Sepsis'te ne değişti?

Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Uzmanı Gözünden

Değişenler

Gazi Üniversitesi Tıp fakültesi

Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı

Dr. H. Selçuk Özger

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
✓ From 1991/01/01 to 1991/12/31

Species
Humans
Other Animals

Format: Summary ▾ Sort by: Most Recent ▾ Per page: 20 ▾ Send to ▾

Best matches for sepsis:

Sepsis: A Review of Advances in Management.
Rello J et al. Adv Ther. (2017)
Biomarkers of **sepsis**.
Faix JD et al. Crit Rev Clin Lab Sci. (2013)
The recognition and management of **sepsis** and septic shock: a guide for non-intensivists.
Keeley A et al. Postgrad Med J. (2017)

1991

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Search results

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Article types
Clinical Trial
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Text availability
Abstract
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Publication dates
5 years
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Species
Humans
Other Animals

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Keeley A et al. Postgrad Med J. (2017)

2001

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Search results

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Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
✓ From 2016/01/01 to 2016/12/31

Species
Humans
Other Animals

Format: Summary ▾ Sort by: Most Recent ▾ Per page: 20 ▾ Send to ▾

Best matches for sepsis:

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Keeley A et al. Postgrad Med J. (2017)

2016

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Search results

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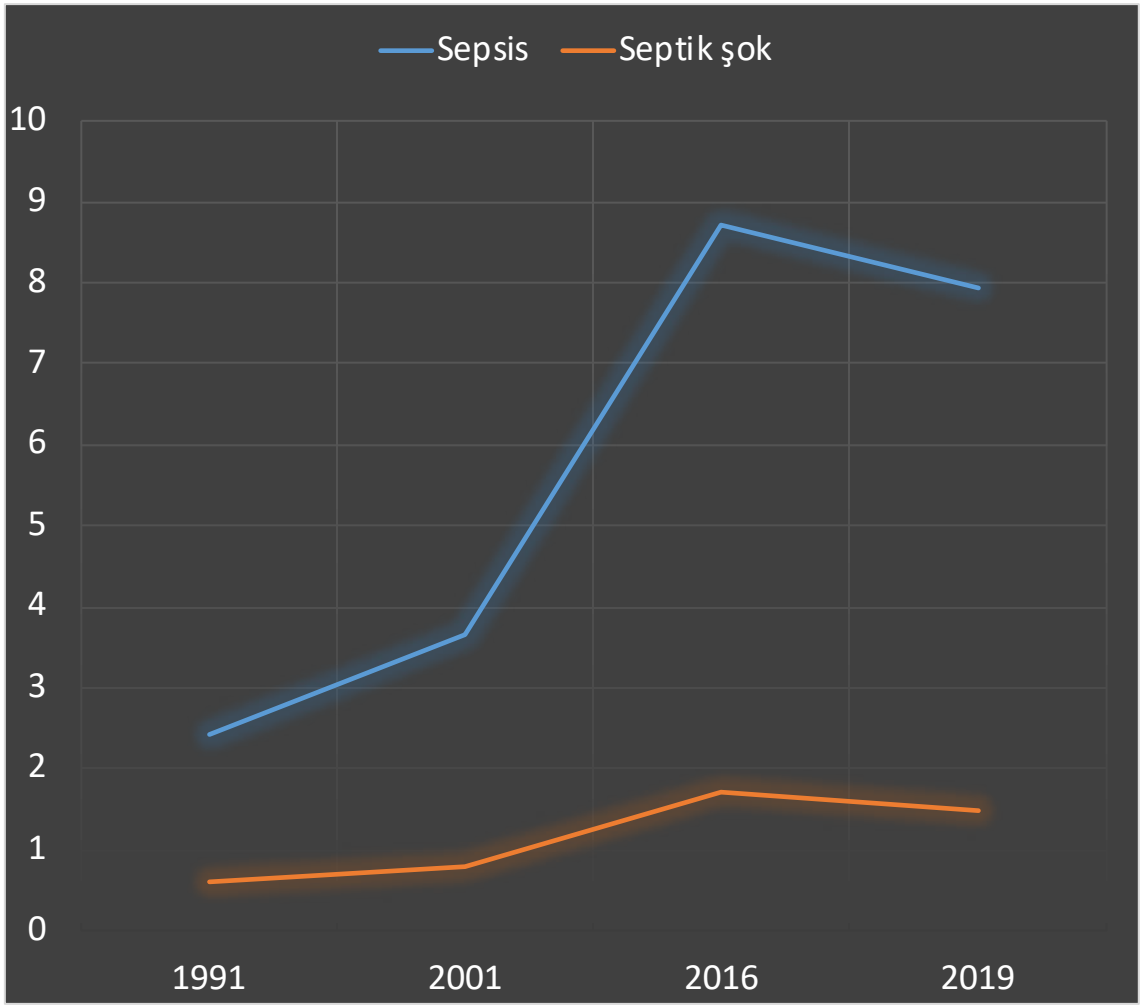


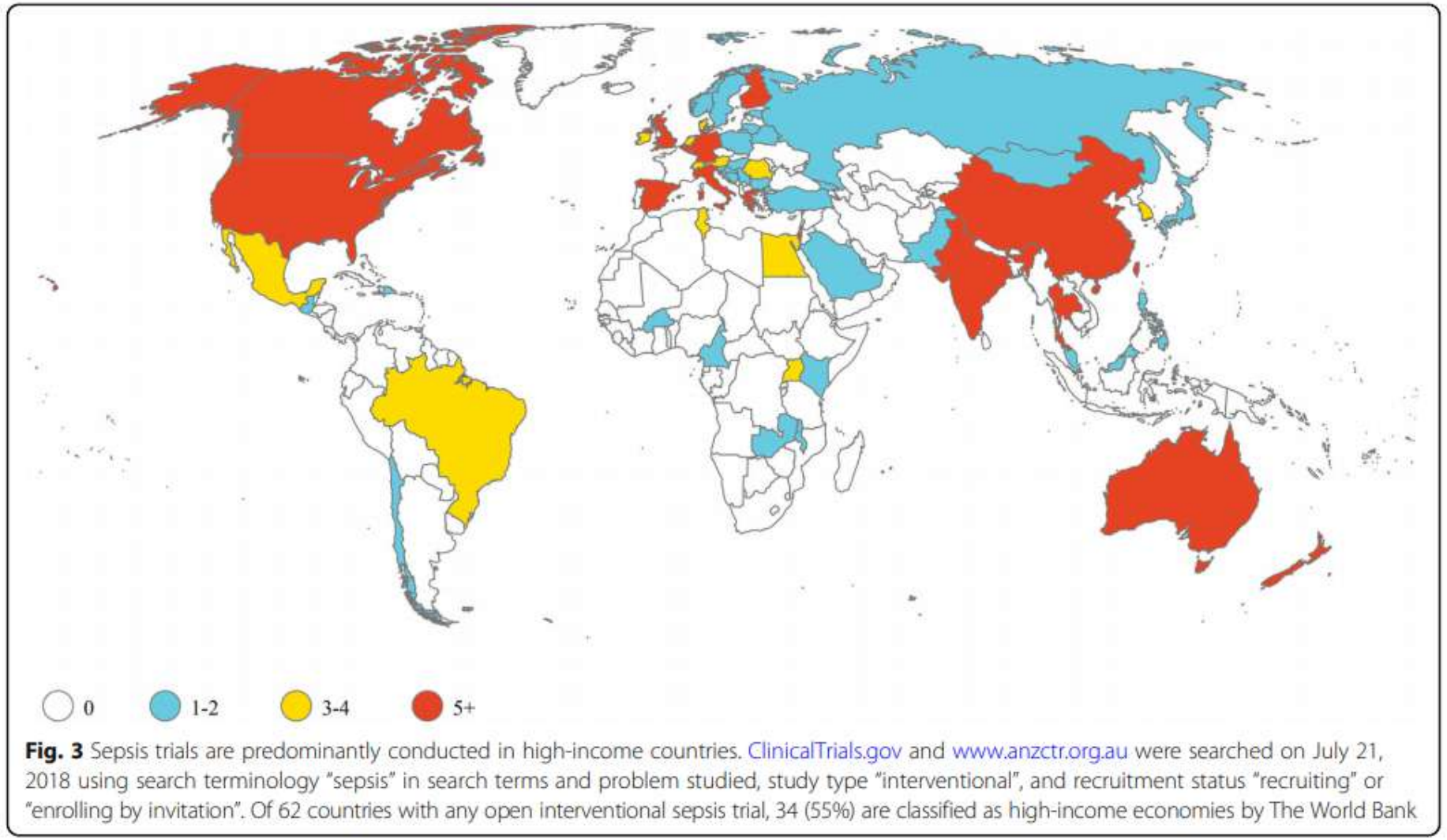


Fig. 3 Sepsis trials are predominantly conducted in high-income countries. ClinicalTrials.gov and www.anzctr.org.au were searched on July 21, 2018 using search terminology "sepsis" in search terms and problem studied, study type "interventional", and recruitment status "recruiting" or "enrolling by invitation". Of 62 countries with any open interventional sepsis trial, 34 (55%) are classified as high-income economies by The World Bank

Rudd et al. Critical Care (2018)

