Prise en charge initiale du sepsis

DES Maladies Infectieuses

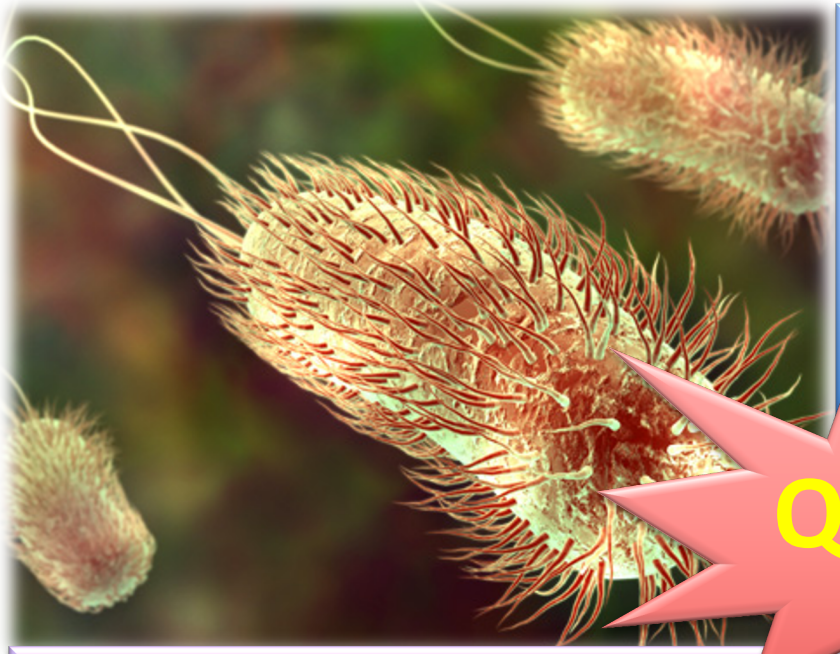
Avril 2021

PE CHARLES

Médecine Intensive Réanimation - C.H.U. Dijon

U.M.R. U1231 – I.N.S.E.R.M.

• Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.



Diagnosis of infection

QUICK!

Severity assessment

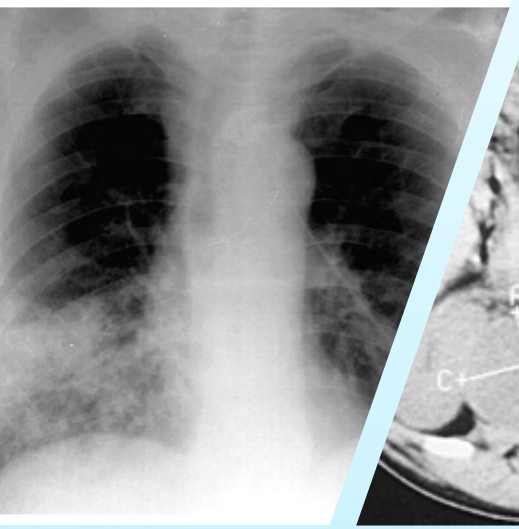
SPECIAL EDITORIAL

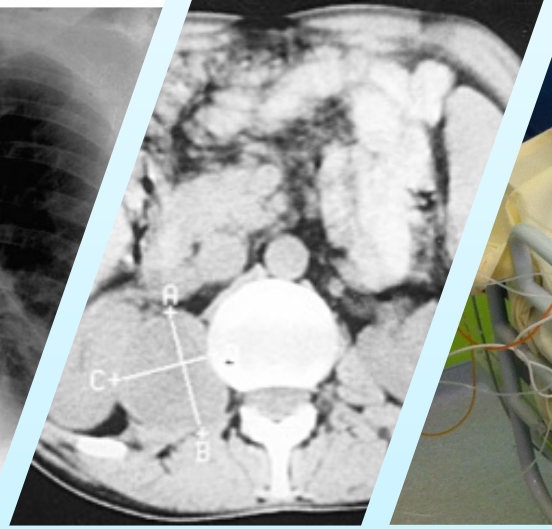
The Surviving Sepsis Campaign Bundle: 2018 update

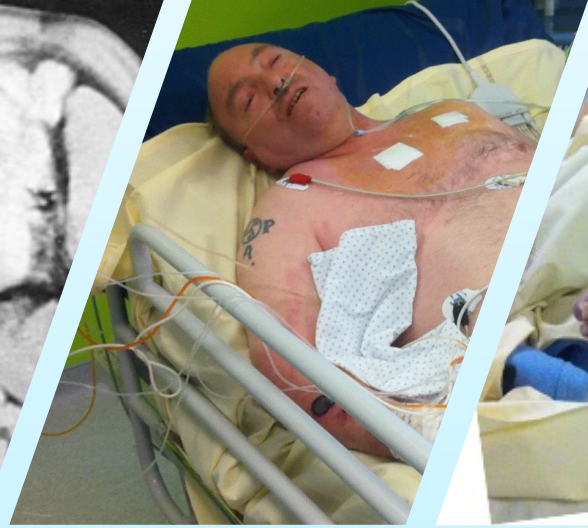
- Measure lactate level. Remeasure if initial lactate is >2 mmol/L.
- Obtain blood cultures prior to administration of antibiotics.
- Administer broad-spectrum antibiotics.
- Begin rapid administration of 30ml/kg crystalloid for hypotension or lactate ≥4 mmol/L.
- Apply vasopressors if patient is hypotensive during or after fluid resuscitation to maintain MAP ≥65 mm Hg.

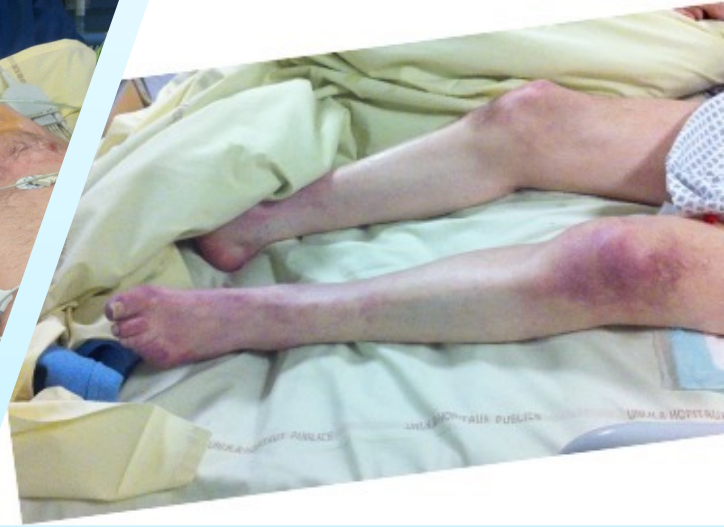
**"Time zero" or "time of presentation" is defined as the time of triage in the Emergency Department or, if presenting from another care venue, from the earliest chart anr elements of sepsis (formerly severe sepsis) or septic shock ascerta.*

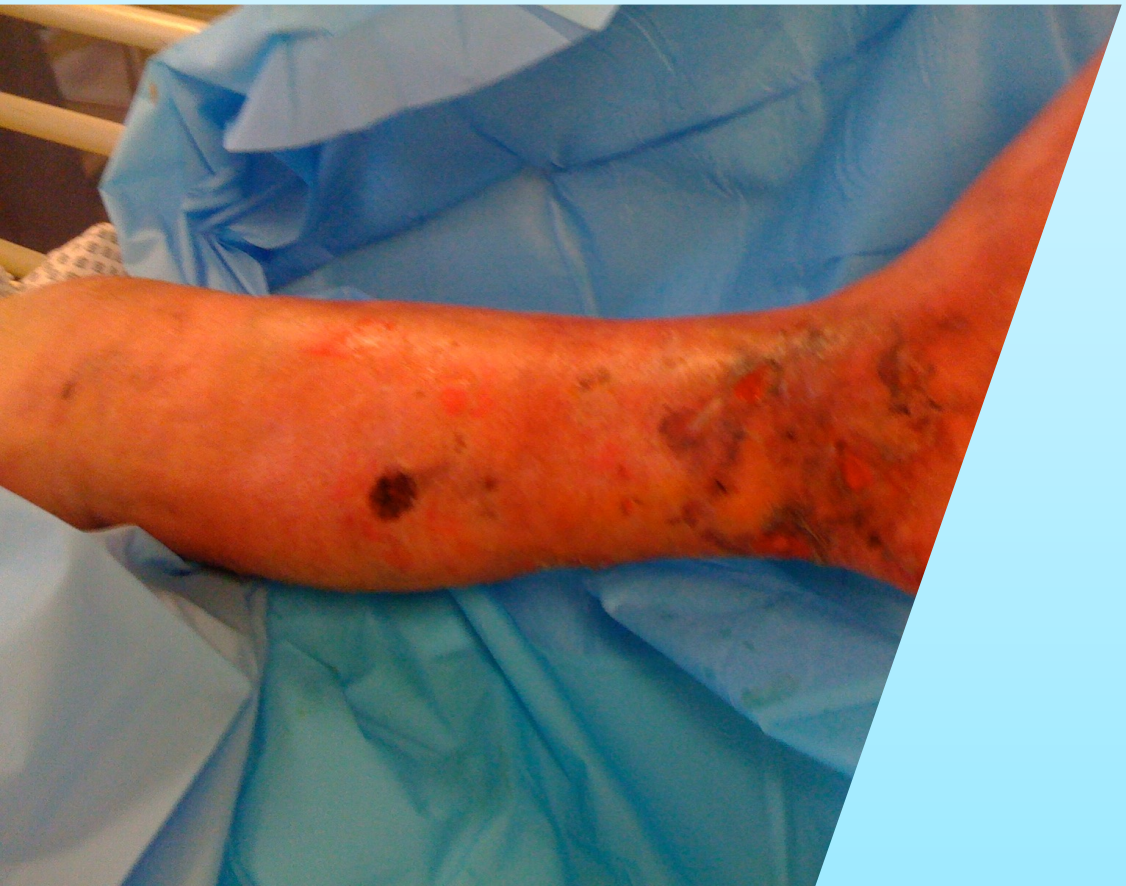
Fig. 1 Hour-1 Surviving Sepsis Campaign Bundle of Care







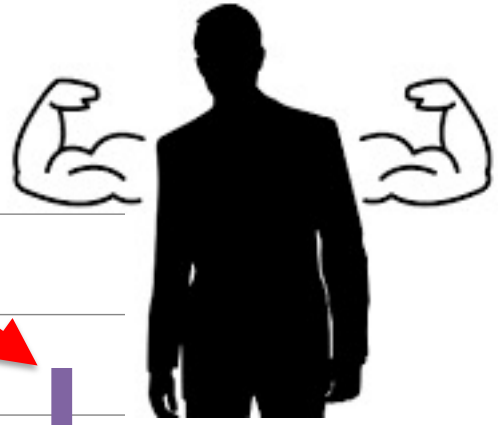


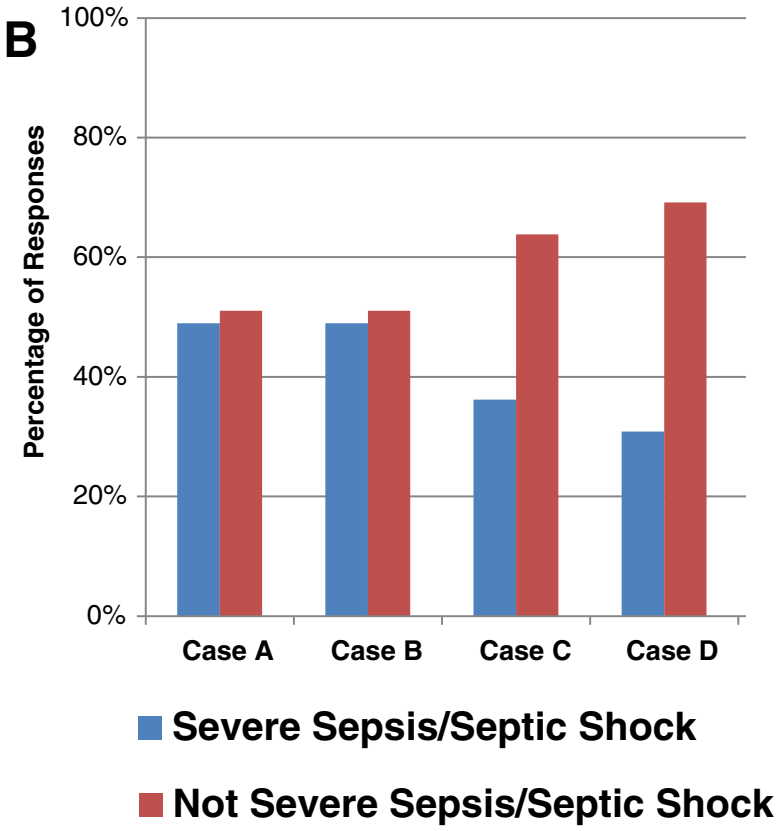


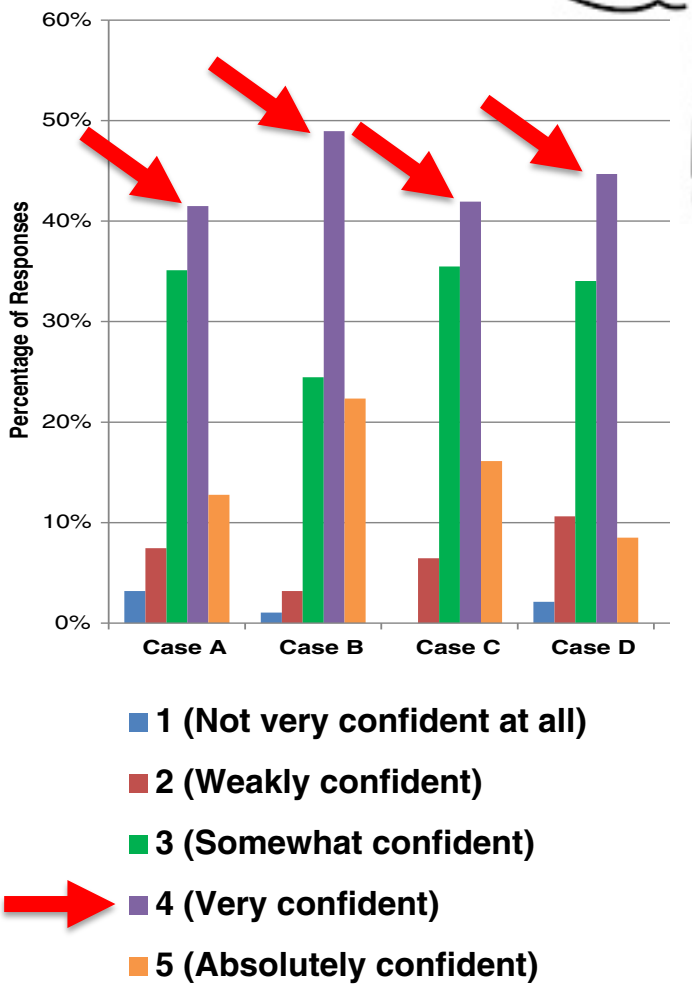
Sepsis *early recognition?*

Hard job in the **ED setting**!

