC transfusion to patients with hemoglobin < 7 g/dL, with exception of extenuating circumstances (MI, severe hypoxemia, acute hemorrhage).

## 5 MECHANICAL VENTILATION

- Lower tidal volume strategy
- If ARDS, consider higher PEEP and recruitment maneuvers.

## 6 GLUCOSE CONTROL

- Target glucose level to < 180 mg/dL.

# Δέσμη Μέτρων – Care Bundle – 10 tips

7

## NUTRITION

- Enteral nutrition is preferred.

8

## STRESS ULCER PROPHYLAXIS

- Use PPI or H2 blocker for patients at risk for GI bleeding.

9

## VTE PROPHYLAXIS

- LMWH preferred, if no contraindications.

10

## COMMUNICATION

- Ongoing discussion of goals and prognosis with patient and family.

[www.nursingcenter.com/sepsis](http://www.nursingcenter.com/sepsis)

**Hour-1  
Surviving Sepsis Campaign  
Bundle of Care**

# Δέσμη Μέτρων – Care Bundle

## Οικογένεια

The European Consensus Statement on the Multi-disciplinary and patient-centred care

- Συναισθηματική φόρτιση
- Επαγρύπνηση δίπλα στον ασθενή
- Θέματα Θρησκείας
- Πληροφόρηση
- Φροντίδα

## Αξιοπρέπεια

15/12/2020

# Δέσμη Μέτρων – Care Bundle



- Υπόταση
- Ταχύπνοια
- Ταχυκαρδία
- Ρίγος / Πυρετός
- Σύγχυση
- Ισοζύγιο υγρών (?)

# ΜΕΤΑΦΟΡΑ ΒΑΡΕΩΣ ΠΑΣΧΟΝΤΑ

**A**irway 

**B**reathing 

**C**irculation 

**D**isability 

**E**xposure 

**INTENSIVE CARE UNIT**





# APACHE II

Physiologic variable <sup>b</sup>	Point score									
	+4	+3	+2	+1	0	+1	+2	+3	+4	
1 Temperature	≥ 41 <sup>a</sup>	39–40.9 <sup>a</sup>	–	38.5–38.9 <sup>a</sup>	36–38.4 <sup>a</sup>	34–35.9 <sup>a</sup>	32–33.9 <sup>a</sup>	30–31.9 <sup>a</sup>	≤ 29.9 <sup>a</sup>	
2 Mean arterial pressure (mm Hg)	≥ 160	130–159	110–129	–	70–109	–	50–69	–	≤ 49	
3 Heart rate	≥ 180	140–179	110–139	–	70–109	–	55–69	40–54	≤ 39	
4 Respiratory rate (non-ventilated or ventilated)	≥ 50	35–49	–	25–34	12–24	10–11	6–9	–	≤ 5	
5 Oxygenation:										
a) FiO <sub>2</sub> ≥ 0.5: use A-aDO <sub>2</sub>	≥ 500	350–499	200–349	–	< 200	–	–	–	–	
b) FiO <sub>2</sub> < 0.5: use PaO <sub>2</sub> (mm Hg)	–	–	–	–	> 70	61–70	–	55–60	< 55	
6 Arterial pH	≥ 7.7	7.6–7.69	–	7.5–7.59	7.33–7.49	–	7.25–7.32	7.15–7.24	< 7.15	
7 Serum Na (mMol/L)	≥ 180	160–179	155–159	150–154	130–149	–	120–129	111–119	≤ 110	
8 Serum K (mMol/L)	≥ 7	6–6.9	–	5.5–5.9	3.5–5.4	3–3.4	2.5–2.9	–	< 2.5	
9 Serum creatinine (mg/dL): double point score for acute renal failure	≥ ++++3.5	2–3.4	1.5–1.9	–	0.6–1.4	–	< 0.6	–	–	
10 Hct (%)	≥ 60	–	50–59.9	46–49.9	30–45.9	–	20–29.9	–	< 20	
11 WBC (in 1000s)	≥ 40	–	20–39.9	15–19.9	3–14.9	–	1–2.9	–	< 1	
12 Glasgow coma score (GCS)	Score = 15 minus actual GCS									