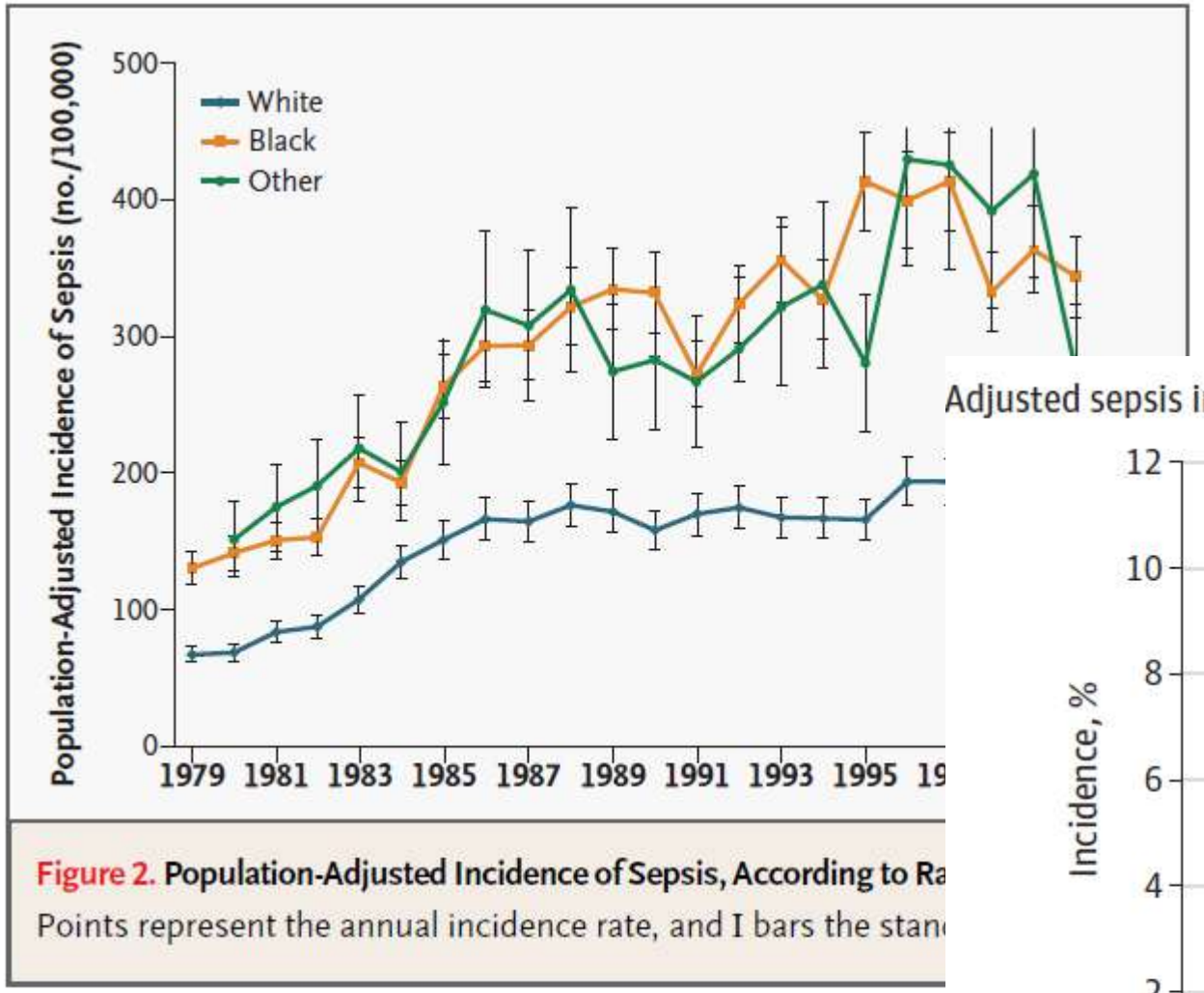
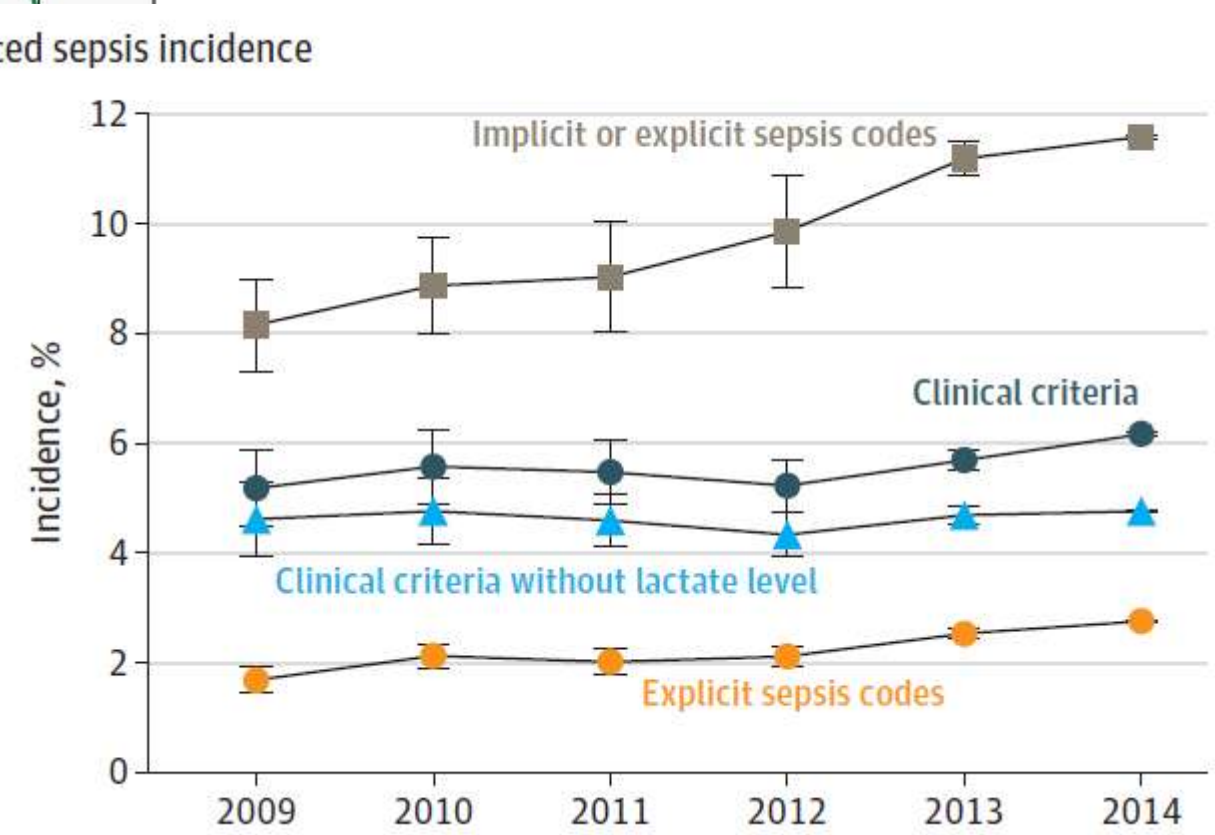


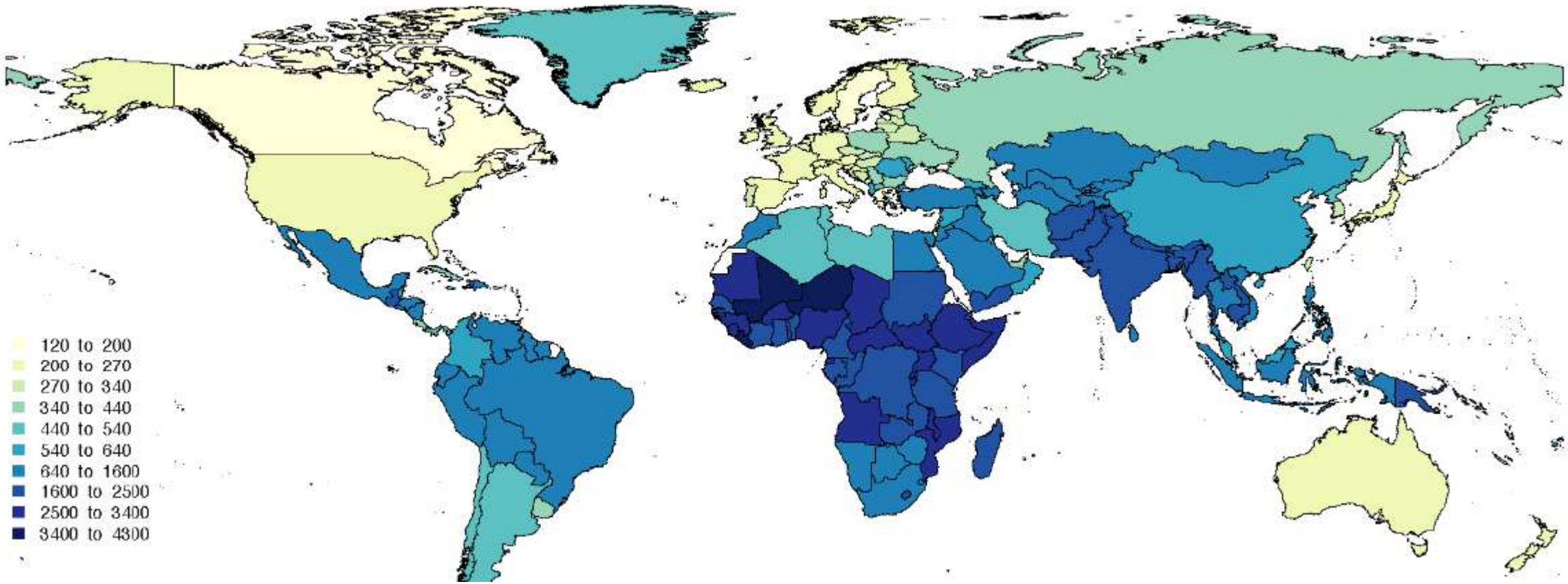
Figure 2. Population-Adjusted Incidence of Sepsis, According to Ra