Diagnosing sepsis is subjective and highly variable: a survey of intensivists using case vignettes







Rhee *et al*. Crit Care 2018

Special Communication | CARING FOR THE CRITICALLY ILL PATIENT

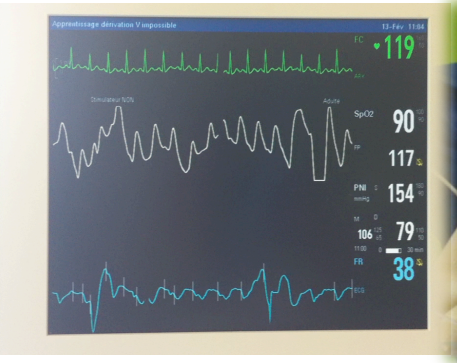
The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

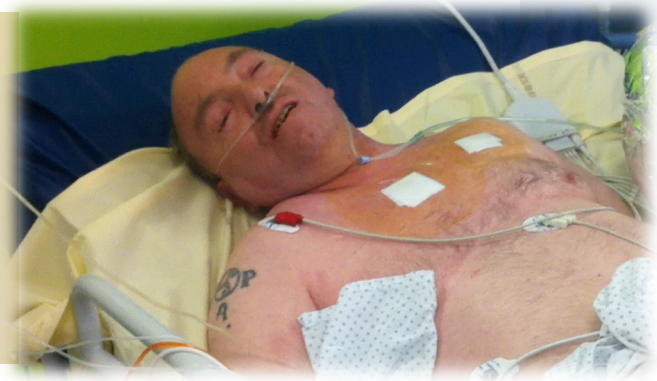
Box 4. qSOFA (Quick SOFA) Criteria

Respiratory rate ≥22/min

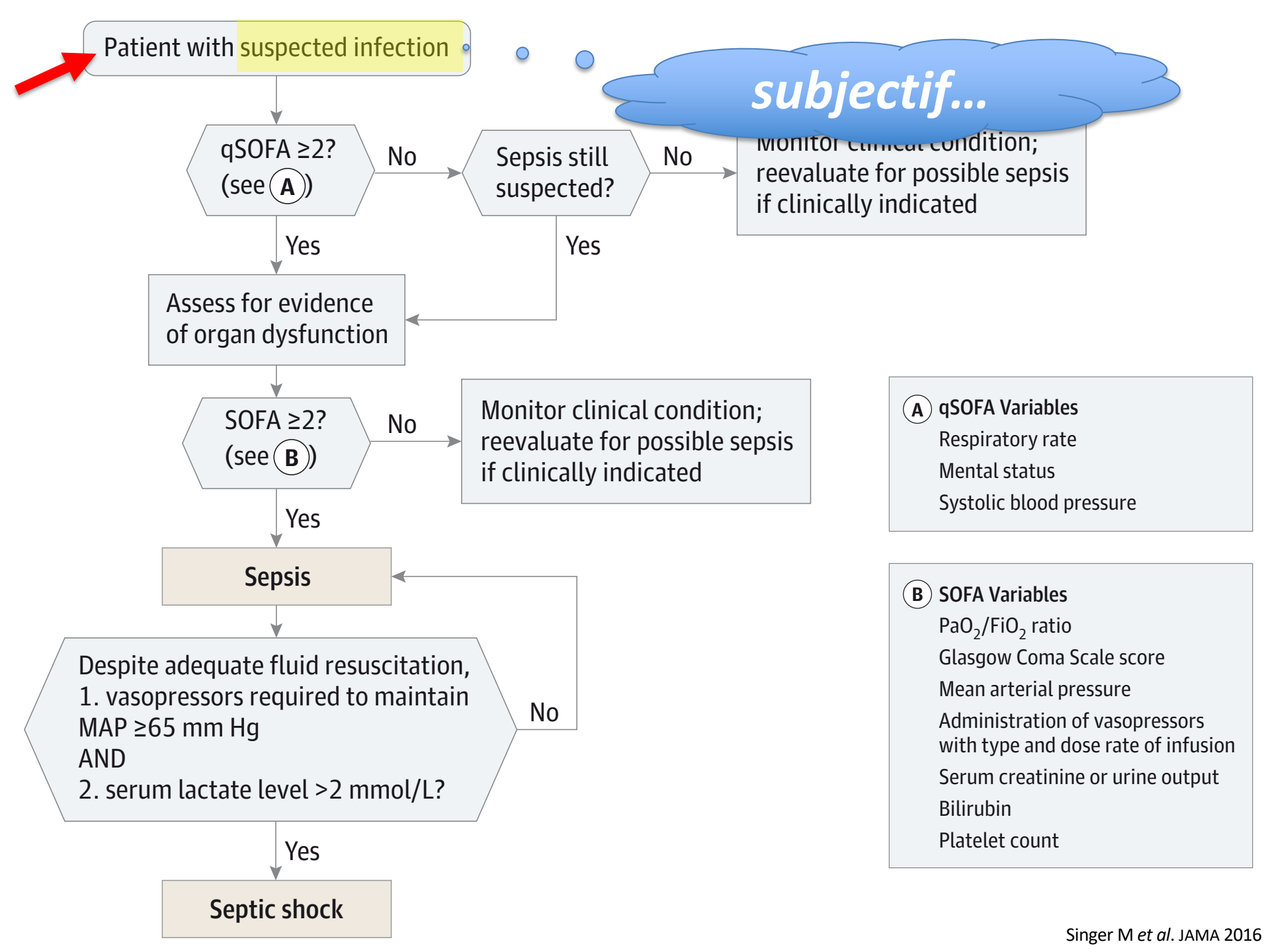
Altered mentation

Systolic blood pressure ≤100 mm Hg





Singer M *et al*. JAMA 2016



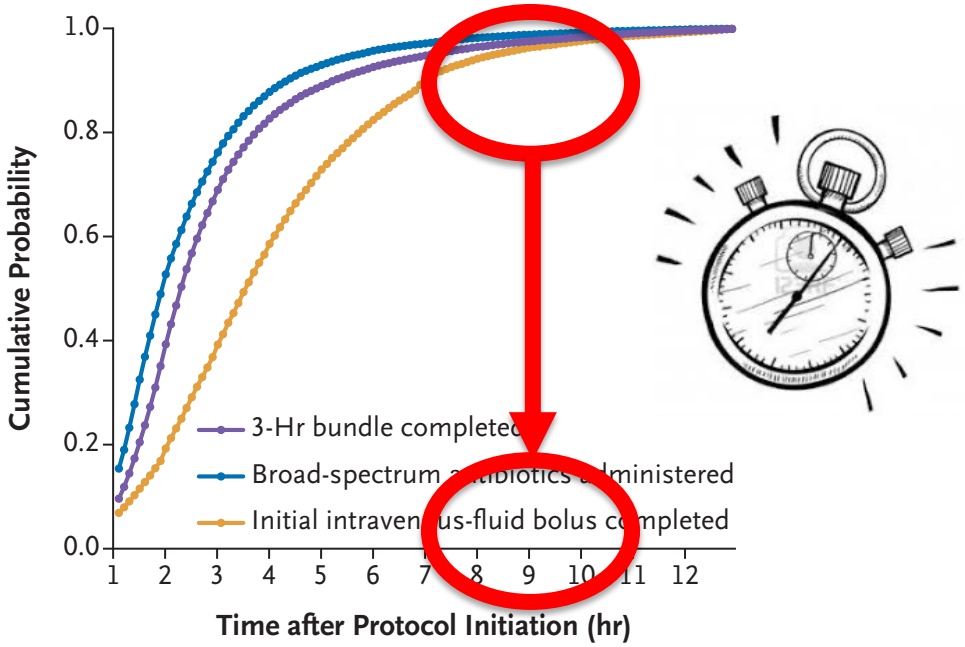
Singer M *et al*. JAMA 2016

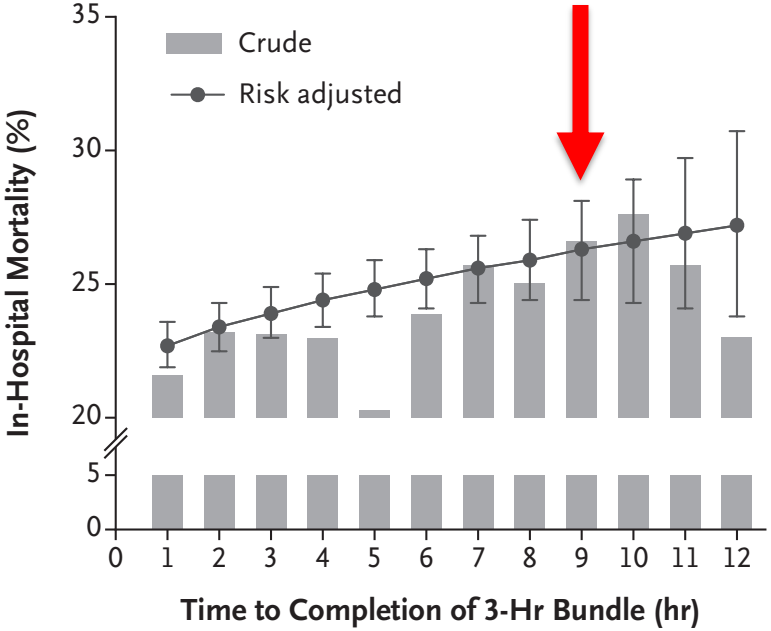
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Time to Treatment and Mortality during Mandated Emergency Care for Sepsis

3-Hrs Bundle:
- **Broad spectrum ATB**
- **Blood culture collection**
- **Lactate measurement**

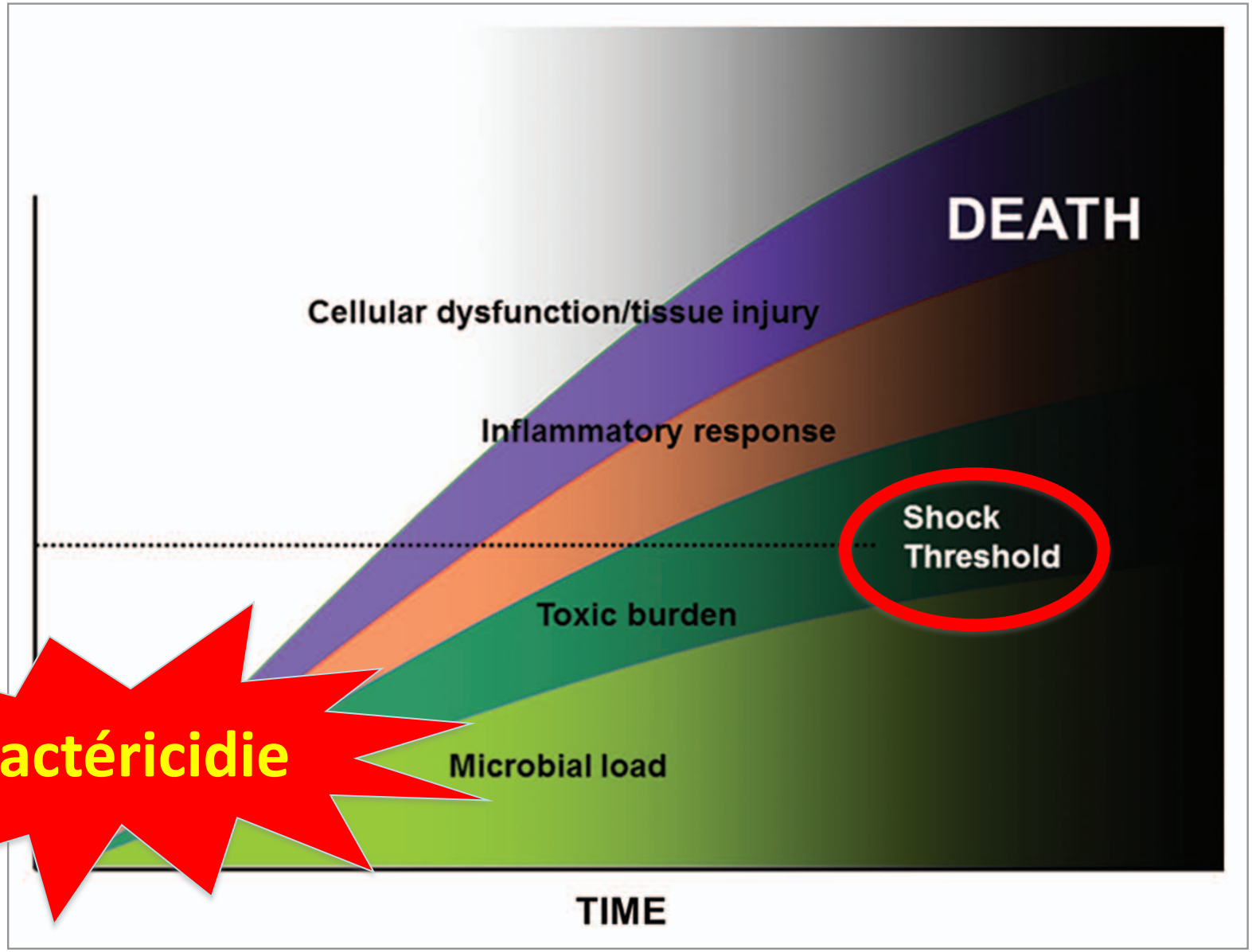




Seymour *et al*. N Eng J Med 2017

Prise en charge initiale du sepsis

ANTIBIOTHÉRAPIE EMPIRIQUE ADAPTÉE



bactéricidie

Kumar *et al* Virulence 2014

Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016

Broad-spectrum is tantalizing!

D. ANTIMICROBIAL THERAPY

1. **We recommend that administration of IV antimicrobials be initiated as soon as possible after recognition and within 1 h for both sepsis and septic shock (strong recommendation, moderate quality of evidence; grade applies to both conditions).**

In addition, the clinician must assess risk factors for infection with multidrug-resistant pathogens including prolonged hospital/chronic facility stay, recent antimicrobial use, prior hospitalization, and prior colonization or infection with multidrug-resistant organisms. The occurrence of more severe illness (e.g., septic shock) may be intrinsically associated with a higher probability of resistant isolates due to selection in failure to respond to earlier antimicrobials.

Rhodes *et al*. Intensive Care Med 2016

Intensive Care Med (2015) 41:1181–1196
DOI 10.1007/s00134-015-3853-7

Cédric Bretonnière
Marc Leone
Christophe Milési
Bernard Allaouchiche
Laurence Armand-Lefevre
Olivier Baldesi
Lila Bouadma
Dominique Decré
Samy Figueiredo
Rémy Gauzit
Benoît Guery
Nicolas Joram
Boris Jung
Sigismond Lasocki
Alain Lepape
Fabrice Lesage
Olivier Pajot
François Philippart
Bertrand Souweine
Pierre Tattevin
Jean-François Timsit
Renaud Vialet
Jean Ralph Zahar
Benoît Misset
Jean-Pierre Bedos

Strategies to reduce curative … in intensive care …

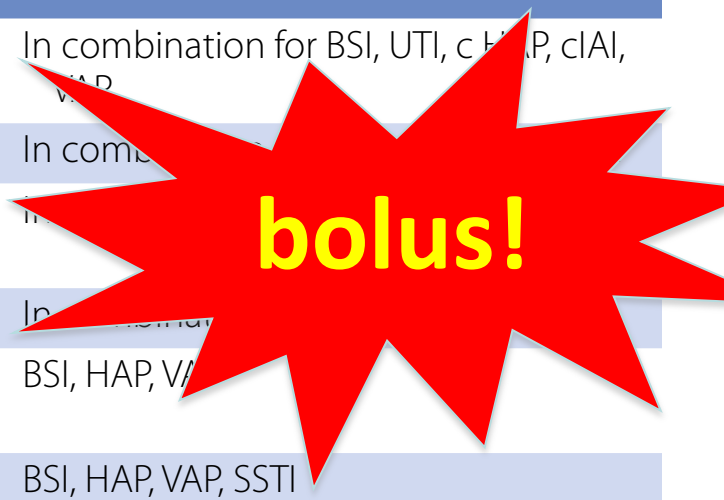
Carbapenems should be avoided except…

In terms of empirical antimicrobial treatment, … hospital-acquired severe bacterial infection is suspected, we recommend not prescribing carbapenem solely on the basis of the nosocomial nature of the infection, but rather considering the presence of at least two of the following criteria:

- Previous treatment with a third-generation cephalosporin, fluoroquinolones (including a single dose) or a piperacillin–tazobactam combination in the last 3 months,
- Carriage of extended-spectrum β-lactamase-producing *Enterobacteriaceae* or of ceftazidime-resistant *P. aeruginosa*, determined within the last 3 months, whatever the sampling site,
- Hospitalization during the last 12 months,
- Patient living in a nursing facility or in a long-term care facility for elderly and carrying an indwelling catheter and/or a gastrostomy tube,
- Ongoing epidemic episode of multidrug-resistant bacteria in the healthcare institution for which the only treatment option is carbapenem

Optimisation des doses!