Acute physiology score is the sum of the 12 individual variable points

Add 0 points for the age < 44.2 points. 45–54 years: three points. 55–64 years: five points. 65–74 years: six points ≥ 75 years

APACHE II score = acute physiology score + age points + chronic health points. Minimum score = 0; maximum score = 71. Increasing score is associated with increasing risk of hospital death

Add chronic health status points: two points if elective postoperative patient with immunocompromise or history of severe organ insufficiency: five points for nonoperative patient or emergency postoperative patient with immunocompromise or severe organ insufficiency<sup>c</sup>

13<sup>d</sup> Serum HCO<sub>3</sub><sup>-</sup> (venous-mMol/L) use only if no ABGs

Adapted from Knaus WA, Draper EA, Wagner DP, Zimmerman JB: APACHE II: A severity of disease classification system. *Critical care medicine* 13: 818–829. 1985.

Interpretation of APACHE II scores (predicted mortality rate).

0–4 = ~4% death rate 10–14 = ~15% death rate 20–24 = ~40% death rate 30–34 = ~75% death rate.

5–9 = ~8% death rate 15–19 = ~25% death rate 25–29 = ~55% death rate Over 34 = ~85% death rate.

<sup>a</sup> APACHE II Score = acute physiology score + age points + chronic health points. Minimum score = 0; maximum score = 71. Increasing score is associated with increasing risk of hospital death.

<sup>b</sup> Choose worst value in the past 24 h.

<sup>c</sup> Chronic health status: Organ sufficiency (e.g. hepatic, cardiovascular, renal, pulmonary) or immuno-compromised state must have preceded current admission.

<sup>d</sup> Optional variable: use only if no ABGs.

# SOFA score

SOFA score	1	2	3	4
<i>Respiration</i> PaO <sub>2</sub> /FiO <sub>2</sub> (mm Hg)	<400	<300	<200 (with respiratory support)	<100 (with respiratory support)
<i>Coagulation</i> 10 <sup>-3</sup> /platelets/mm	<150	<100	<50	<50
<i>Liver</i> Bilirubin mg/dL (μM)	1.2–1.9 (20–32)	2–5.9 (33–101)	6–11.9 (102–204)	>12 (>204)
<i>Cardiovascular</i> Hypotension	MAp < 70 mm Hg	Dopamine ≤ 5 <sup>b</sup> or dobutamine (any dose)	Dopamine > 5 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1	Dopamine > 15 or epinephrine > 0.1 or norepinephrine > 0.1
<i>CNS</i> Glasgow Coma Score	13–14	10–12	6–9	<6
<i>Renal</i> Creatinine, mg/dL (μM) or urine output	1.2–1.9 (110–170)	2–3.4 (171–299)	3.5–4.9 (300–440) Or <500 mL/d	>5 (>440) or <200 mL/d

Abbreviations: CNS, central nervous system; SOFA, Sequential (Sepsis-Related) Organ Failure Assessment.

<sup>a</sup>Based on Vincent et al<sup>53</sup> and shows the potential values that contribute to the SOFA score.

<sup>b</sup>Catecholamine and adrenergic agents administered for at least 1 hour; doses in μg/kg/min.

# Quick SOFA score



ALTERED  
MENTAL STATUS



FAST RESPIRATORY  
RATE



LOW BLOOD  
PRESSURE

**The qSOFA score (also known as quickSOFA) uses three criteria**

- 1. Low blood pressure (SBP $\leq$ 100 mmHg)**
- 2. High respiratory rate ( $\geq$ 22 breaths per min)**
- 3. Altered mentation (Glasgow coma scale $<$ 15)**

- Πολυδύναμη 24ωρη παρακολούθηση και αντιμετώπιση
- Ενδεικτικές προδιαγραφές μιας σύγχρονης ΜΕΘ -
- Ελληνική Εταιρεία Εντατικής Θεραπείας & ESICM
- Συστήματα: κυκλοφορικό, αναπνευστικό, ουροποιητικό, πεπτικό, μυοσκελετικό
- Level of Care