Points represent the annual incidence rate, and I bars the stan

Martin G.S. Et al. N Engl J Med 2003



Rhee C. Et al JAMA 2017



Rudd K.E. Et al.Lancet 2020

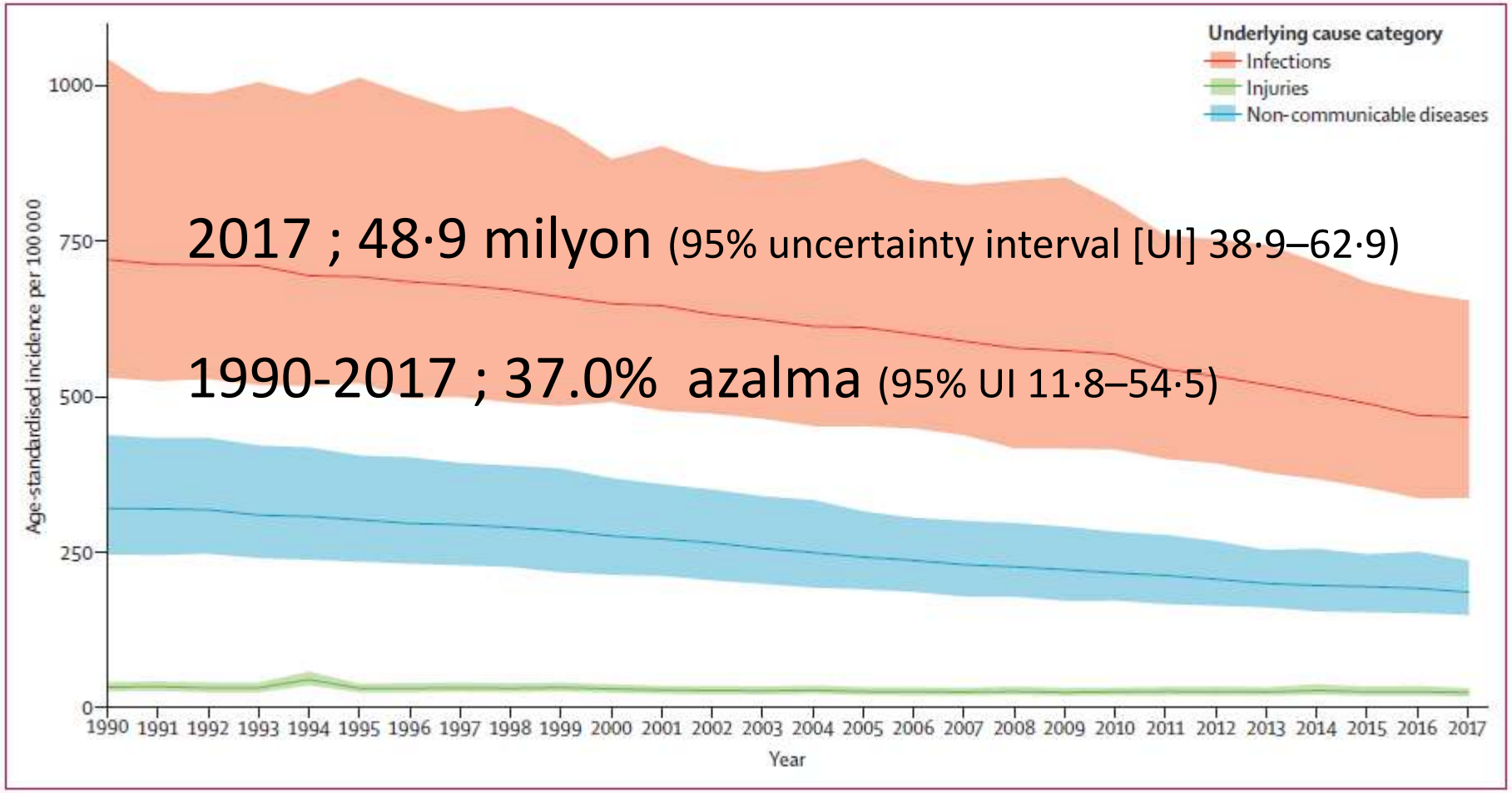


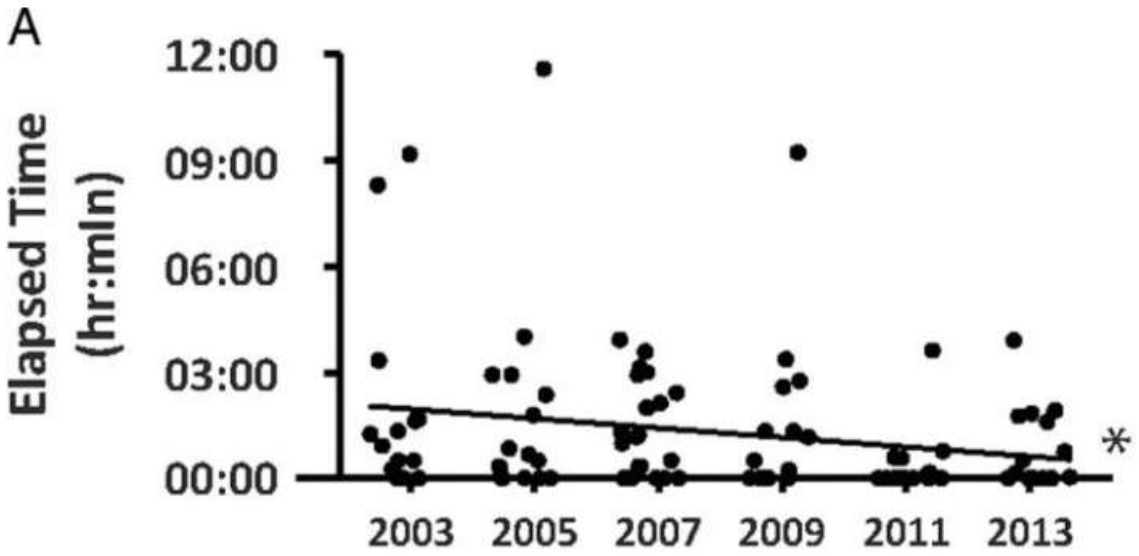
Figure 1: **Age-standardised global sepsis incidence per 100 000 population, for both sexes and by underlying cause category, 1990–2017**
Shaded areas represent 95% uncertainty intervals.

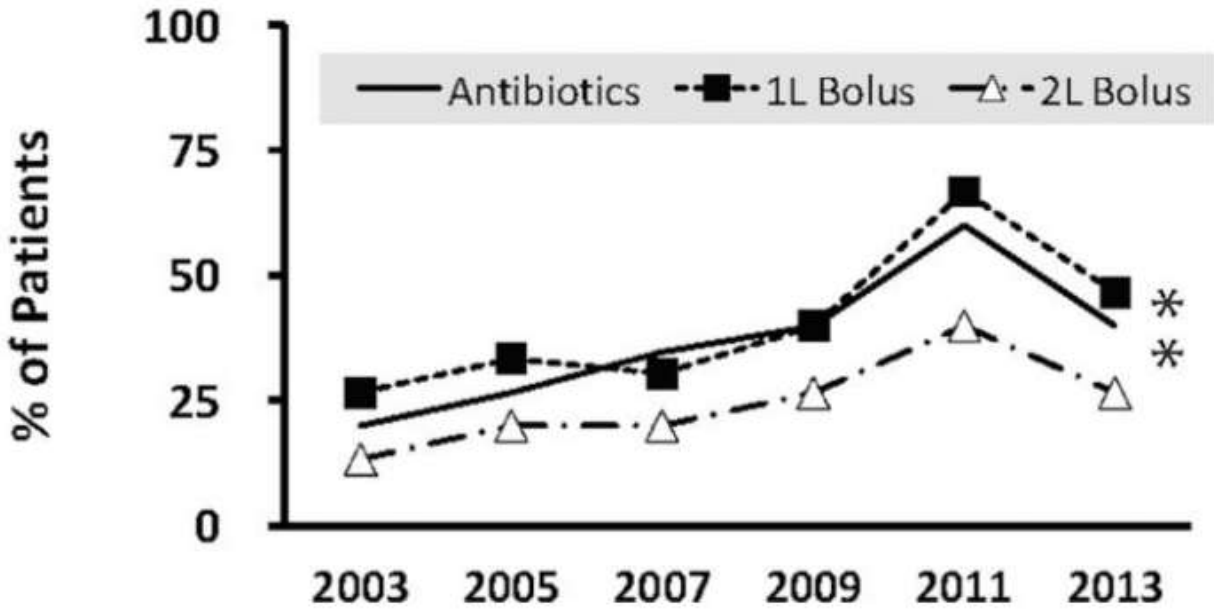
Rudd K.E. Et al.Lancet 2020


SEPSIS
STOP


SEPSİS'i ÖNLEMEK ELLERİNDE!


TYBD
YOĞUN BAKIM HAYAT KURTARI

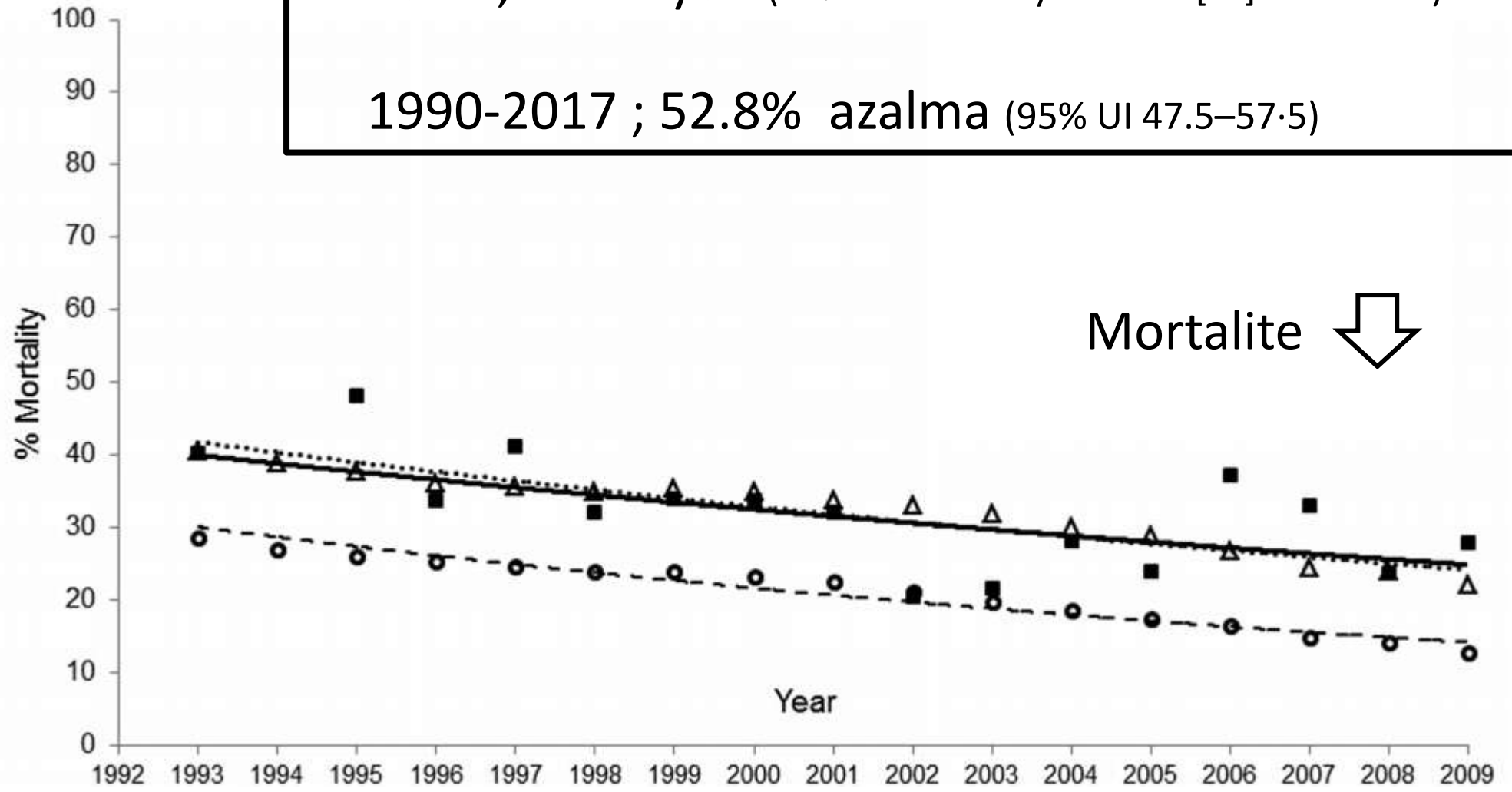




Patrick SH et al. Infect Control Hosp Epidemiol . 2018

2017 ; 11 milyon (95% uncertainty interval [UI] 10.1–12.0)

1990-2017 ; 52.8% azalma (95% UI 47.5–57·5)



Mortalite ⇩

Rudd K.E. Et al.Lancet 2020

Crit Care Med. 2014; 42: 625–631

Abstract

Background: Epidemiologic data have shown an increasing incidence and declining mortality rate in sepsis. Howe
To ass
we pe
assess
of the included trials could show efficacy of the studied intervention regarding 28-day mortality.