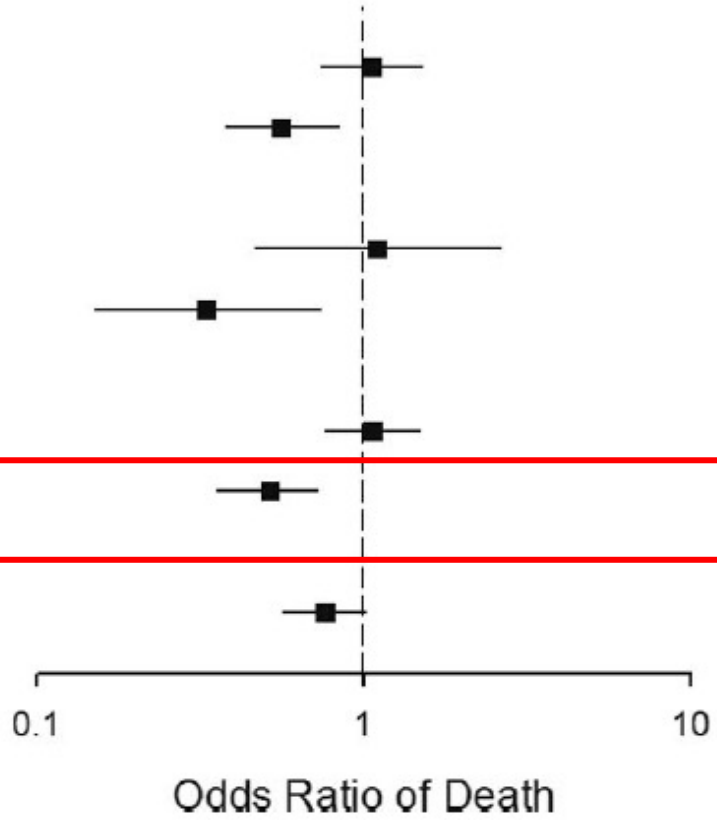
Long-established antibiotics		
Piperacillin/tazobactam	4.5 g every 6 h CI	BSI, HAP, VAP, UTI, cIAI
Ceftazidime	6 g every 24 h CI	BSI, HAP, VAP, UTI
Cefepime	2 g every 8 h or CI	BSI, HAP, VAP, UTI
Aztreonam	1 g (2 g) every 8 h	BSI, HAP, VAP, UTI, SSTI
Imipenem/cilastatin	500 mg (1 g) every 6 h	BSI, HAP, VAP, UTI, cIAI
Meropenem	1 g (2 g) every 8 h or CI	BSI, HAP, VAP, UTI, cIAI
Tigecycline	100–200 mg loading those, then 50–100 mg every 12 h	cIAI
"Old"antibiotics		
Gentamicin	7 mg/kg/day every 24 h	In combination for BSI, UTI, c[illegible]P, cIAI, [illegible]
Amikacin	25–30 mg/kg/day every 24 h	In com[illegible]
Colistin	9 MU loading dose, 4.5 MU every 8–12 h	[illegible]
Fosfomycin	4–6 g every 6 h CI	In[illegible]
Vancomycin	15–30 mg/kg loading dose, 30–60 mg/kg every 12 h, 6 h or CI	BSI, HAP, V[illegible]
Linezolid	600 mg every 12 h	BSI, HAP, VAP, SSTI



Timsit *et al*. Intensive Care Med 2019

Bithérapie?

Group	Monotherapy Mortality (%)	Combination Therapy Mortality (%)	Odds Ratio	I^2 (%)	P-value
non-shock	86/680 (12.6)	96/666 (14.4)	1.06 (0.73-1.52)	13.7	.7721
shock	96/188 (51.1)	177/422 (41.9)	0.56 (0.39-0.83)	0.8	.0043
non-critically ill	23/313 (7.3)	35/339 (10.3)	1.10 (0.46-2.60)	45.3	.8321
critically ill	32/64 (50.0)	34/128 (26.6)	0.33 (0.15-0.74)	0	.0067
non-shock/non-critically ill	109/993 (11.0)	131/1005 (13.0)	1.06 (0.76-1.47)	19.1	.7178
shock/critically ill	128/252 (50.1)	211/550 (38.4)	0.51 (0.36-0.72)	0	.0002
overall	237/1245 (19.0)	342/1555 (22.0)	0.76 (0.57-1.02)	33.8	.0622



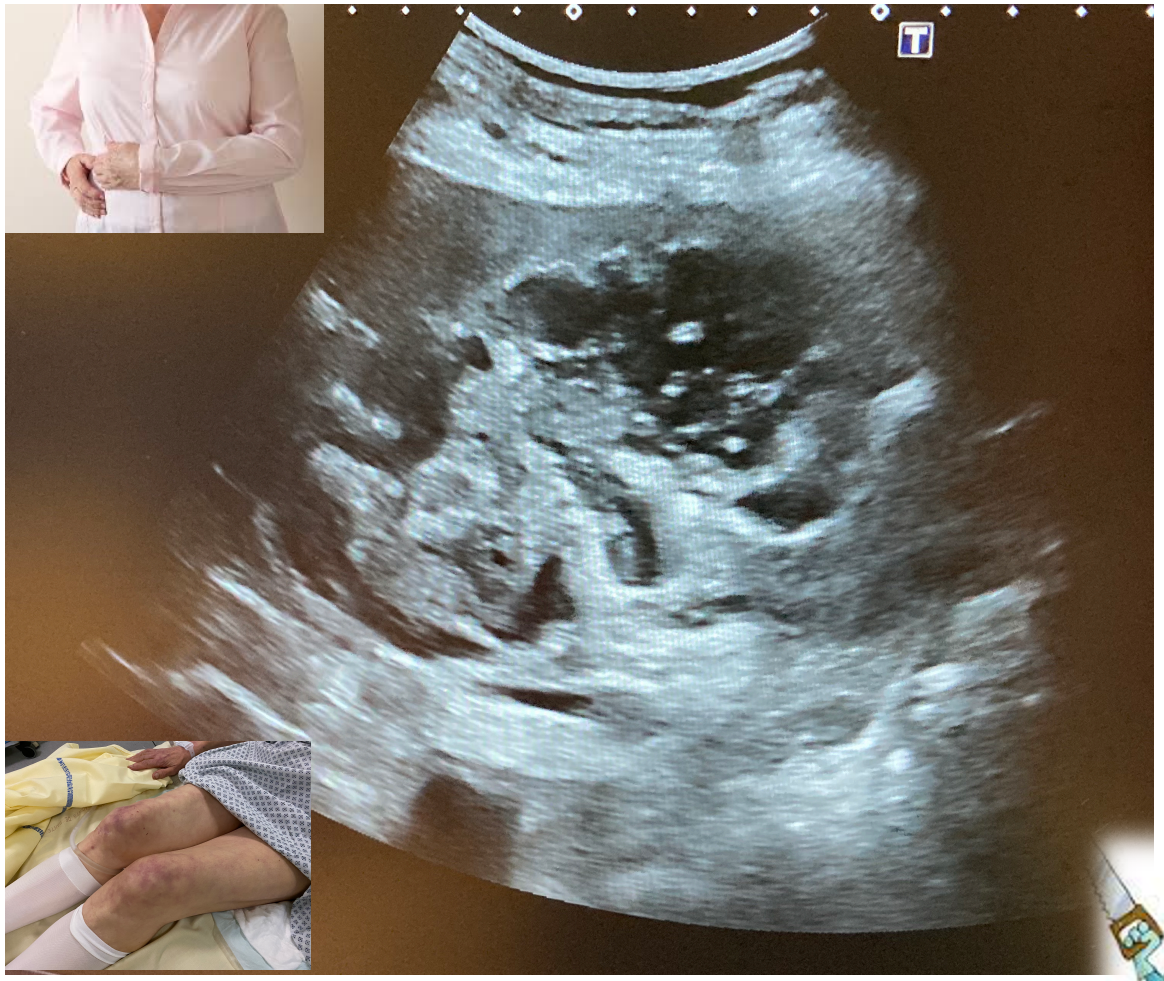
Kumar *et al*. Crit Care Med 2010

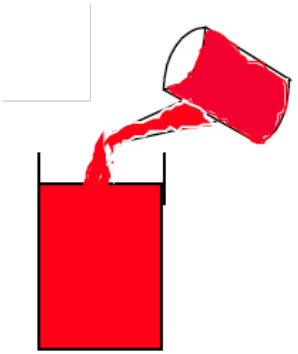
Chez les **immunodéprimés…**

Type of immune deficiency	Infection risk to guide antimicrobial rationale	Antimicrobial empirical coverage
Solid organ transplant	Timing from transplant surgery 0–2 months: high risk of HAI 2–6 months: high risk of both HAI and CAI 6–12 months: low risk of HAI, moderate risk of HAI and OI > 12 months: low risk of HAI, moderate risk of CAI and OI	*Pseudomonas* spp., *S. aureus*, *Candida* spp., *Aspergillus* spp., *Cryptococcus* spp. *Nocardia* spp., endemic mycoses, CMV PCP, tuberculosis, *S. pneumoniae*
Neutropenia	Absolute neutrophil count, duration, and comorbidities > 500 cells/µL, anticipated to last < 7 days < 100 cells/µL, anticipated to last > 7 days Shock, mucositis, diarrhea, central line	Low risk *Pseudomonas* spp., *S. aureus, S. viridans*, molds *Pseudomonas* spp., *S. aureus, S. viridans*, *Candida* spp.
HIV	CD4 cell count 200–500 cells/µL: low risk of OI 50–200 cells/µL: high risk of OI < 50 cells/µL: very high risk of OI HIV-induced humoral immunodeficiency at any CD4 level HIV and intravenous drug abuse	Tuberculosis Tuberculosis, PCP Cryptococcosis, toxoplasmosis, CMV *S. pneumoniae* S. aureus
Immunoglobulin deficiency	Common variable immunodeficiency Chronic lymphocytic leukemia Multiple myeloma Chronic granulomatous disease	Encapsulated bacteria[a] Encapsulated bacteria[a], *S. aureus* Encapsulated bacteria[a] *S. aureus*, *Burkholderia cepacia*, *Aspergillus* spp.
Iatrogenic immunosuppression	Steroids (prednisone > 20 mg/day) Inhibitors of TNF, IL-1, IL-6, IL-17, IL-12/23 Anti-CD20 monoclonal antibodies Anti-CD52 monoclonal antibodies	*Candida* spp., PCP, *Nocardia* spp. Tuberculosis, *S. aureus*, *Listeria* spp., *Legionella* Low risk *Aspergillus* spp., *Mucor*, *Listeria* spp.

Timsit *et al*. Intensive Care Med 2019

Source control in the management of severe sepsis and septic shock: An evidence-based review

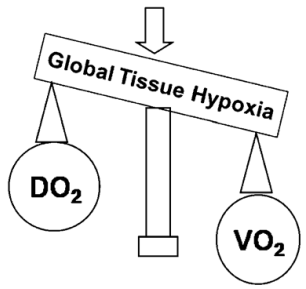




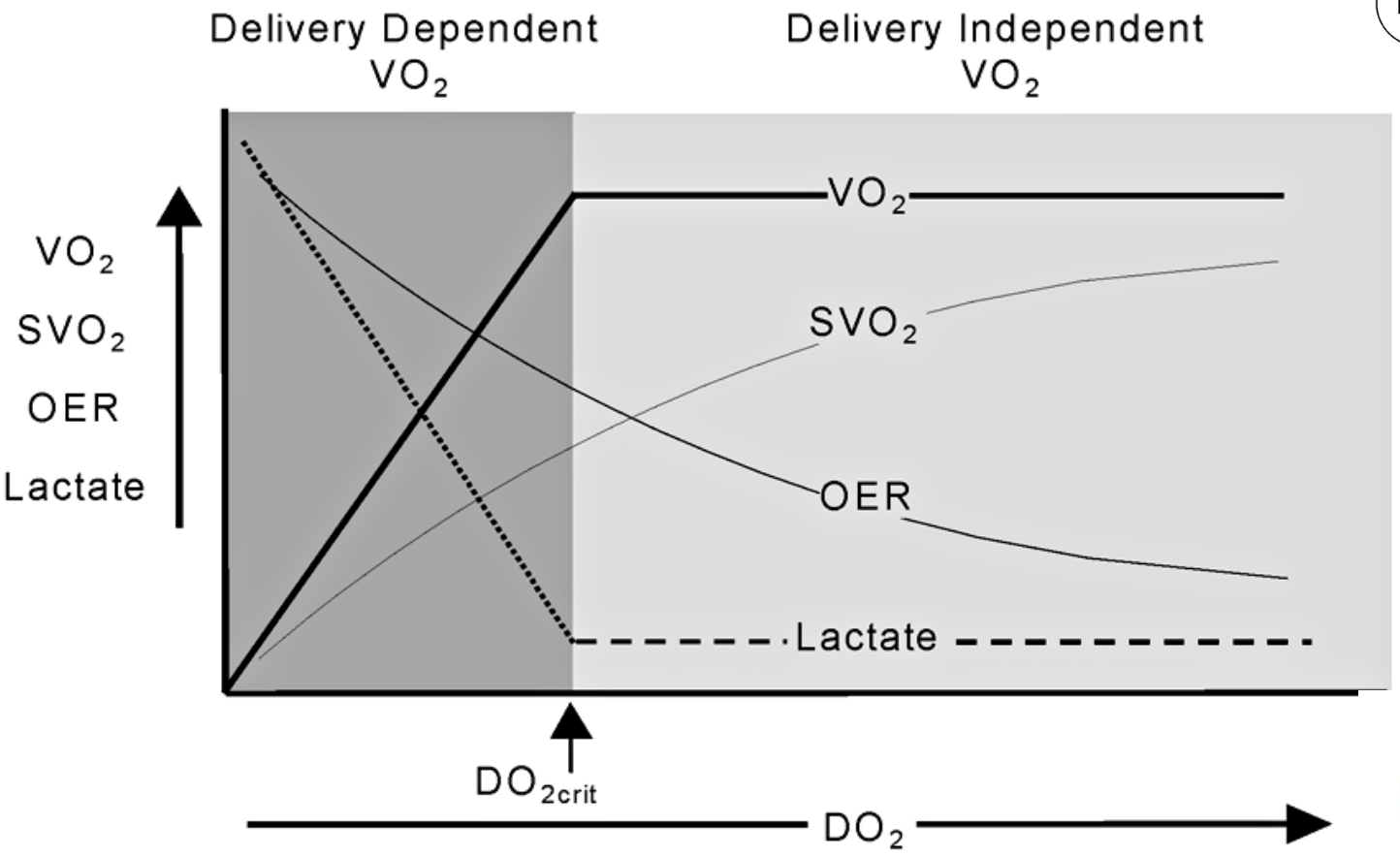
Prise en charge initiale du sepsis

REMPLISSAGE VASCULAIRE ADAPTÉ

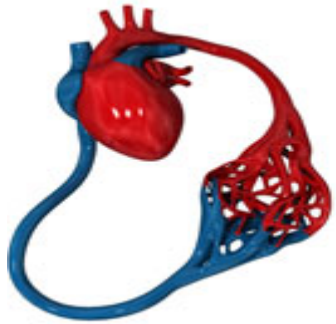
Insuffisance circulatoire **aiguë**: ***inadéquation*** VO_2/DO_2

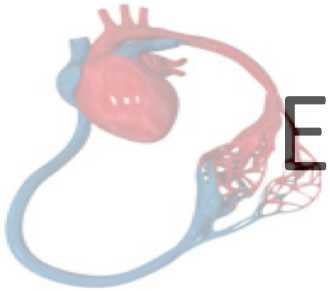


$SvO_2 \approx SaO_2 - VO_2 / (Qc \times Hb)$

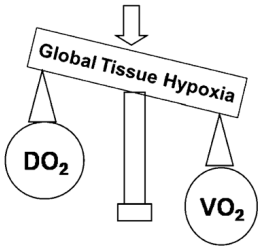


$$DO_2 = Hb \times 1.36 \times SaO_2 \times Qc$$





Evaluation **hémodynamique**

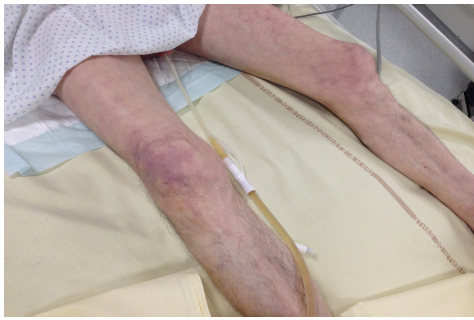


MACROCIRCULATION

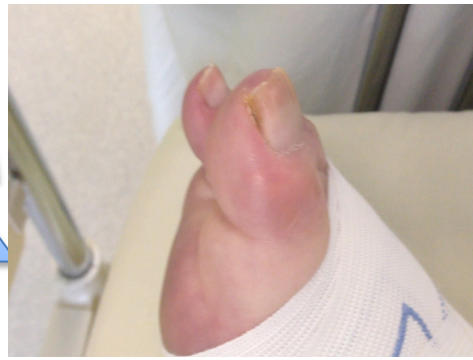
- Pression artérielle
- Fréquence cardiaque
- Débit cardiaque
- *Pression veineuse centrale*