# ΜΕΘ – Level of Care

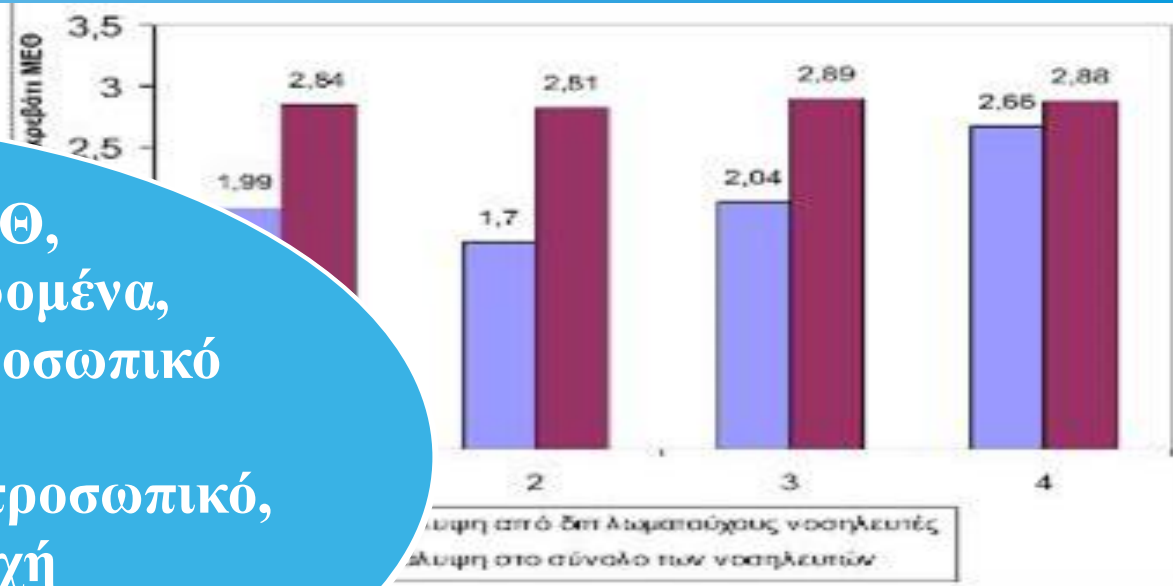
<b>ΕΠΙΠΕΔΟ ΦΡΟΝΤΙΔΑΣ</b>	<b>ΝΟΣΗΛΕΥΤΗΣ/ΑΣΘΕΝΗ</b>	<b>ΣΥΝΟΛΟ ΝΟΣΗΛΕΥΤΩΝ/ΚΛΙΝΗ</b>
<b>ΧΑΜΗΛΟ ΕΠΙΠΕΔΟ</b>	<b>1 / 3</b>	<b>2</b>
<b>ΜΕΣΑΙΟ ΕΠΙΠΕΔΟ</b>	<b>1 / 2</b>	<b>4</b>
<b>ΥΨΗΛΟ ΕΠΙΠΕΔΟ</b>	<b>1 / 1</b>	<b>6</b>

Chatman et al 2010, ICS 1999

# ΜΕΘ – Level of Care

τελέχωση

Η στελέχωση των ΜΕΘ, σε σχέση με τα διεθνή δεδομένα, είναι επαρκής σε ιατρικό προσωπικό αλλά ανεπαρκής σε νοσηλευτικό & βοηθητικό προσωπικό, απαραίτητο για παροχή σωστής εντατικής φροντίδας.  
Πνεύμων 2001, 14 (1): 38-46



νοσηλευτική κάλυψη πολυδύναμων ΜΕΘ  
ων ΜΕΘ, 2 = ΜΕΘ ΕΣΥ, 3 = πανικές ΜΕΘ, 4 =  
ες ΜΕΘ.

Στελέχωση πολυδύναμων Μονάδων Εντατικής Θεραπείας: Παρούσα κατάσταση  
Π. Μυριανθεύς, και συν., 2001

**The care of patients with septic shock  
is  
exceedingly complex**



**Bridges, E., & Dukes, S. (2005). Cardiovascular aspects of septic shock: pathophysiology, monitoring, and treatment**