APACHE II,SAPS II,SOFA skorlarına göre değerlendirildiğinde mortalitede anlamlı değişiklik yok

Methods: We searched PubMed for RCTs enrolling patients with severe sepsis and septic shock, published between 2002 and 2016. The included trials were assessed for quality and sorted by date of first inclusion. A meta-analysis was performed to synthesise data from the individual sepsis trials.

Results: Of 418 eligible articles, 44 RCTs on sepsis were included in the analysis, enrolling 13,315 patients in the usual care arm between 1991 and 2013. In this time period, mortality decreased by 0.42% annually ($p = 0.04$) to give a total decline of 9.24%. In subgroup analyses with adjustments for APACHE II, SAPS II and SOFA scores, the observed time trend was not significant ($p = 0.45$, 0.23 and 0.98 respectively). Only four of the included trials showed any efficacy with regard to mortality.

Conclusions: Data from RCTs show a declining trend in 28-day mortality in severe sepsis and septic shock patients during the years from 1991 to 2013. However, when controlling for severity at study inclusion, there was no significant change in mortality over time. The number of trials presenting new treatment options was low.

Trial registration: PROSPERO CRD42018091100. Registered 27 August 2018.

Keywords: Severe sepsis, Septic shock, Mortality, Randomised controlled trial, Meta-analysis

Luhr et al. Critical Care,2019 23:241

Uzun Dönem mortalite !