PERFUSION TISSULAIRE MICROCIRCULATION

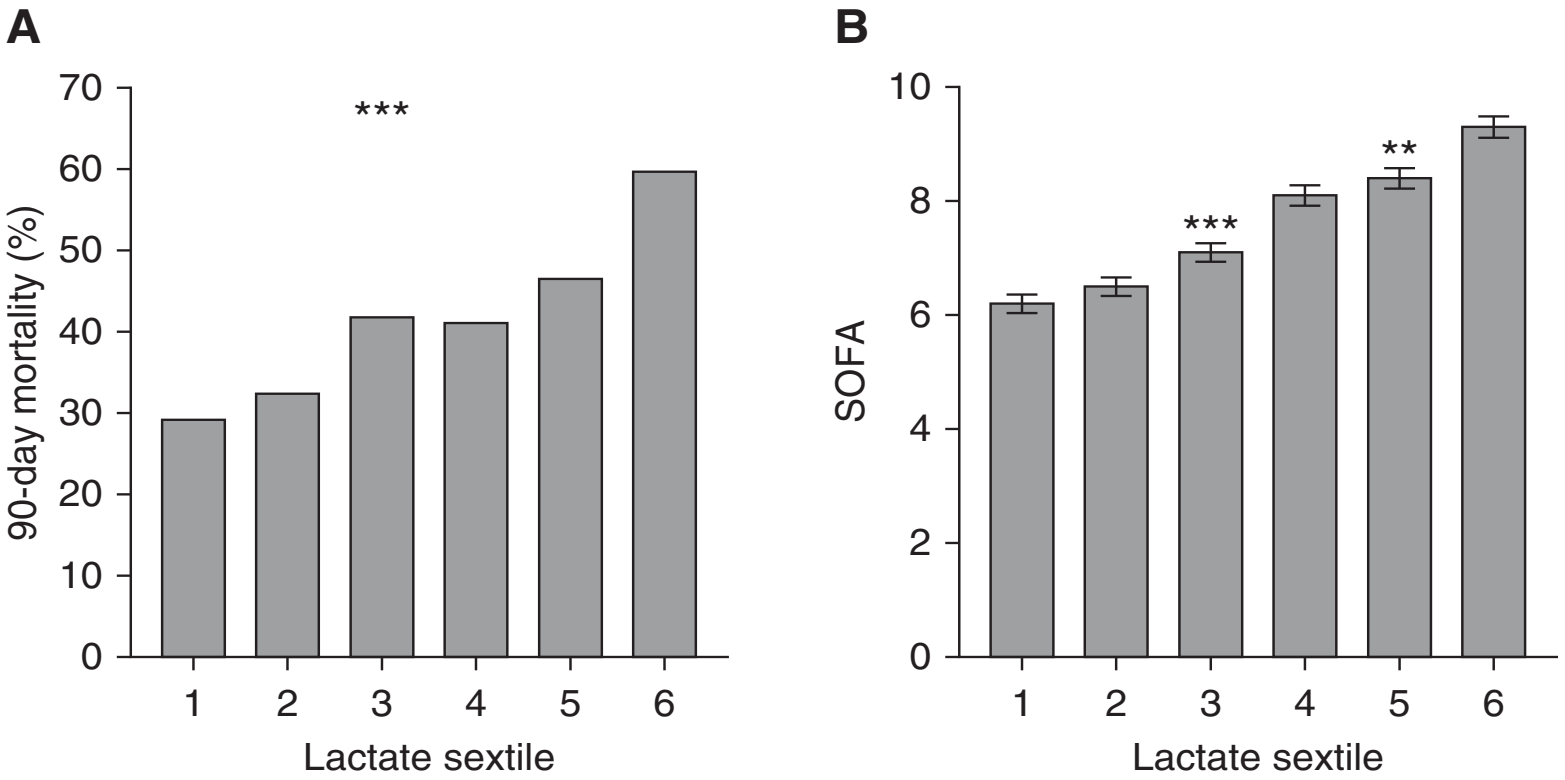
- Téguments
- Diurèse
- **Lactate**
- *$ScvO_2$*



Discordances et manque de cohérence dans le sepsis…



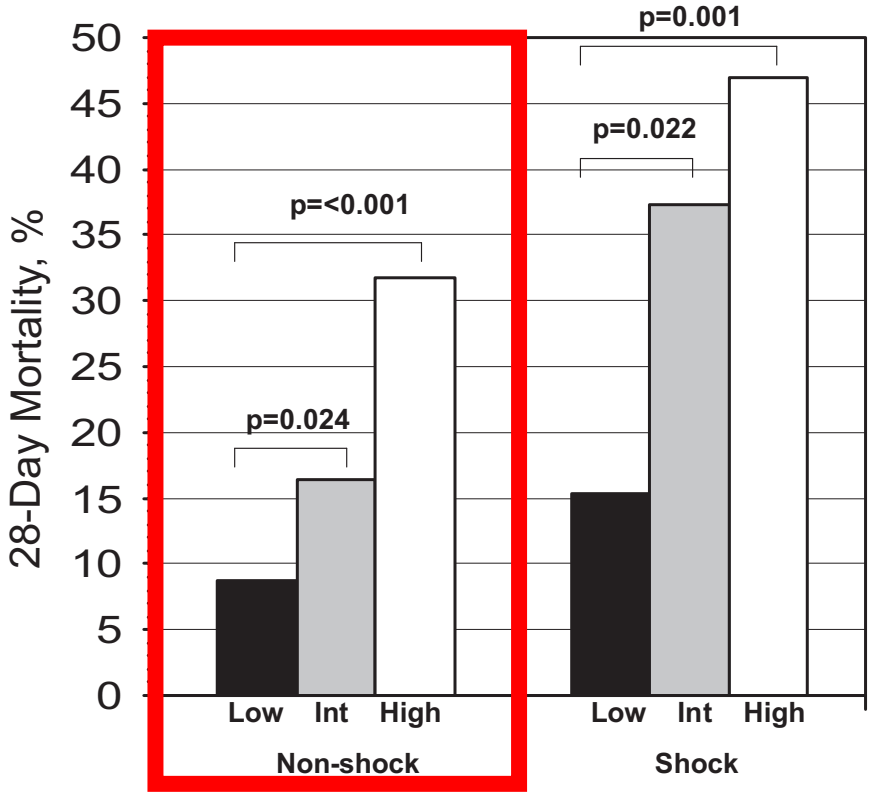
Hyperlactatémie et **sévérité** clinique



Gattinoni *et al*. Am J Respir Crit Care Med 2019

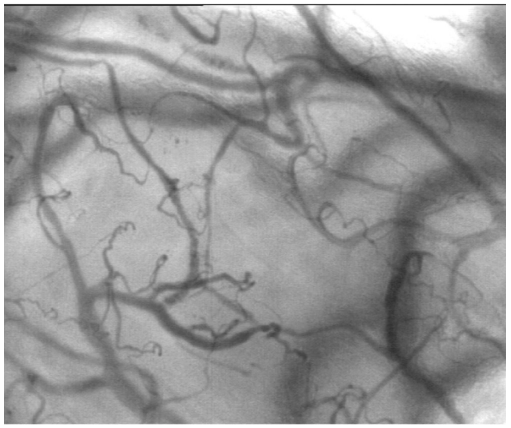
Lactate elevation …risk **stratification**

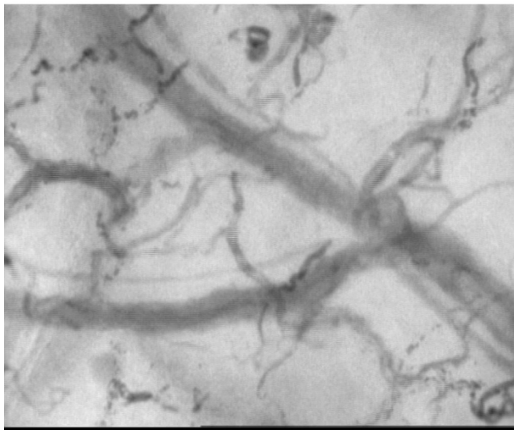
Même si tension conservée!!!

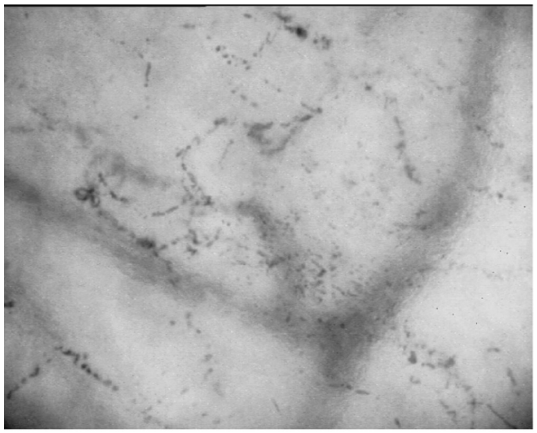


Mikkelsen M *et al*. Crit Care Med 2009

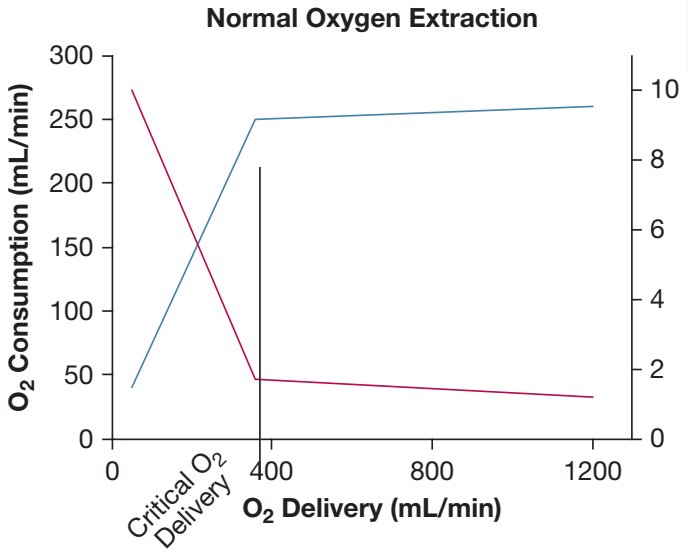
Baisse **extraction** O_2…



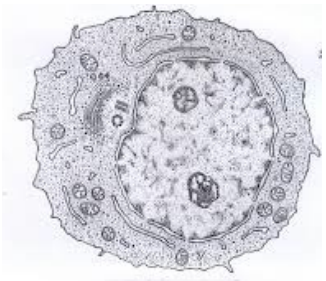


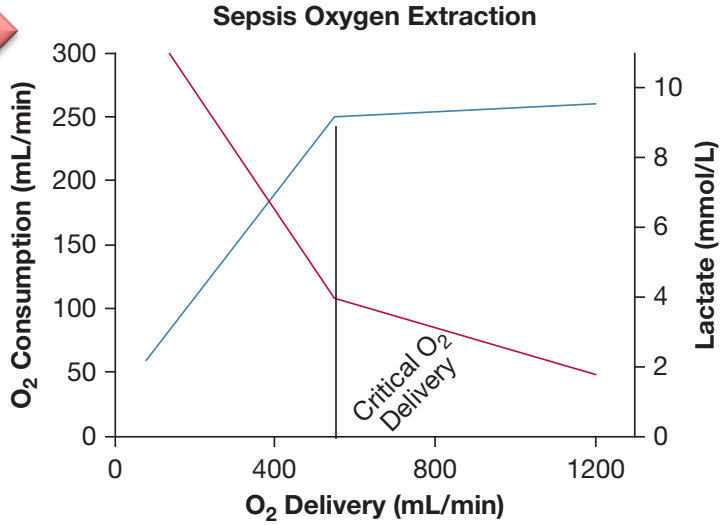


A

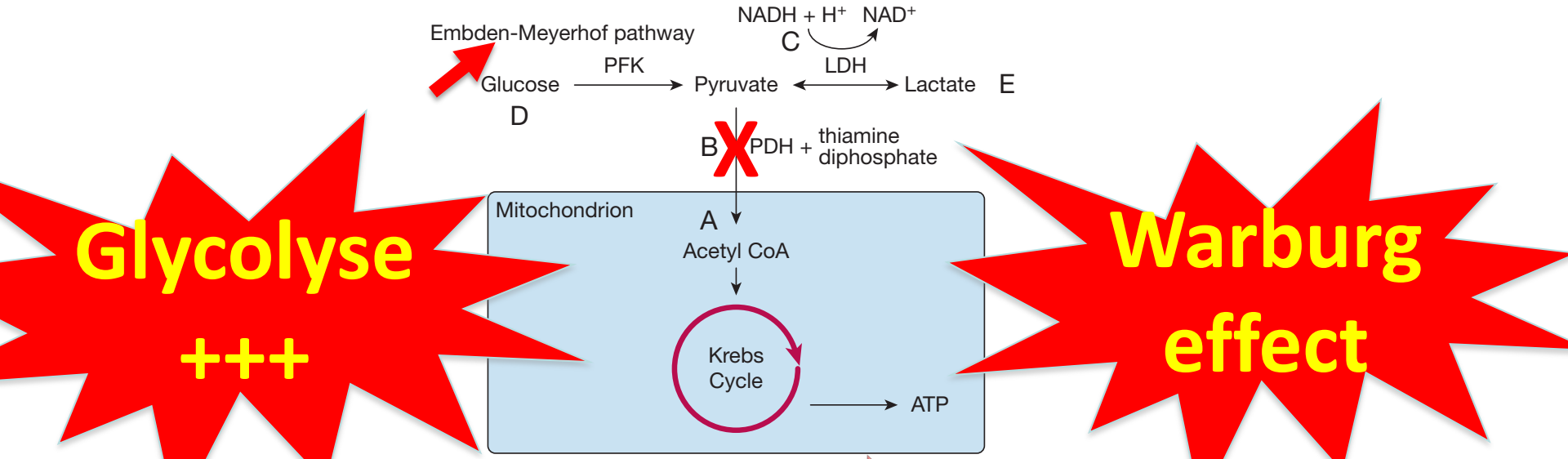


SEPSIS

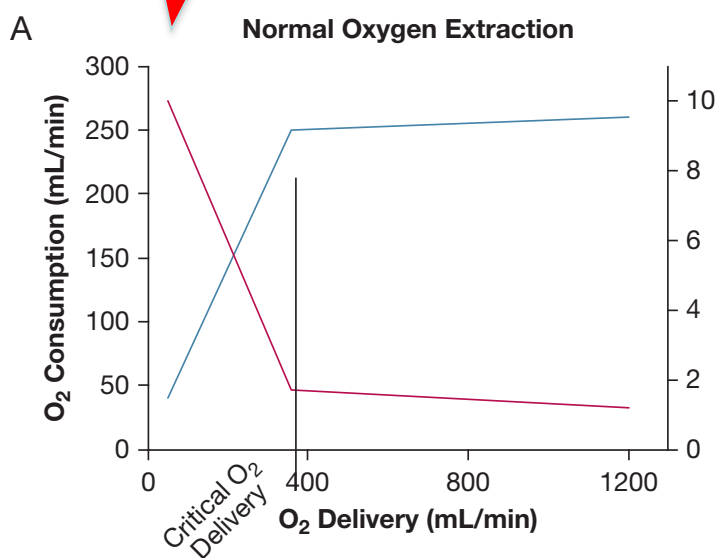


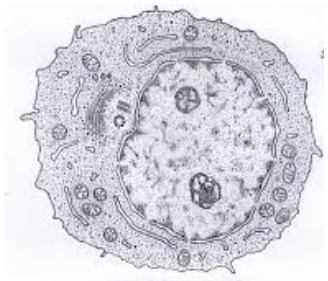


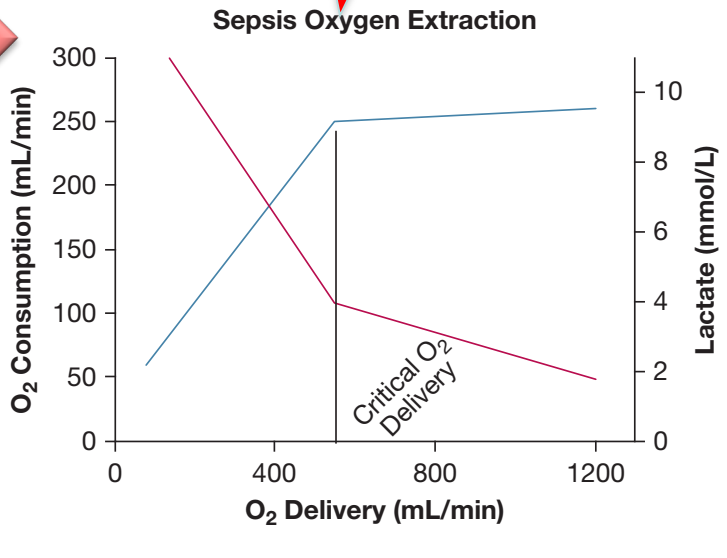
Baisse **extraction** O_2…



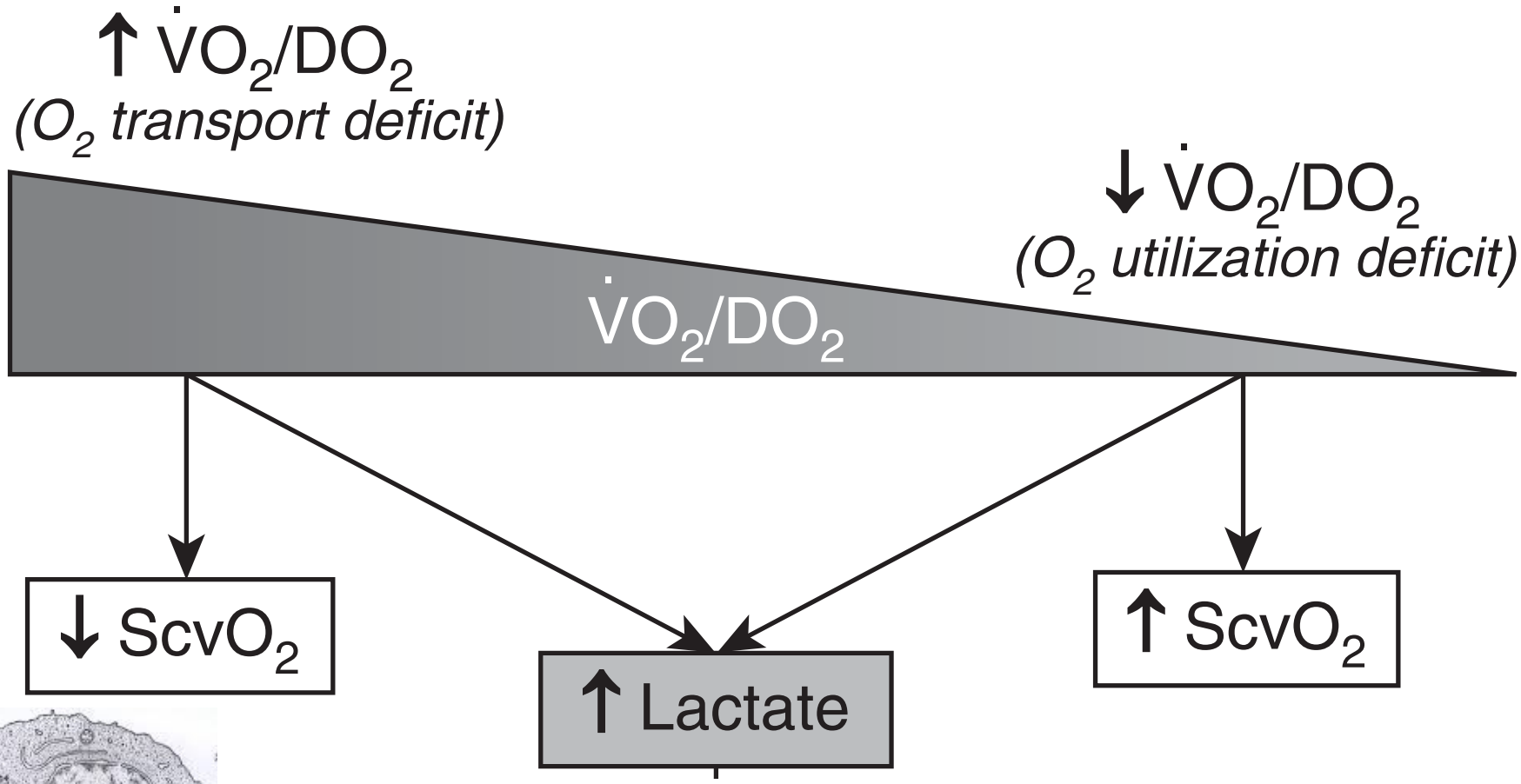
SEPSIS

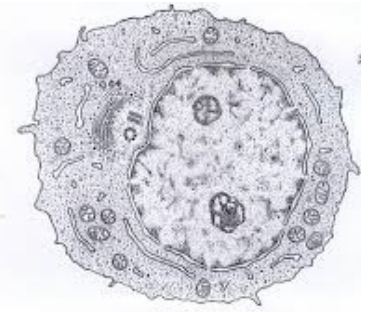






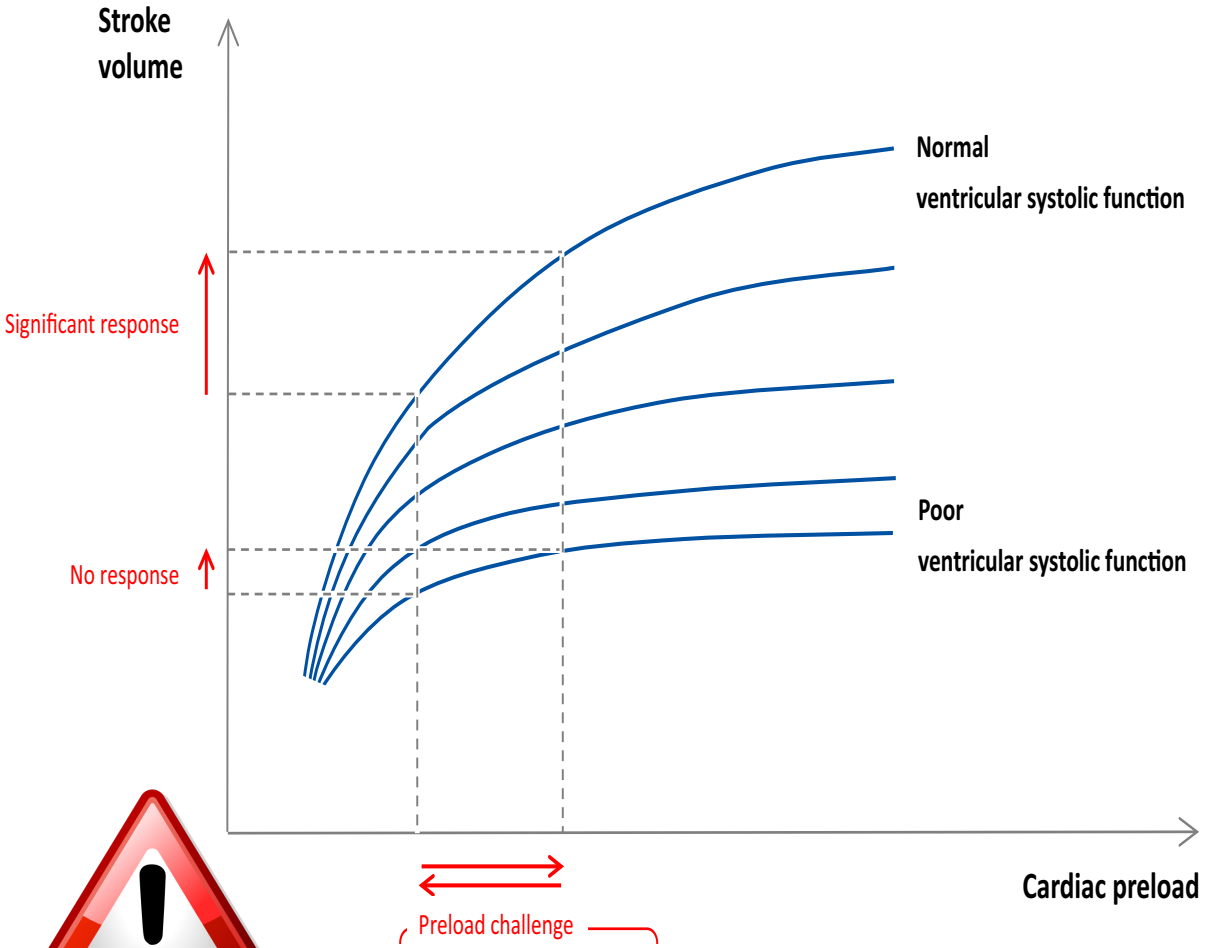
Lactatémie et **$ScvO_2$**

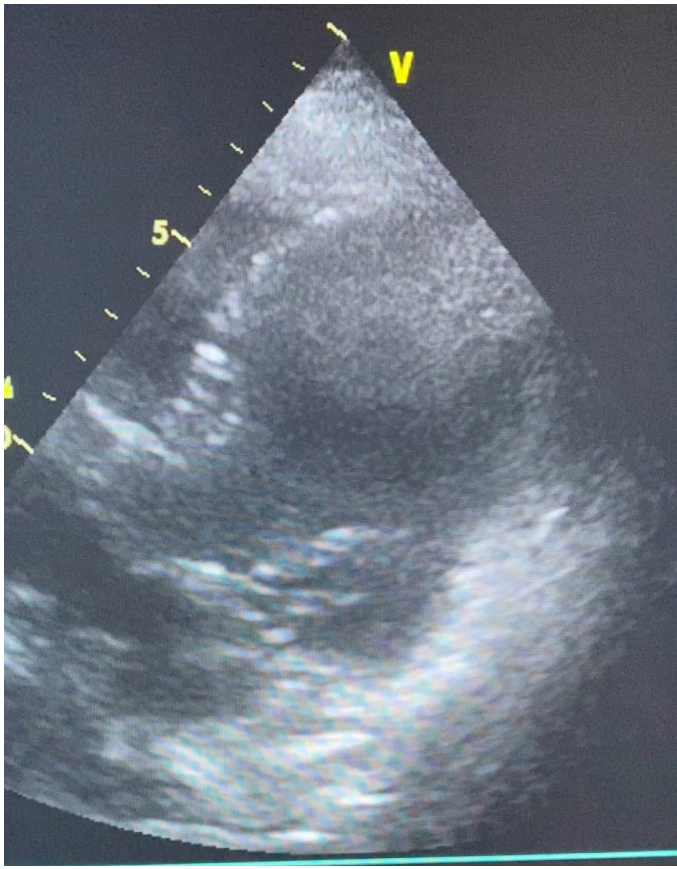




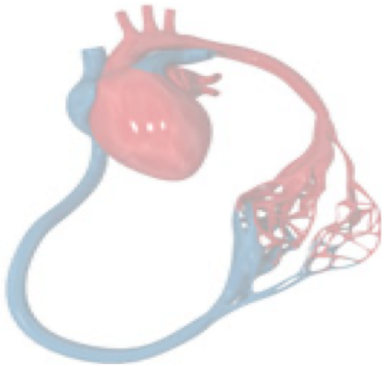
Gattinoni *et al*. Am J Respir Crit Care Med 2019

Amélioration DO_2: *Précharge*-dépendance?





$$DO_2 = Hb \times 1.36 \times SaO_2 \times Qc$$



Is there acute circulatory failure?
- Low blood pressure or cardiac output?
- Signs of tissue hypoperfusion?

NO

YES

Is hypovolemia obvious ?
- Obvious fluid loss?
- Initial phase of septic shock?

YES

Perform volume expansion
(no need to test preload responsiveness)

NO

Is there preload responsiveness?

Are the following conditions present?
- Spontaneous breathing?
- Cardiac arrhythmias?
- ARDS with low tidal volume / lung compliance?

YES

Passive leg raising test

End-expiratory occlusion test

"Mini" fluid challenge

NO

Pulse pressure or stroke volume variation

Respiratory variation of IVC/SVC*

Passive leg raising test

End-expiratory occlusion test

"Mini" fluid challenge

YES

Consider volume expansion
(depending on the risk of fluid overload)

NO

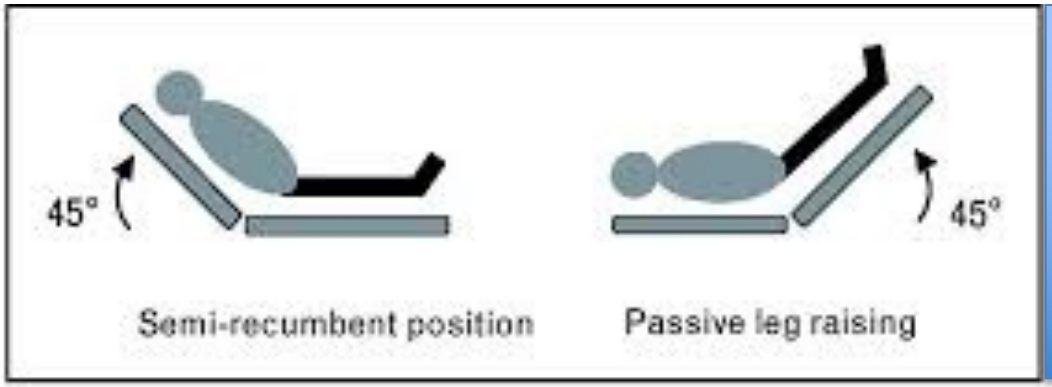
Do not
consider volume expansion

Patient en ventilation spontanée…

Method	Threshold	Main limitations
Pulse pressure/stroke volume variations [22]	12%	Cannot be used in case of spontaneous breathing, cardiac arrhythmias, low tidal volume/ lung compliance
Inferior vena cava diameter variations [44]	12%	Cannot be used in case of spontaneous breathing, low tidal volume/lung compliance
Superior vena caval diameter variations [44]	36%*	Requires performing transesophageal Doppler Cannot be used in case of spontaneous breathing, low tidal volume/lung compliance
Passive leg raising [55]	10%	Requires a direct measurement of cardiac output
End-expiratory occlusion test [75]	5%	Cannot be used in non-intubated patients Cannot be used in patients who interrupt a 15-s respiratory hold
"Mini"-fluid challenge (100 mL) [84]	6%**	Requires a precise technique for measuring cardiac output
"Conventional" fluid challenge (500 mL) [81]	15%	Requires a direct measurement of cardiac output Induces fluid overload if repeated

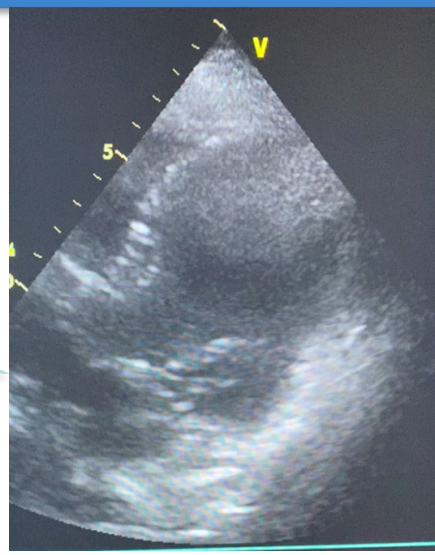
Monnet X *et al*. Ann Intensive Care 2016

Prédire la précharge-dépendance: **levé de jambes passif**



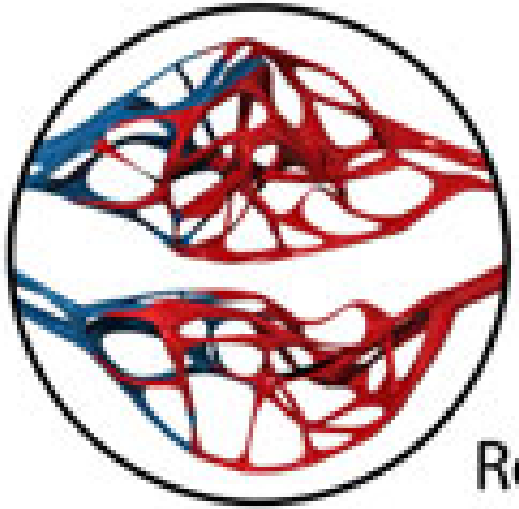
« auto-remplissage » # 250 mL

débit cardiaque?