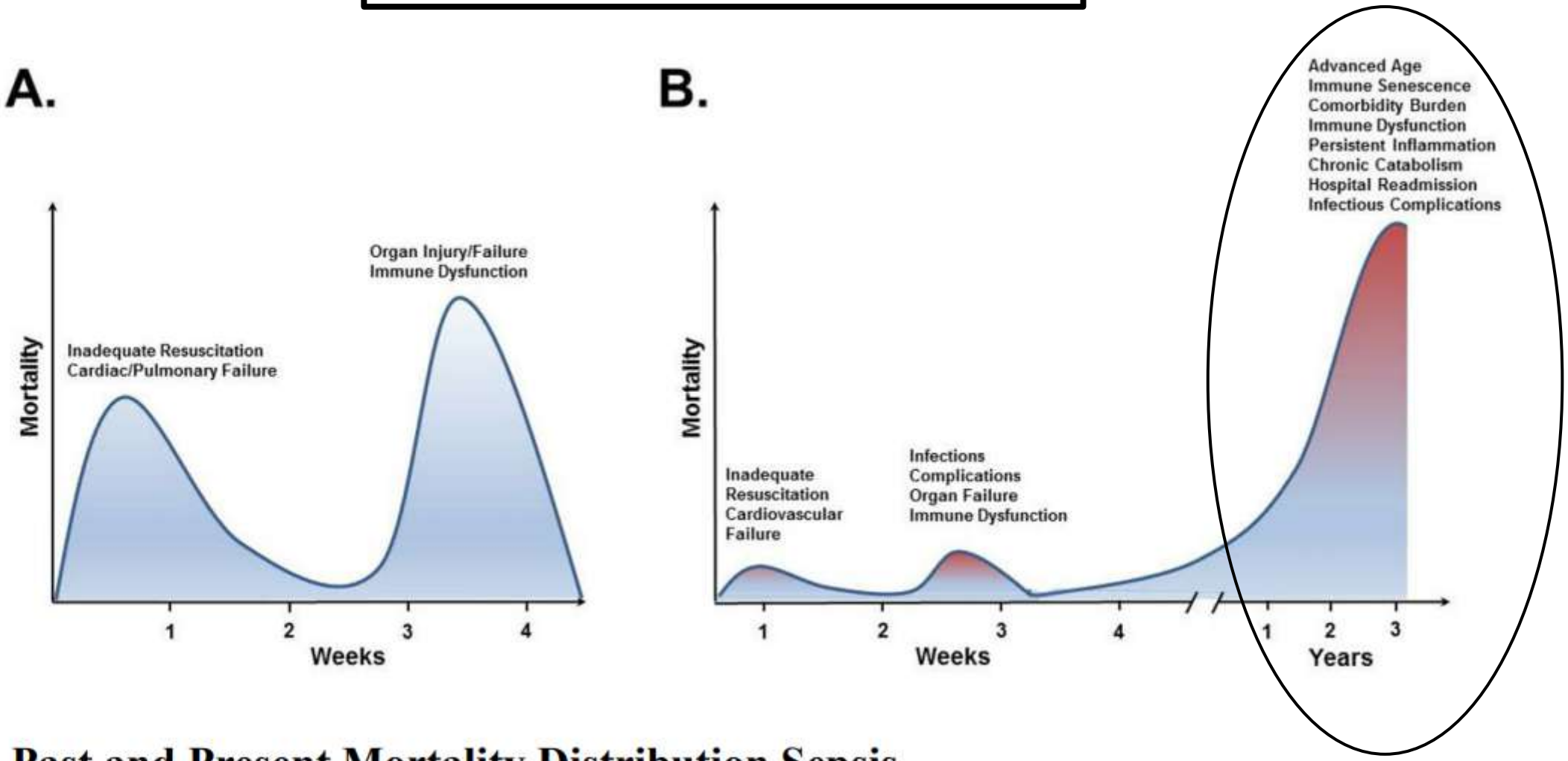


Figure 6. Past and Present Mortality Distribution Sepsis

Delano and Ward, Immunol Rev. 2016 November;274: 330–353

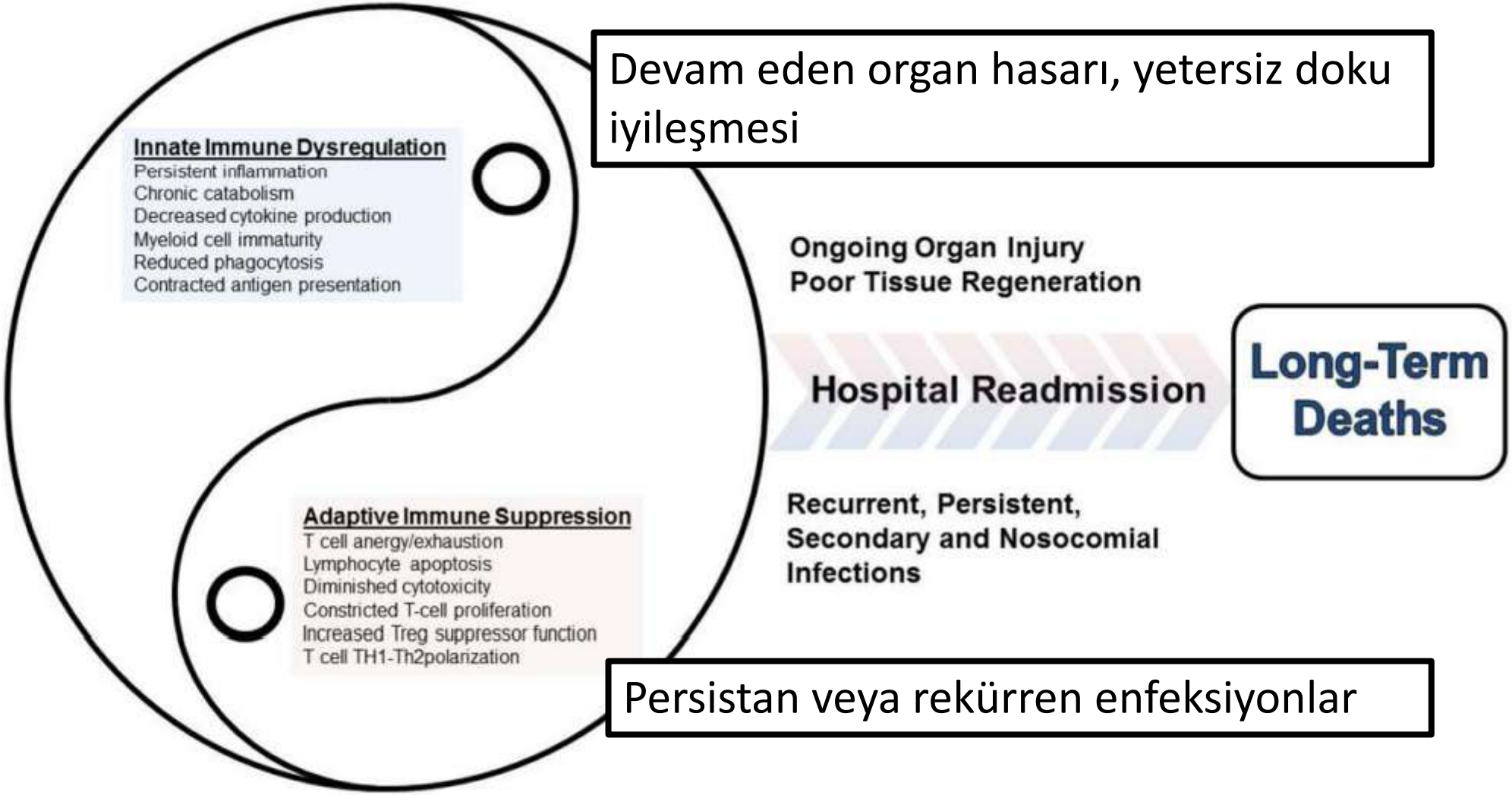


Figure 7. Inflammatory vs Anti-Inflammatory Responses

Delano and Ward, Immunol Rev. 2016

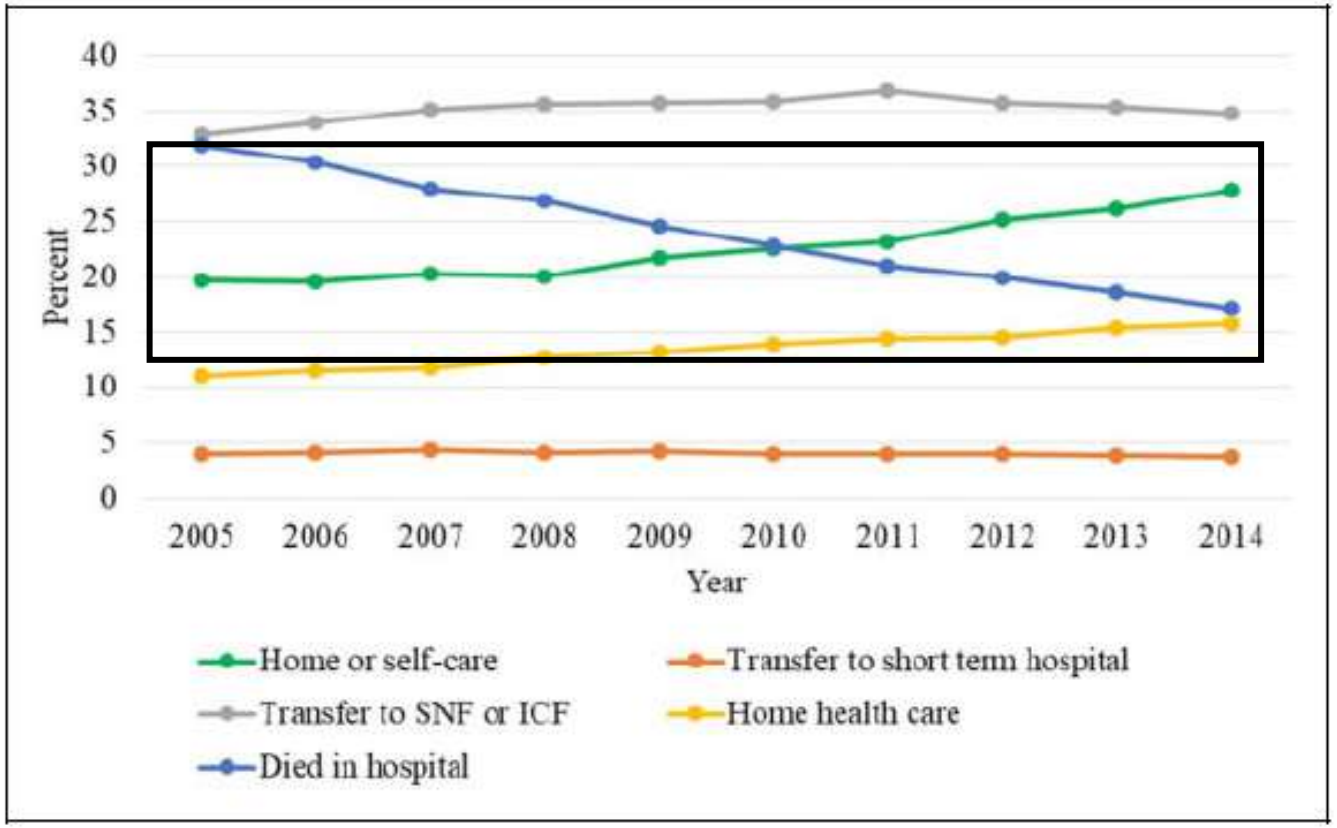


Figure 2. Percentage of patients with sepsis by disposition status in the United States, 2005 to 2014. ICF indicates intermediate care facility; SNF, skilled nursing facility.

Muni Rubens et al. Journal of Intensive Care Medicine,2018

TheodoreJ.I et al. JAMA,2014

Crit Care Clin. 2018 January ; 34(1): 175–188. doi:10.1016/j.ccc.2017.08.013.

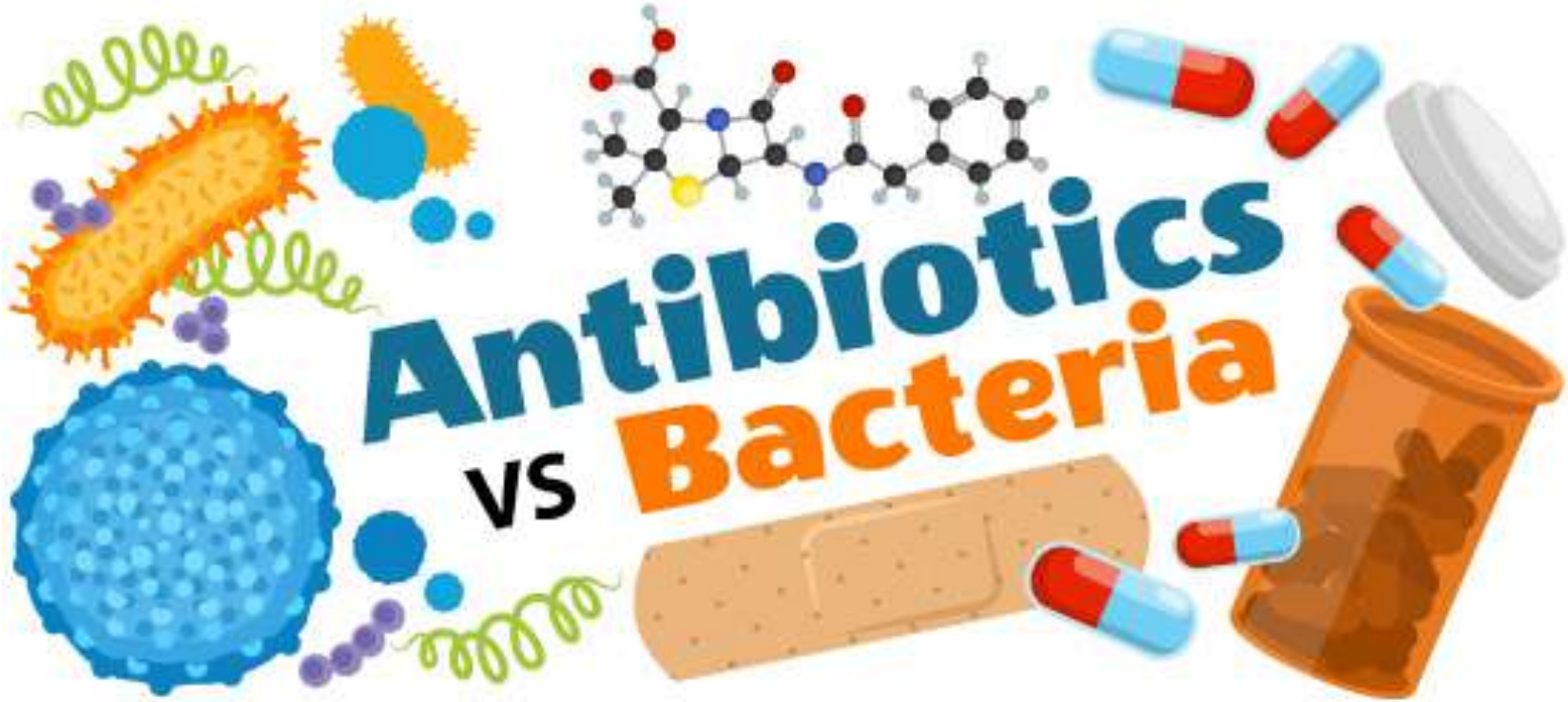
Improving Long-term Outcomes after Sepsis

Hallie C. Prescott, MD, MSc[1] and **Deena K. Costa, PhD, RN**[2]

[1]Department of Internal Medicine, University of Michigan; VA Center for Clinical Management Research, HSR&D Center of Innovation; 2800 Plymouth Road, North Campus Research Center, Bldg. 16, 341E, Ann Arbor, MI, USA; 734-936-5047

[2]Department of Systems, Populations & Leadership, School of Nursing, University of Michigan, 400 North Ingalls St #4351, Ann Arbor MI, USA, 734.764.2818

Sepsis'in etkin tedavisi
Deliryum gelişiminin sınırlandırılması
İmmobilizasyonun azaltılması
Stresin azaltılması
Hastanın taburculuğa hazırlanması


Antibiotics
VS
Bacteria

Clinical Infectious Diseases

VIEWPOINTS

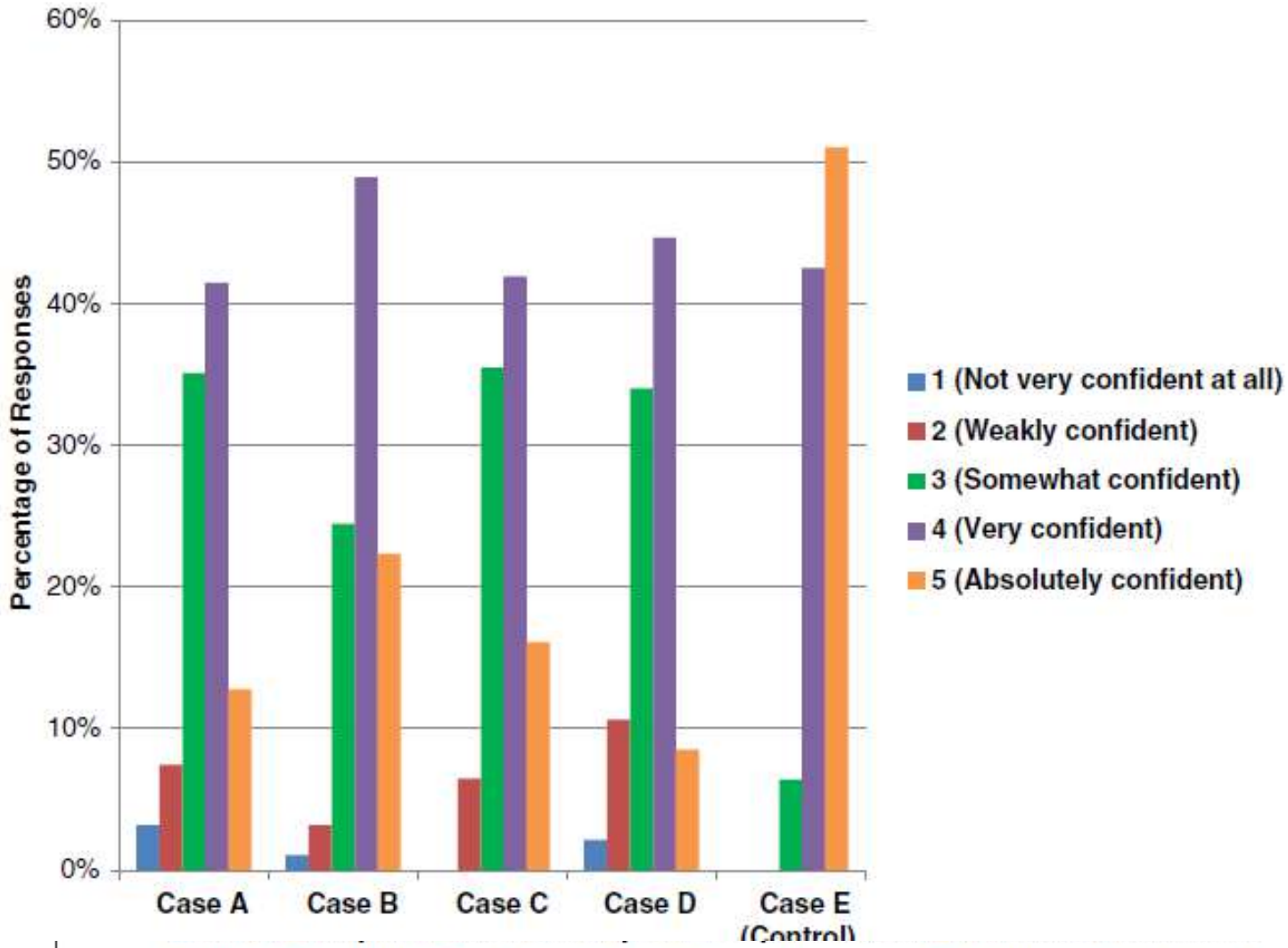
Infectious Diseases Society of America (IDSA) POSITION STATEMENT: Why IDSA Did Not Endorse the Surviving Sepsis Campaign Guidelines