Jusqu'où faut-il remplir les patients **septiques**?

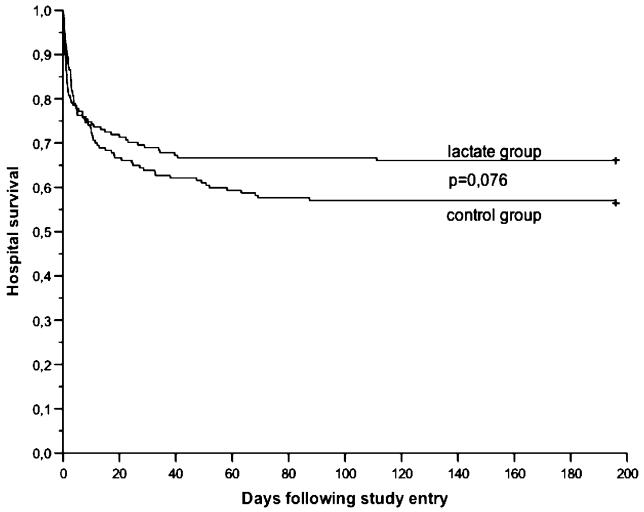
The Good
Stroke volume
Tissue oxygenation
Perfusion
Viscosity

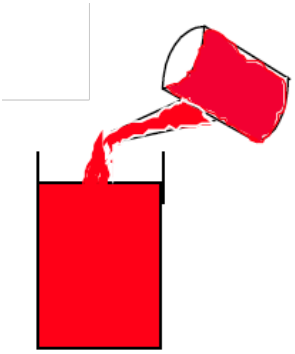


The Bad
Venous congestion
Edema
Reactive oxygen species
Coagulation
Anemia-hypoxemia
Glycocalyx-endothelium
Acidosis

Early Lactate-Guided Therapy in Intensive Care Unit Patients

A Multicenter, Open-Label, Randomized Controlled Trial

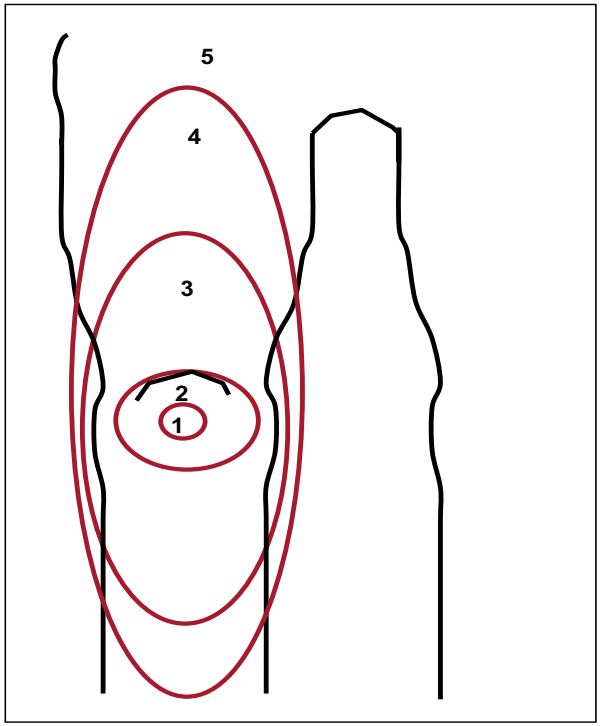


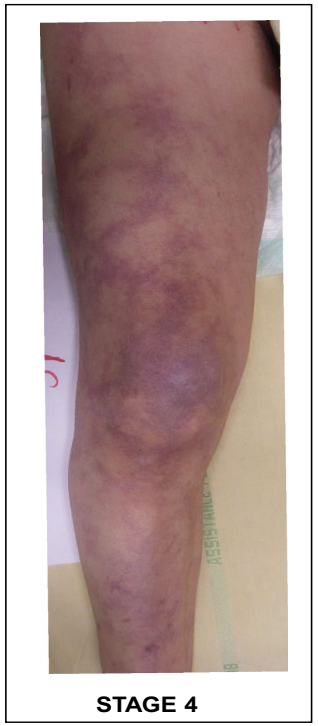


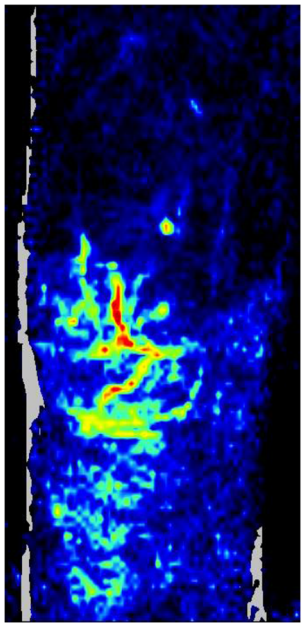
Treatment	Control Group	Lactate Group	*P* Value
Fluids, ml*			
0–8 h†	2,194 ± 1,669	2,697 ± 1,965	0.011
9–72 h‡	10,043 ± 6,141	8,515 ± 4,987	0.055
Red blood cell transfusion, ml			
0–8 h†	196 ± 495	322 ± 1037	0.15
9–72 h‡	345 ± 667	423 ± 1300	0.59
Any inotropic [illegible] %§			
0–8 h†			0.17
9–72 [illegible]			0.12
Any vasodilator, [illegible]			
0–8 h†			<0.001
9–72 h‖			0.005
Any vasopressor, %**			
0–8 h†	63.6	69.5	0.25
9–72 h‖	63.7	71.4	0.16

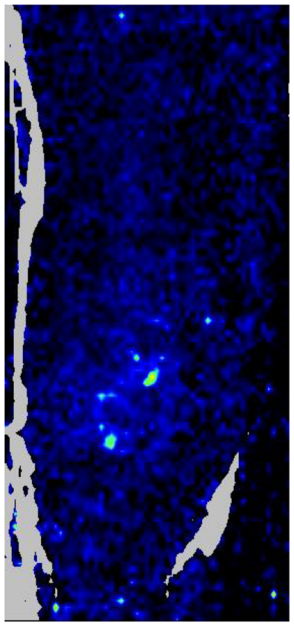
Remplissage +rapide/-abondant

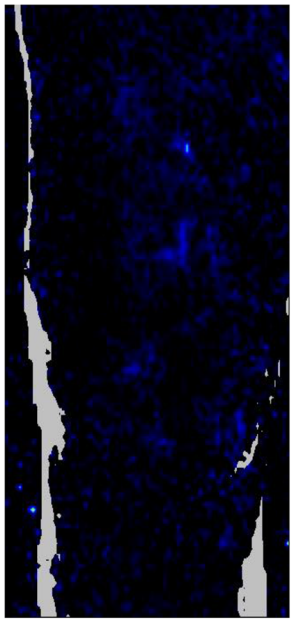
Jansen TC *et al*. Am J Respir Crit Care Med 2010

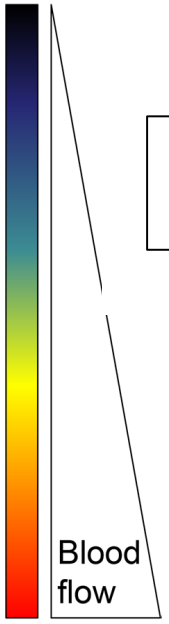


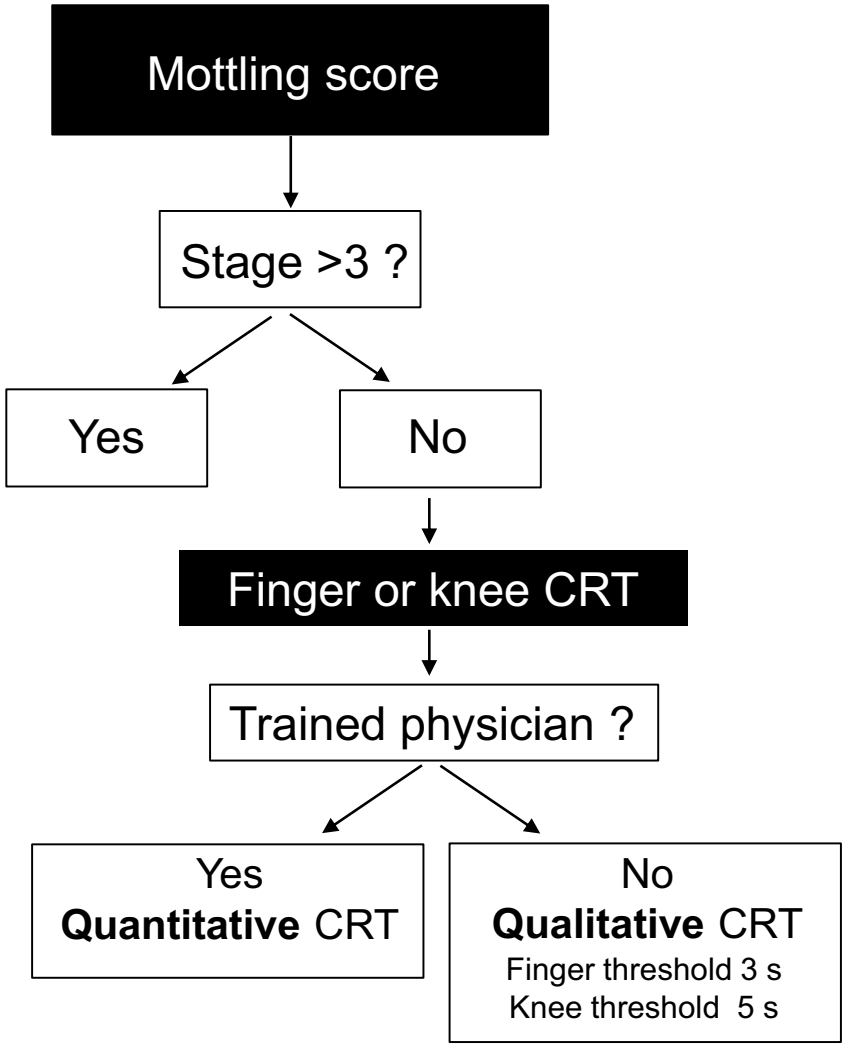

STAGE 4


Stage 0


Stage 3


Stage 5



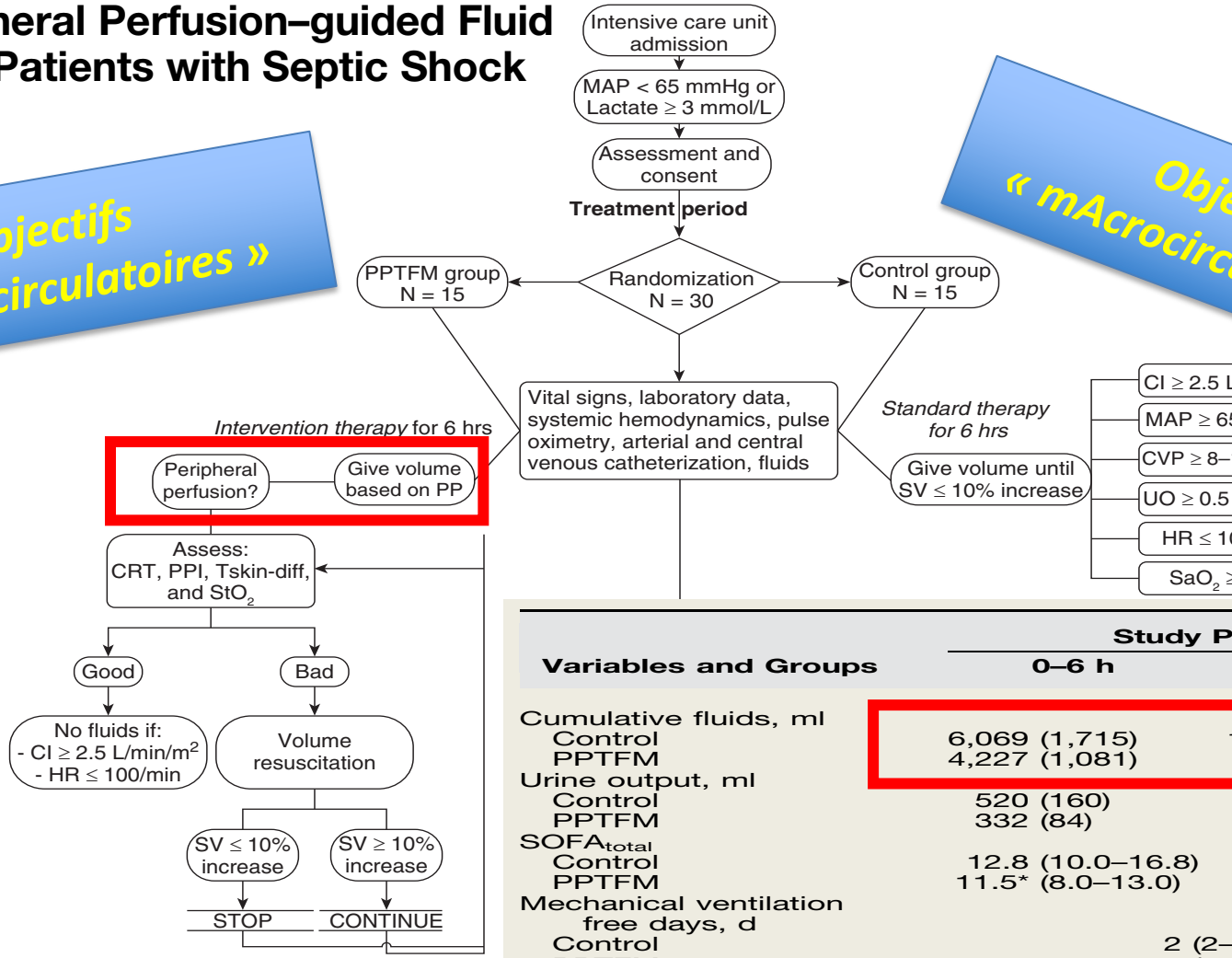


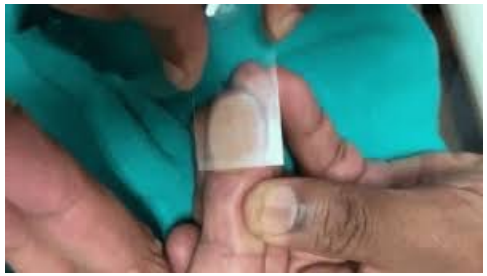
Ait-Houfella X *et al*. Ann Intensive Care 2019

Early Peripheral Perfusion–guided Fluid Therapy in Patients with Septic Shock

Objectifs « mIcrocirculatoires »

Objectifs « mAcrocirculatoires »





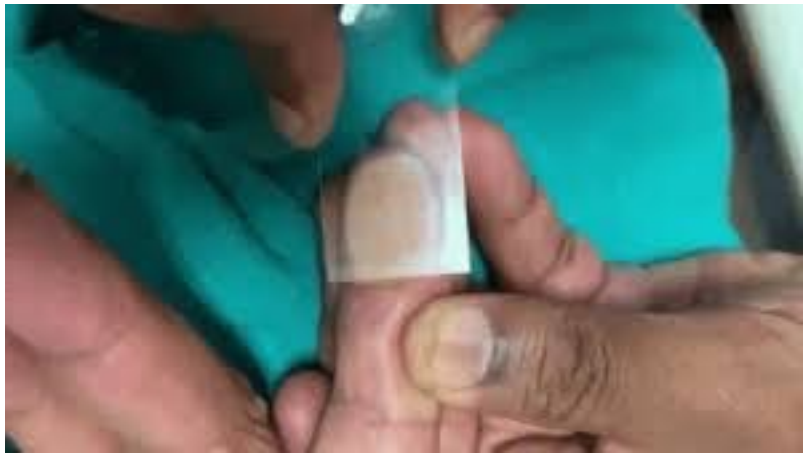
Variables and Groups	Study Period 0–6 h	Study Period 7–72 h
Cumulative fluids, ml		
Control	6,069 (1,715)	10,028 (941)
PPTFM	4,227 (1,081)	7,565 (982)
Urine output, ml		
Control	520 (160)	2,469 (542)
PPTFM	332 (84)	1,680 (527)
$SOFA_{total}$		
Control	12.8 (10.0–16.8)	11.0 (5.3–15.3)
PPTFM	11.5* (8.0–13.0)	8.3 (5.5–13.1)
Mechanical ventilation free days, d		
Control	2 (2–6)	
PPTFM	2 (1–5)	
Intensive care unit mortality, n (%)		
Control	6 (40)	
PPTFM	7 (47)	
Intensive care unit stay, d		
Control	8 (3–8)	
PPTFM	10 (2–10)	
Hospital stay, d		
Control	43 (8–45)	
PPTFM	16 (5– 28)*	