IDSA Sepsis Task Force*

IDSA did not endorse the 2016 Surviving Sepsis Campaign Guidelines despite being represented in the working group that drafted the guidelines document. Leadership from the IDSA, the Surviving Sepsis Campaign Guidelines, and the Society of Critical Care Medicine had numerous amicable discussions primarily regarding the bolded, rated guidelines recommendations. Our societies had different perspectives, however, regarding the interpretation of the major studies that informed the guidelines' recommendations, thus leading us to different conclusions and different perspectives on the recommendations. IDSA consequently elected not to endorse the guidelines. IDSA nonetheless hopes to be able to continue collaborating with the Surviving Sepsis Campaign and the Society of Critical Care Medicine to resolve our differences and to develop further strategies together to prevent sepsis and septic shock as well as reduce death and disability from these conditions both nationally and globally.

Keywords. Surviving Sepsis; Guidelines; Endorsement; IDSA.

Tanımlama kargaşası



Case A; Kalp yetmezliği, pnömoni şüphesi, solunum yetmezliği ve şok (SIRS 2/4)
Case B; Piyelonefrit, renal yetmezlik (SIRS ¾)
Case C; Kolit, hipotansiyon, renal yetmezlik (SIRS 2/4)
Case D; KOAH atak ve solunum yetmezliği
Case E; Bakteriyemi, multipl organ yetmezliği ve şok

Kargaşa; Tanı ve Mortalite

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

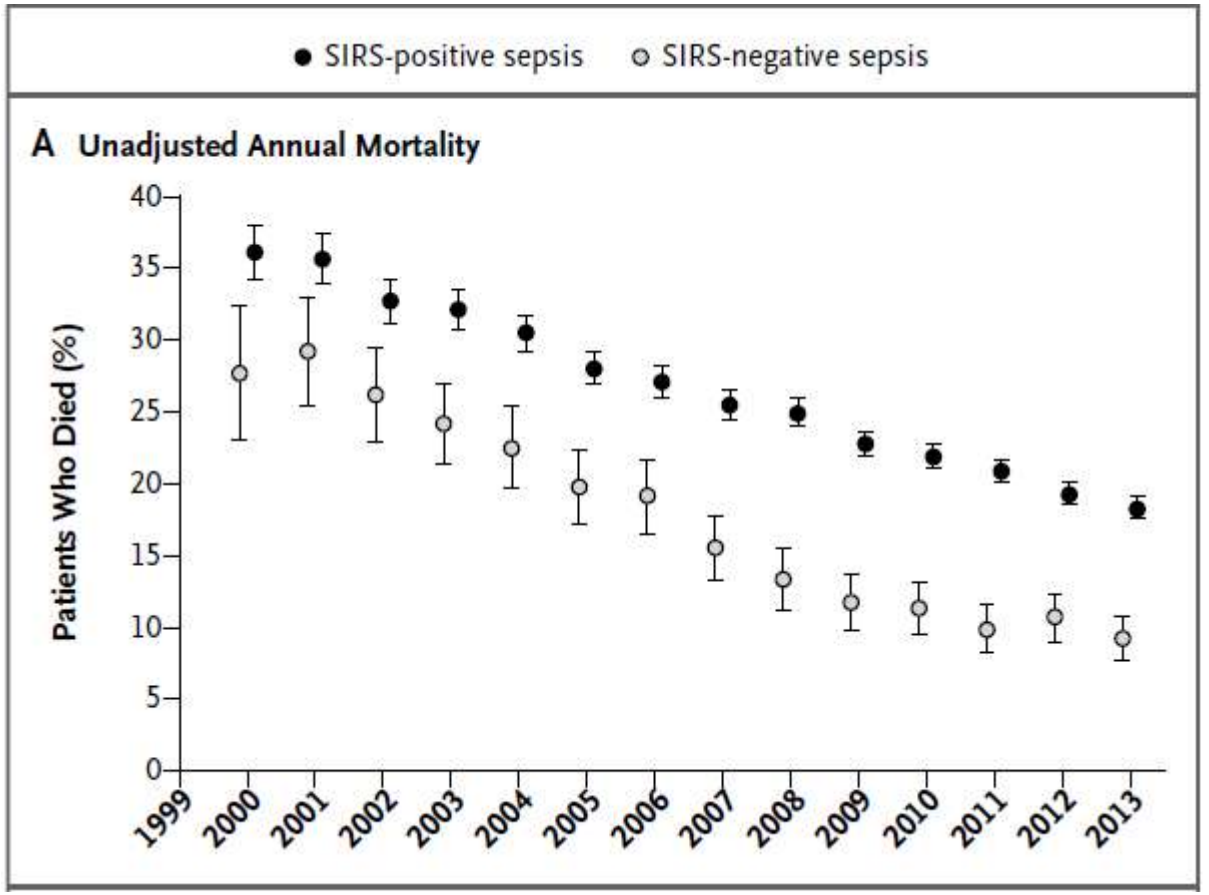
Systemic Inflammatory Response Syndrome Criteria in Defining Severe Sepsis

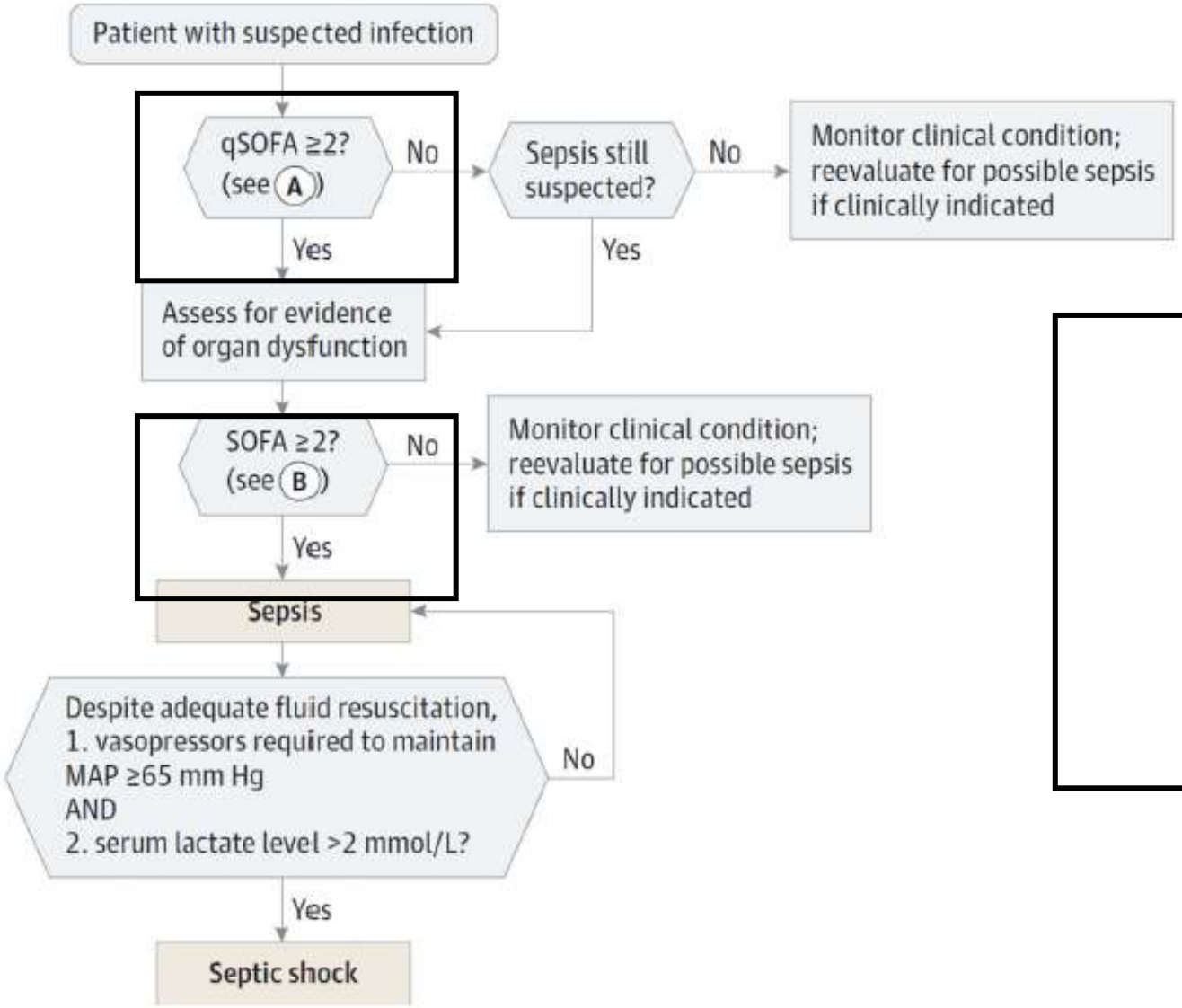
Kirsi-Maija Kaukonen, M.D., Ph.D., Michael Bailey, Ph.D., David Pilcher, F.C.I.C.M., D. Jamie Cooper, M.D., Ph.D., and Rinaldo Bellomo, M.D., Ph.D.

SIRS kriterlerinin kullanılması

ORGAN YETMEZLİK + ENFEKSİYON

%12,1 (1/8) atlanmasına neden olmaktadır.





Pragmatik uzlaşma

Kolay uygulanabilirlik
Genelleştirilebilirlik
Tutarlılık
Ölçülebilirlik

Singer M. Et al, JAMA. 2016

Kargaşa; Tanı ve Mortalite

Application of the Third International Consensus Definitions for Sepsis (Sepsis-3) Classification: a retrospective population-based cohort study

John P Donnelly, Monika M Safford, Nathan I Shapiro, John W Baddley, Henry E Wang

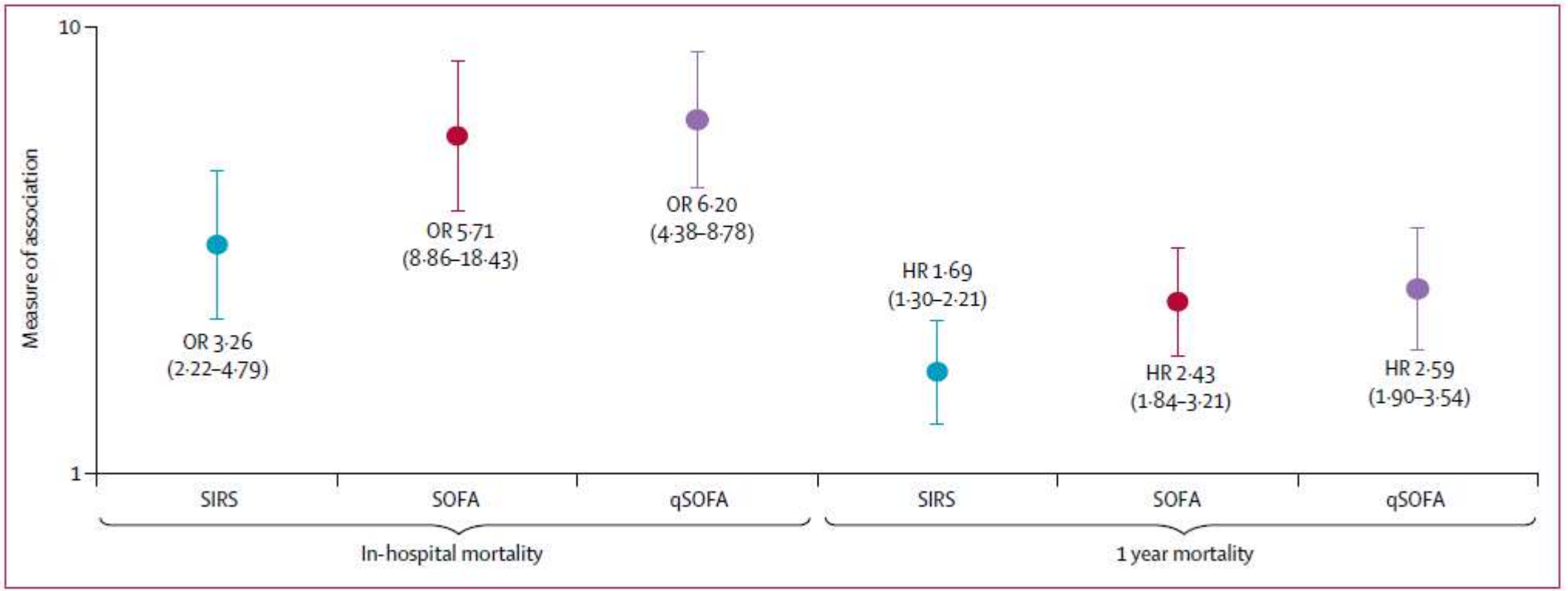


Figure 4: Association between sepsis classification and outcome

Kargaşa; Tanı ve Mortalite

[Original Research]

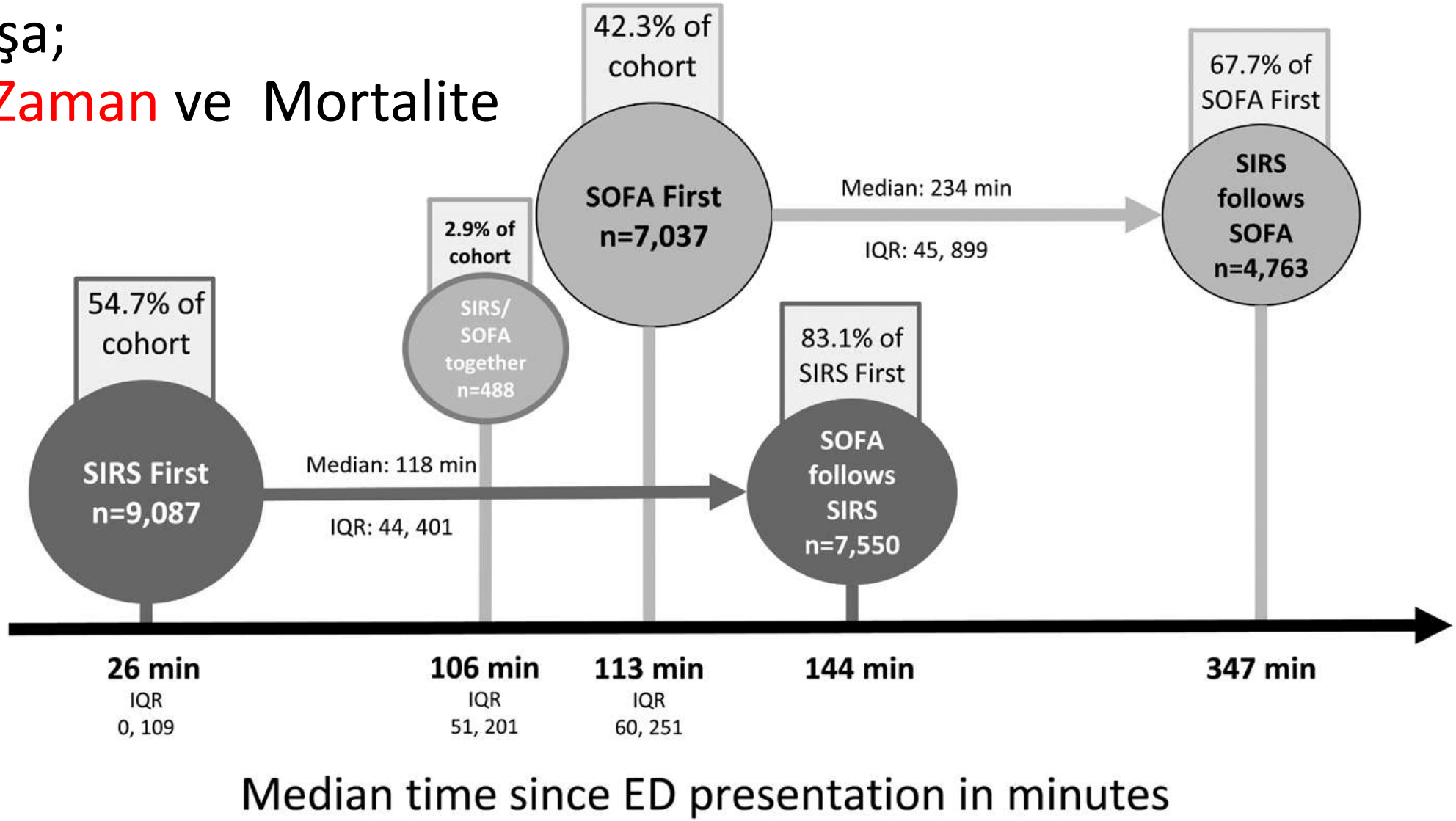
CHEST

A Comparison of the Quick-SOFA and Systemic Inflammatory Response Syndrome Criteria for the Diagnosis of Sepsis and Prediction of Mortality

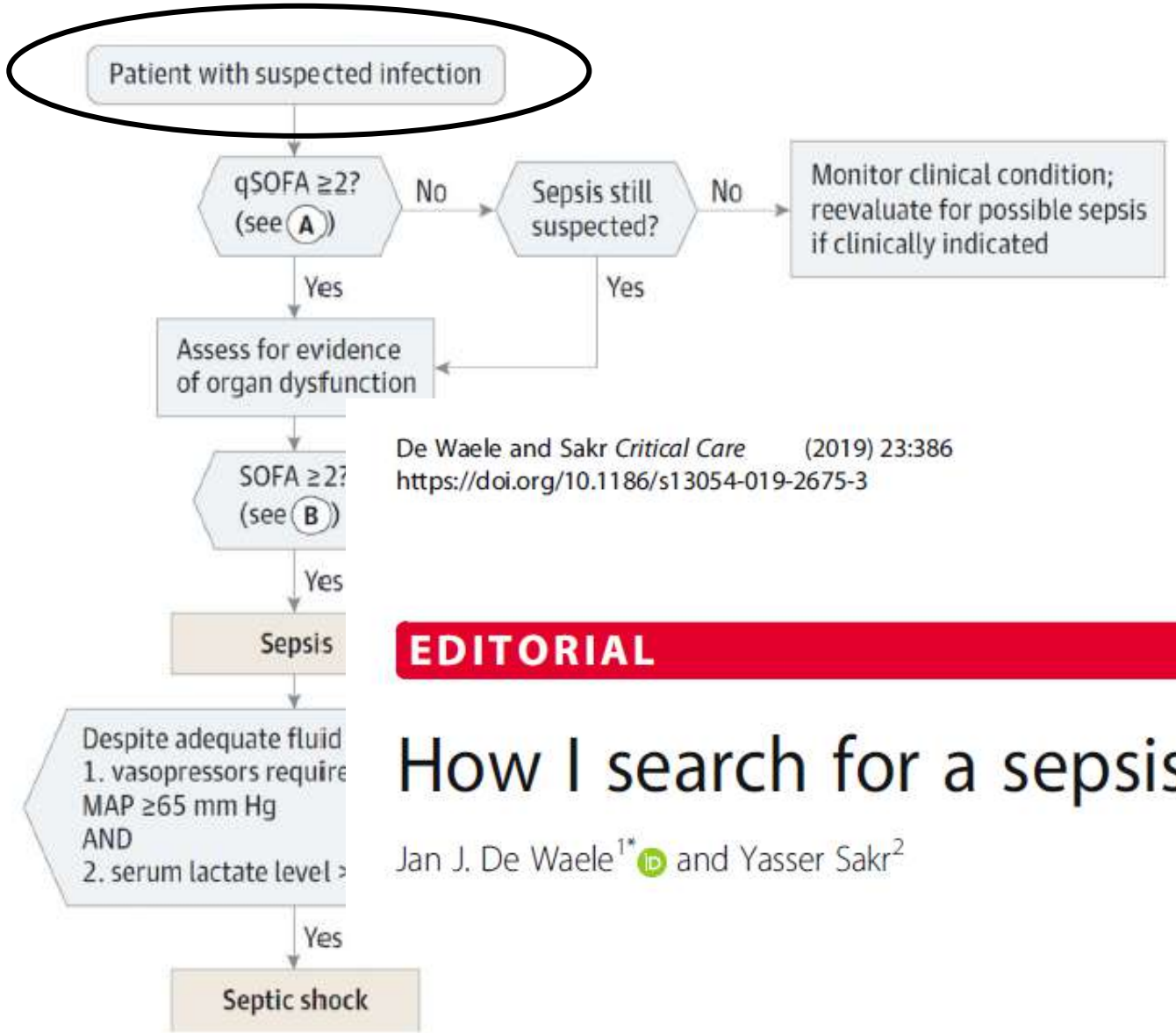
A Systematic Review and Meta-Analysis

Tanı SIRS (1.32; 95% CI, 0.40-2.24 P < .0001; I2 ; 100%)
Mortalite öngörüsü q SOFA (97.3%; 95% CI < 92.1-99.4)