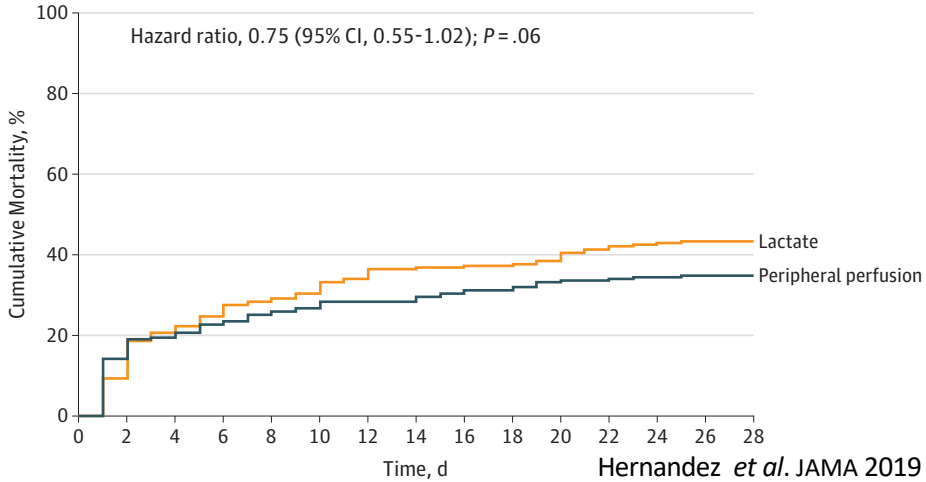
Van Genderen *et al*. Am J Respir Crit Care Med 2015

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

The ANDROMEDA-SHOCK Randomized Clinical Trial

Outcome	Peripheral Perfusion-Targeted Resuscitation (n = 212)	Lactate Level-Targeted Resuscitation (n = 212)	Unadjusted Absolute Difference (95% CI)	Adjusted Relative Measure (95% CI)	*P* Value
SOFA at 72 h, No.[d]	165	166			.045
Mean (SD)	5.6 (4.3)	6.6 (4.7)	−1.00 (−1.97 to −0.02)		
ICU length of stay, mean (SD), d[e]	9.1 (9.8)	9.0 (9.6)	0.1 (−1.7 to 2.0)		.91
Hospital length of stay, mean (SD), d[f]	22.9 (28.8)	18.3 (19.0)	4.6 (0.0 to 9.1)		.05
Amount of resuscitation fluids within the first 8 h, No.	206	209			
Mean (SD), mL	2359 (1344)	2767 (1749)	−408 (−705 to −110)		.01





Hernandez *et al*. JAMA 2019

Prise en charge initiale du sepsis

QUEL(S) SOLUTÉ(S) DE REMPLISSAGE UTILISER?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Hydroxyethyl Starch 130/0.42 versus Ringer's Acetate in Severe Sepsis

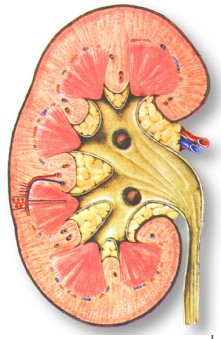
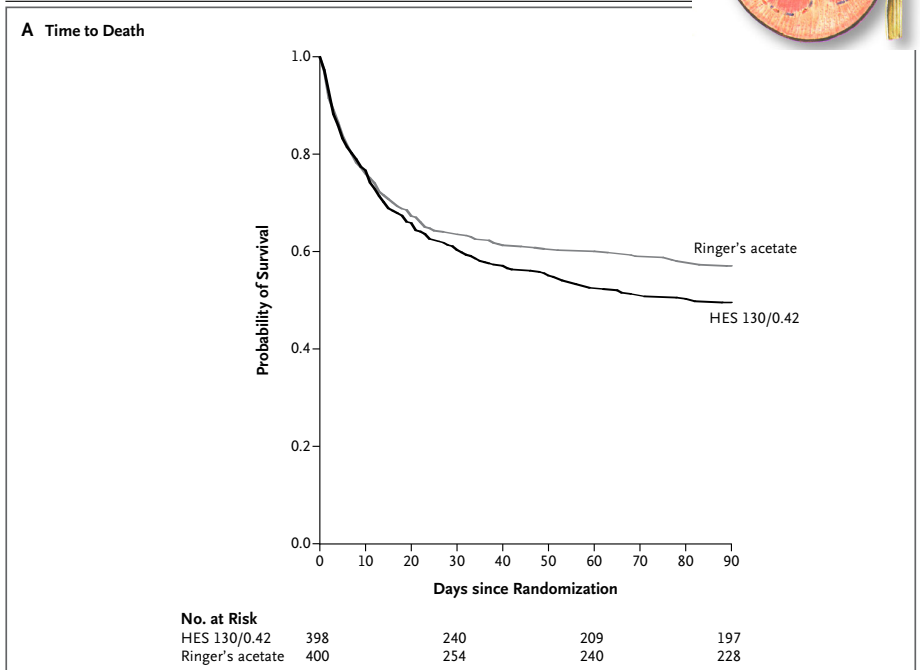
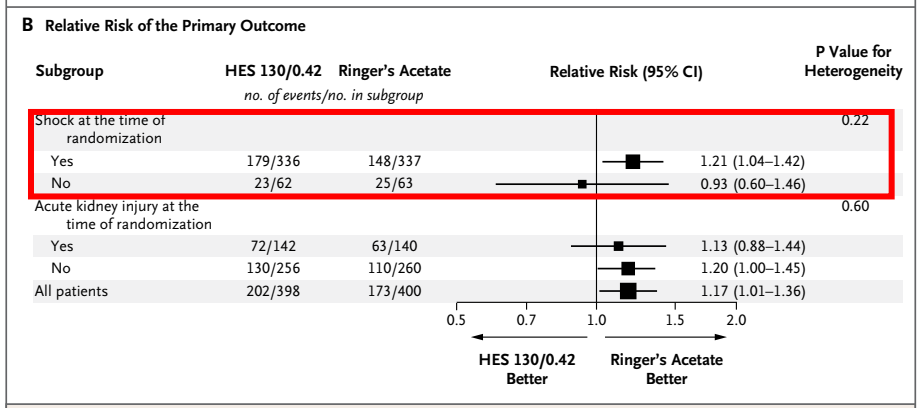


Table 1. Baseline Characteristics of the Patients.*

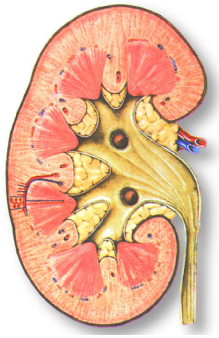
Characteristic	HES 130/0.42 (N=398)	Ringer's Acetate (N=400)
Age — yr		
Median	66	67
Interquartile range	56–75	56–76
Male sex — no. (%)	239 (60)	244 (61)
Ideal body weight — kg†		
Median	72	72
Interquartile range	60–80	60–80
Admitted to university hospital — no. (%)	194 (49)	188 (47)
Surgery — no. (%)‡		
Emergency	114 (29)	116 (29)
Elective	34 (9)	48 (12)
Source of ICU admission — no. (%)		
Emergency department	109 (27)	94 (24)
General ward	177 (44)	196 (49)
Operating or recovery room	59 (15)	54 (14)
Other ICU in the same hospital	21 (5)	14 (4)
Other hospital	32 (8)	42 (10)
Source of sepsis — no. (%)§		
Lungs	212 (53)	229 (57)
Abdomen	130 (33)	133 (33)
Urinary tract	56 (14)	50 (12)
Soft tissue	38 (10)	46 (12)
Other	43 (11)	33 (8)
SAPS II — median (interquartile range)¶	50 (40–60)	51 (39–62)
SOFA score — median (interquartile range)‖	7 (5–9)	7 (5–9)
Shock — no. (%)**	336 (84)	337 (84)
Acute kidney injury — no. (%)††	142 (36)	140 (35)
Mechanical ventilation — no. (%)	240 (60)	245 (61)



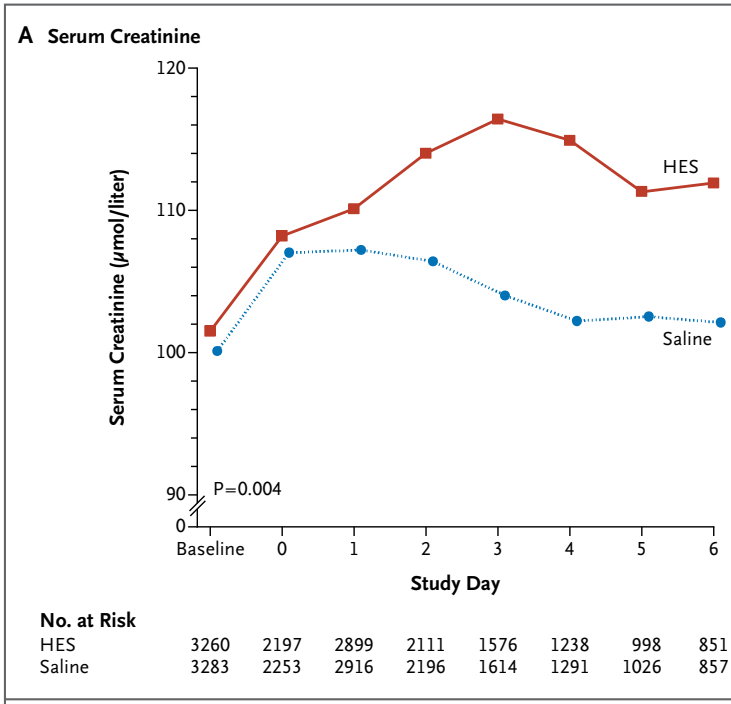


Perner et al New Eng J Med 2012

Secondary outcomes — no./total no. (%)				
Renal outcomes				
RIFLE-R	1788/3309 (54.0)	1912/3335 (57.3)	0.94 (0.90 to 0.98)	0.007
RIFLE-I	1130/3265 (34.6)	1253/3300 (38.0)	0.91 (0.85 to 0.97)	0.005
RIFLE-F	336/3243 (10.4)	301/3263 (9.2)	1.12 (0.97 to 1.30)	0.12
Use of renal-replacement therapy	235/3352 (7.0)	196/3375 (5.8)	1.21 (1.00 to 1.45)	0.04
New organ failure†				
Respiratory	540/2062 (26.2)	524/2094 (25.0)	1.05 (0.94 to 1.16)	0.39
Cardiovascular	663/1815 (36.5)	722/1808 (39.9)	0.91 (0.84 to 0.99)	0.03
Coagulation	142/2987 (4.8)	119/3010 (4.0)	1.20 (0.95 to 1.53)	0.13
Hepatic	55/2830 (1.9)	36/2887 (1.2)	1.56 (1.03 to 2.36)	0.03



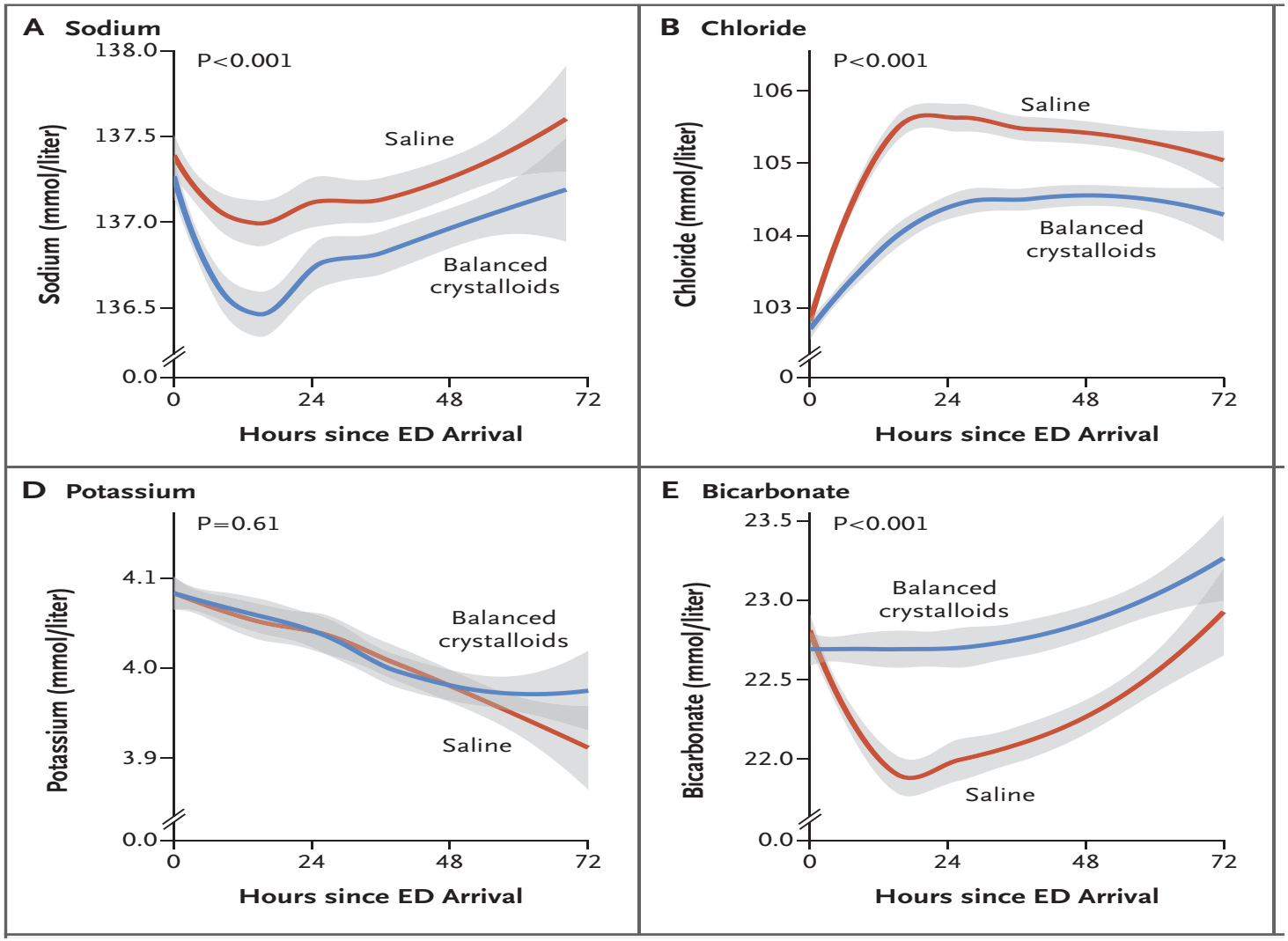
Néphrose osmotique?



Myburgh et al New Eng J Med 2012

ORIGINAL ARTICLE

Balanced Crystalloids versus Saline in Noncritically Ill Adults



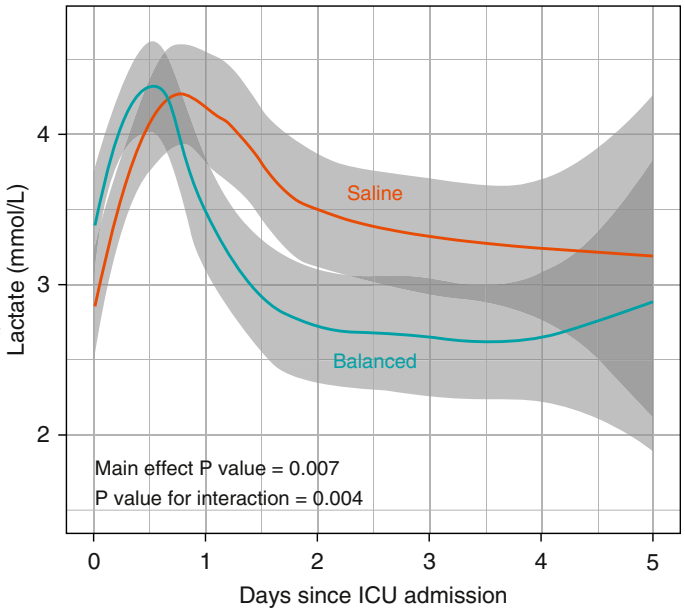
Self WH et al New Eng J Med 2018

ORIGINAL ARTICLE

Balanced Crystalloids versus Saline in Sepsis

A Secondary Analysis of the SMART Clinical Trial

Outcome*	*n*	Balanced Crystalloids (*n* = 824)	Saline (*n* = 817)	Adjusted OR (95% CI)†
Primary outcome				
30-d in-hospital mortality, *n* (%)	1,641	217 (26.3)	255 (31.2)	0.74 (0.59 to 0.93)
Additional renal outcomes§				
Major adverse kidney event within 30 d, *n* (%)‖	1,641	292 (35.4)	328 (40.1)	0.78 (0.63 to 0.97)



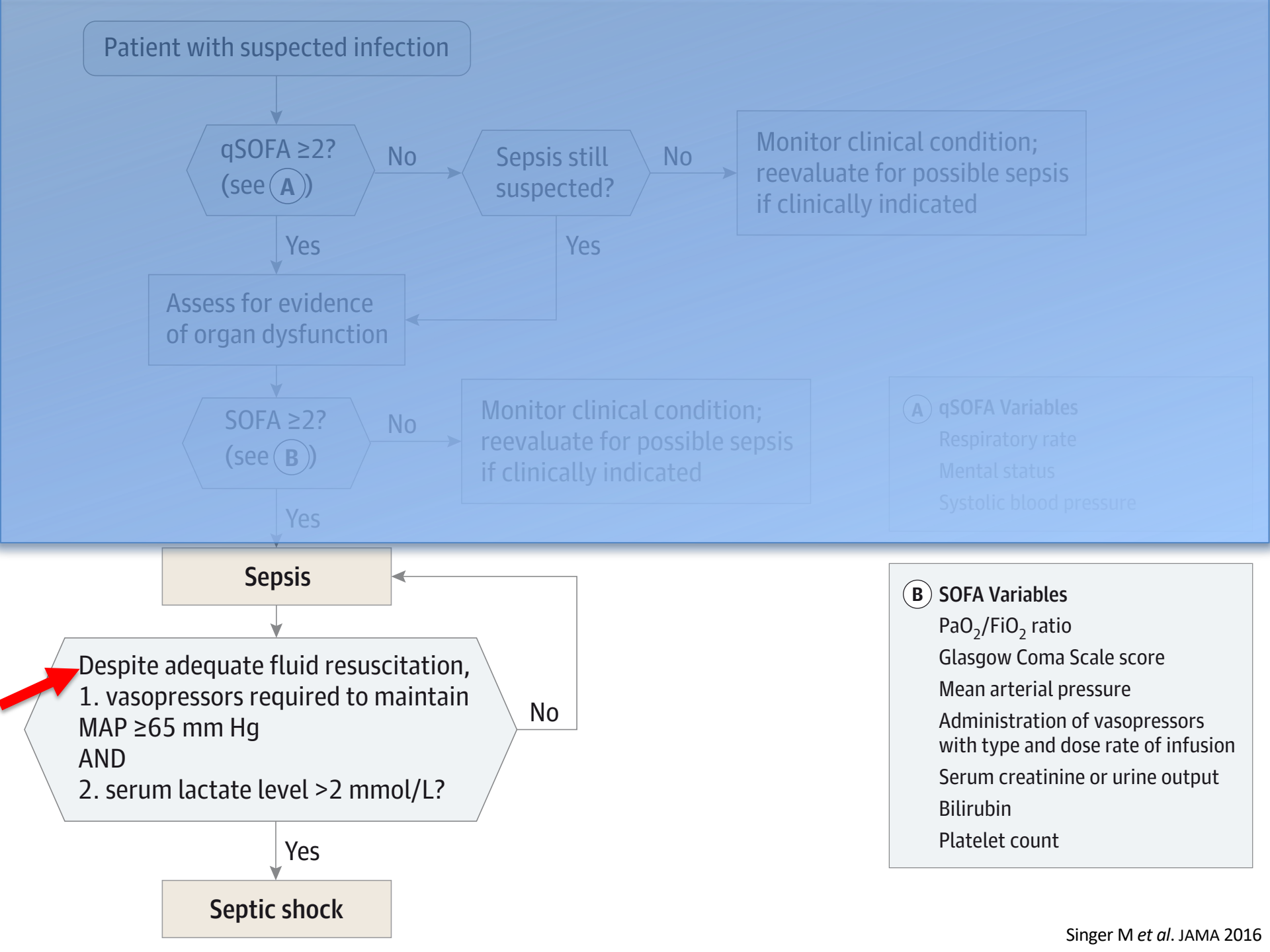
Brown *et al* Am J Respir Crit Care Med 2020

Sodium bicarbonate therapy for patients with severe metabolic acidaemia in the intensive care unit (BICAR-ICU): a multicentre, open-label, randomised controlled, phase 3 trial

pH≤7.20
HCO_3≤20 mmol/L
$PaCO_2$≤45 mmHg
≤48H ICU

	Control group (n=194)	Bicarbonate group (n=195)
(Continued from previous page)		
Physiological support†		
Invasive mechanical ventilation	160 (82%)	164 (84%)
Vasopressor support	156 (80%)	154 (79%)
Laboratory results		
Arterial pH	7·15 (7·11–7·18)	7·15 (7·09–7·18)
PaO_2-to-FIO_2 ratio (mm Hg)	229 (142–355)	264 (144–403)
$PaCO_2$ (mm Hg)	37 (32–42)	38 (33–42)
Serum bicarbonate (mmol/L)	13 (10–15)	13 (10–15)
Serum lactate (mmol/L)	5·3 (3·4–9·0)	6·3 (3·6–9·7)
Serum lactate ≥2 mmol/L at enrolment	152 (78%)	168 (86%)
Serum creatinine (mg/dL)	1·76 (1·21–2·48)	1·67 (1·11–2·33)
Blood urea nitrogen (mg/dL)	31 (20–48)	28 (20–45)

	Control group (n=194)	Bicarbonate group (n=195)	Absolute difference estimate (95% CI)	p value
Primary outcome				
Overall population (n=389)				
Composite outcome	138 (71%)	128 (66%)	−5·5 (−15·2 to 4·2)	0·24
Day 28 mortality	104 (54%)	87 (45%)	−9·0 (−19·4 to 1·4)	0·07
At least one organ failure at day 7	134 (69%)	121 (62%)	−2·8 (−15·4 to 9·8)	0·15
Patients with AKIN scores of 2–3* (n=182)				
Composite outcome	74/90 (82%)	64/92 (70%)	−12·3 (−26·0 to −0·1)	0·0462
Day 28 mortality	57/90 (63%)	42/92 (46%)	−17·7 (−33·0 to −2·3)	0·0166
At least one organ failure at day 7	74/90 (82%)	61/92 (66%)	−15·9 (−28·4 to −3·4)	0·0142
Secondary outcomes				
Renal replacement therapy				
Overall population (n=389)				
Use of renal replacement therapy during ICU stay	100 (52%)	68 (35%)	−16·7 (−26·4 to −7·0)	0·0009

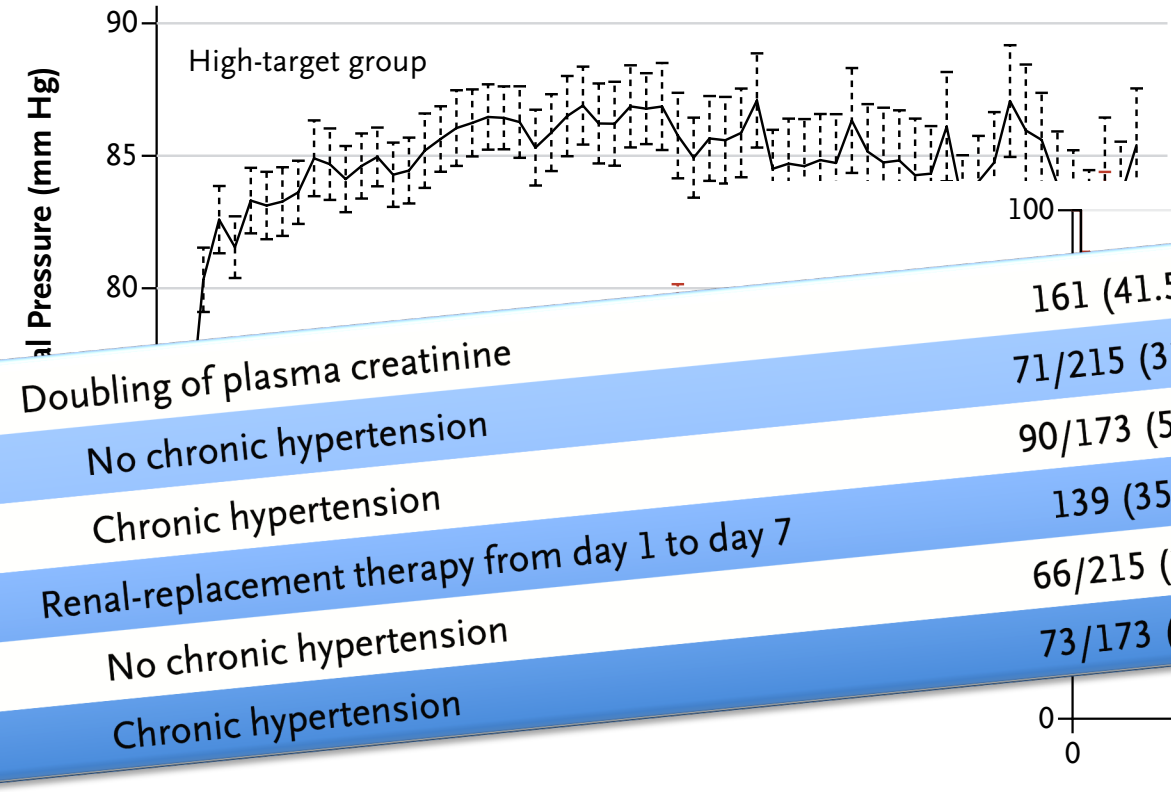


Singer M *et al*. JAMA 2016

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 24, 2014 VOL. 370 NO. 17

High versus Low Blood-Pressure Target in Patients with Septic Shock

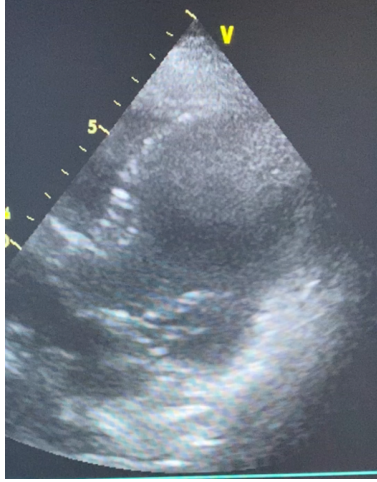


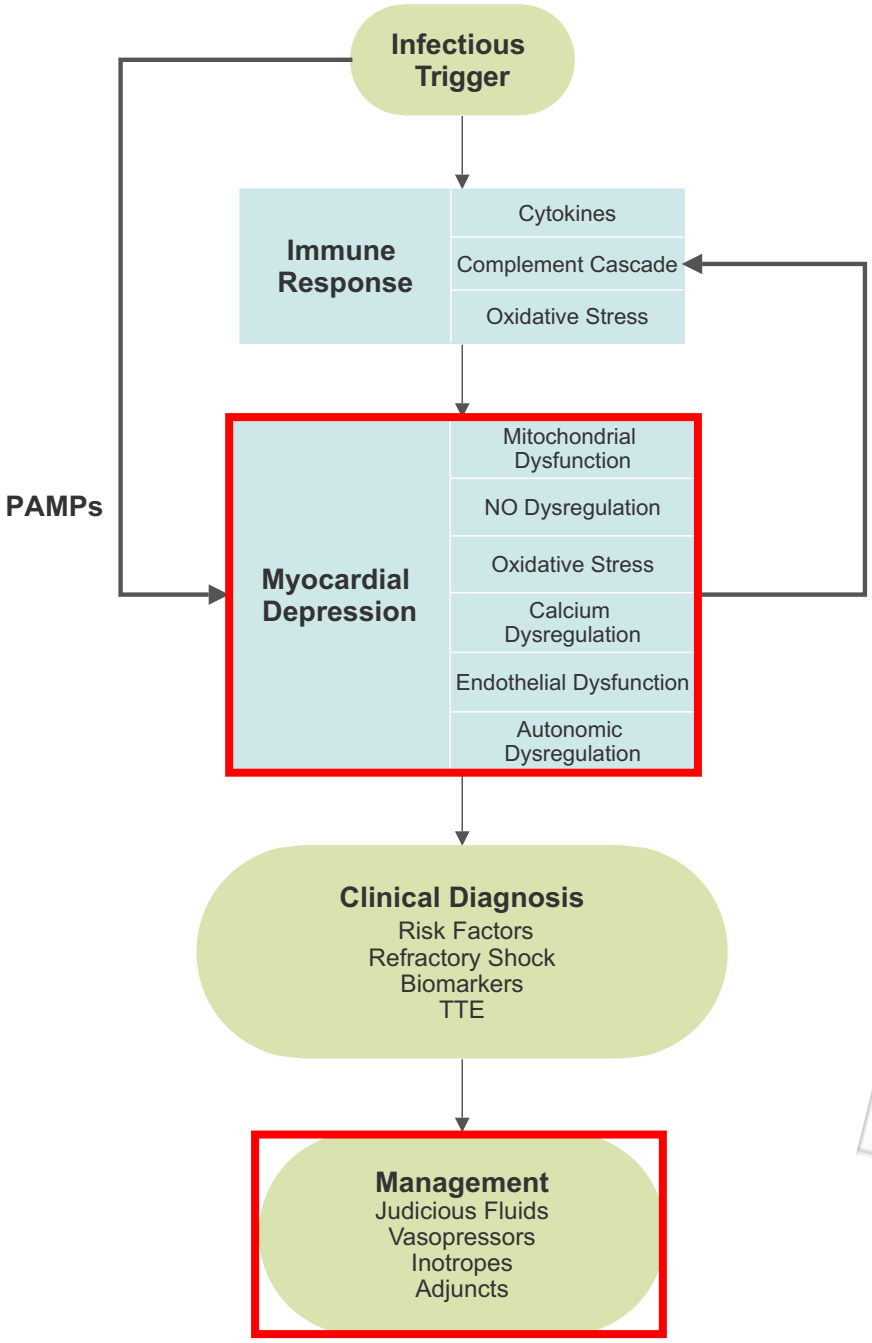
Doubling of plasma creatinine	161 (41.5)	150 (38.7)	0.42
No chronic hypertension	71/215 (33.0)	85/221 (38.5)	0.32
Chronic hypertension	90/173 (52.0)	65/167 (38.9)	0.02
Renal-replacement therapy from day 1 to day 7	139 (35.8)	130 (33.5)	0.50
No chronic hypertension	66/215 (30.7)	77/221 (34.8)	0.36
Chronic hypertension	73/173 (42.2)	53/167 (31.7)	0.046

No. at Risk

Low target	379	256	233	225
High target	375	249	227	219

Asfar et al N Eng J Med 2014





Proposed Diagnostic Criteria for Sepsis-Induced Cardiomyopathy
Acute and reversible, within 7-10 days
Global, biventricular dysfunction (systolic and/or diastolic) with reduced contractility
Left ventricular dilation
Diminished response to fluid resuscitation and catecholamines
Absence of acute coronary syndrome as etiology

L'Heureux *et al* Curr Cardiol Rep 2020

Prise en charge
du patient septique

- Remplissage précoce du patient septique
- Solutés **cristalloïdes** (sol. balancés+++)
- **Simultanément avec** l'antibiothérapie
- La précocité impacte fortement sur le **devenir** des patients
- Nécessité d'**endpoints**: clinique, **lactate**, $SvcO_2$