Kargaşa;
Tanı, Zaman ve Mortalite



Priya A. Prasad et al. Critical Care Medicine,2019



De Waele and Sakr *Critical Care* (2019) 23:386
https://doi.org/10.1186/s13054-019-2675-3

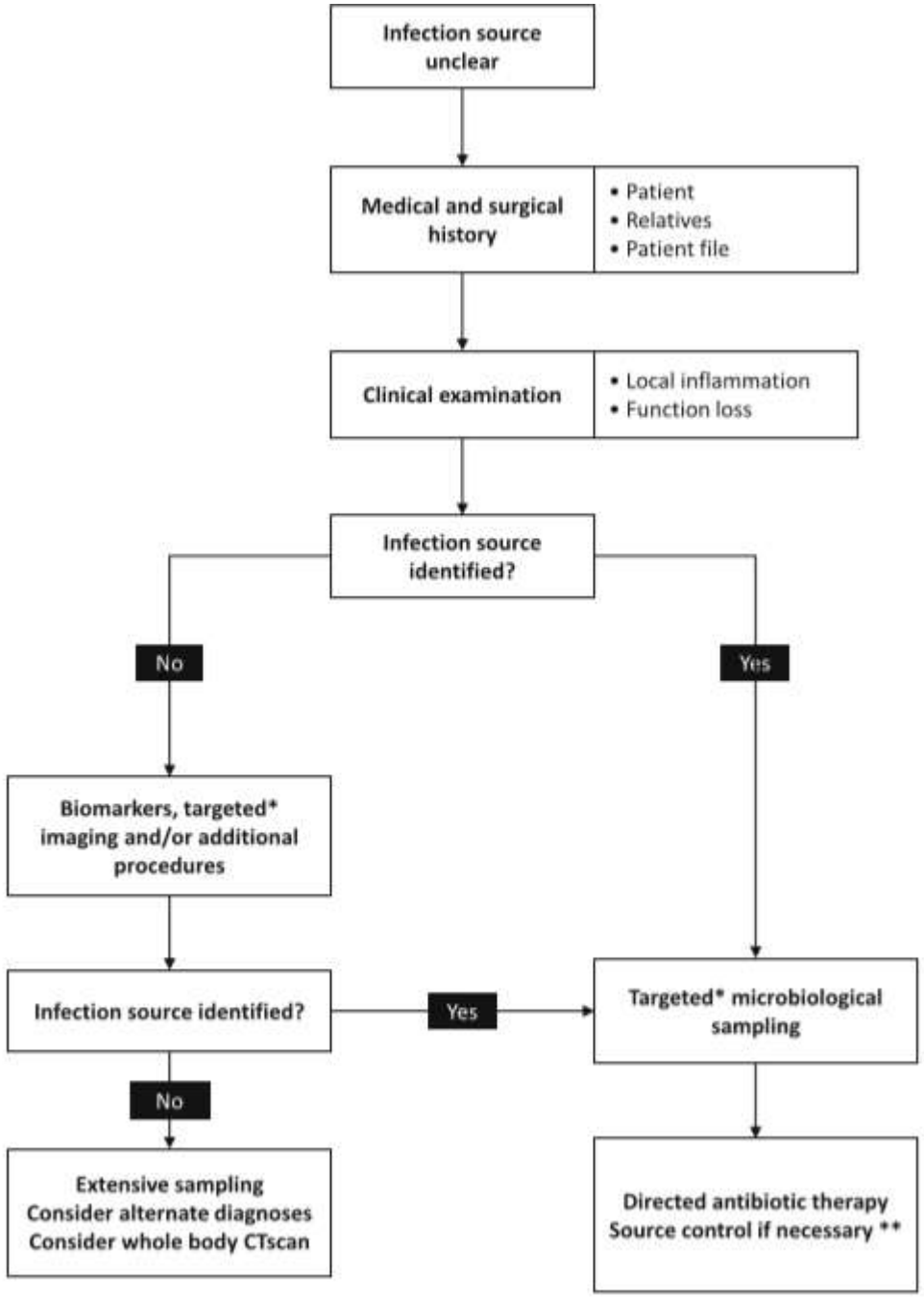
Critical Care

EDITORIAL Open Access

How I search for a sepsis source

Jan J. De Waele[1*] and Yasser Sakr[2]

Singer et al. JAMA. 2016



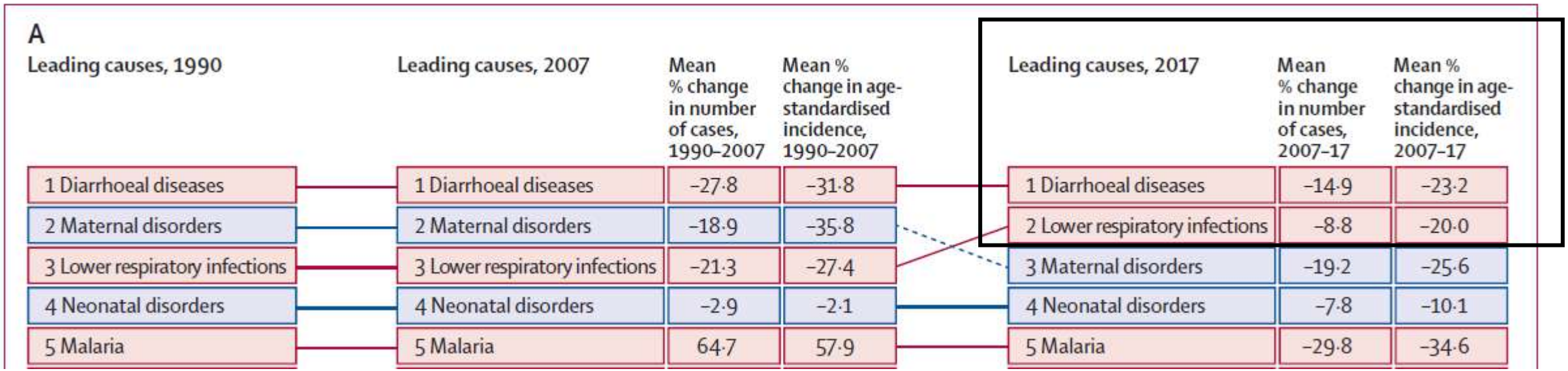
Hasta öyküsü (Medikal ve cerrahi)

Fizik muayene (lokal enfeksiyon bulguları)

Biyomarkerler, hedefe yönelik görüntüleme, spesifik girişimler

Tüm vücut BT, örnekleme (tanı ve kaynak kontrolü)
Alternatif tanı

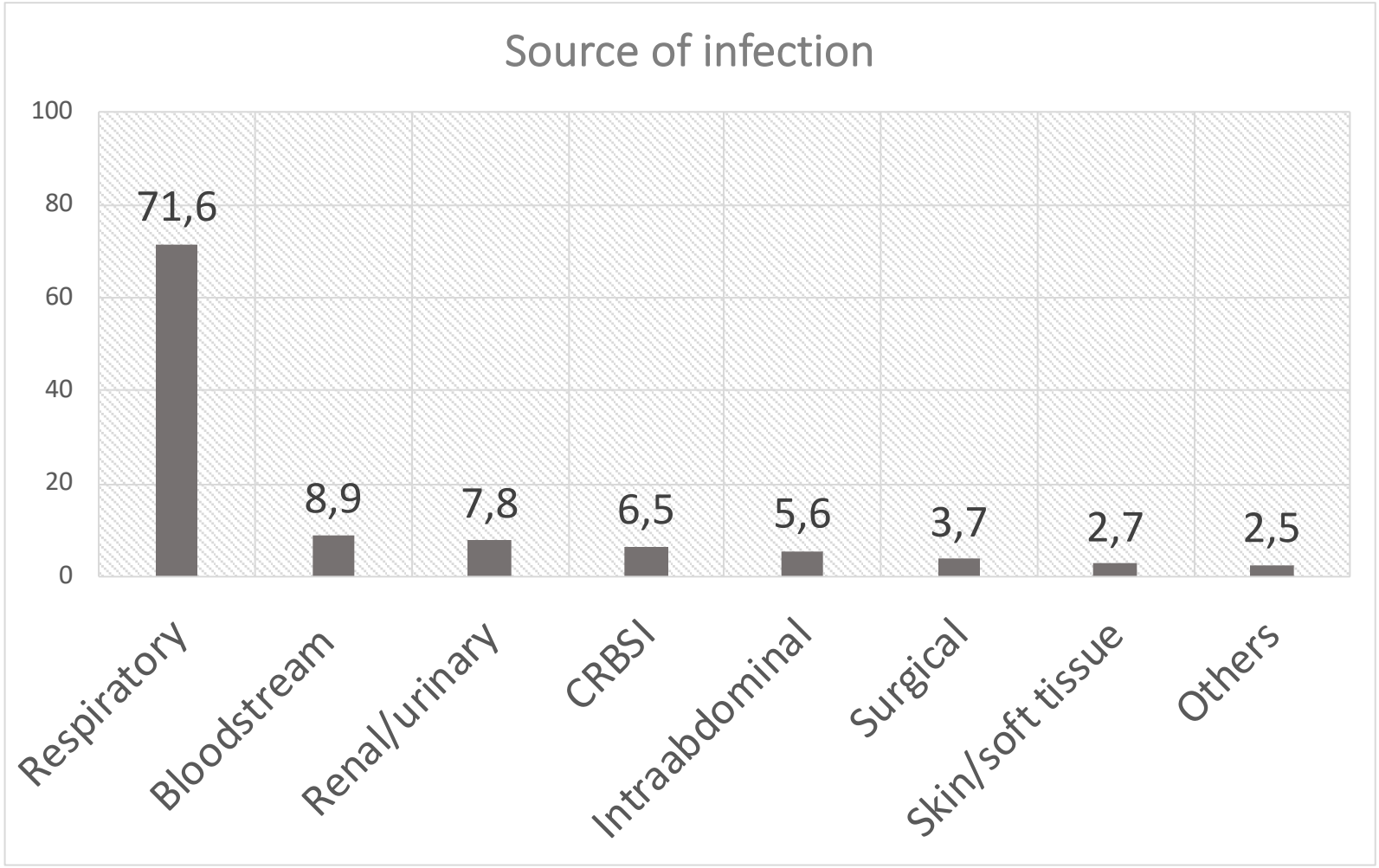
De Waele and Sakr Critical Care, 2019



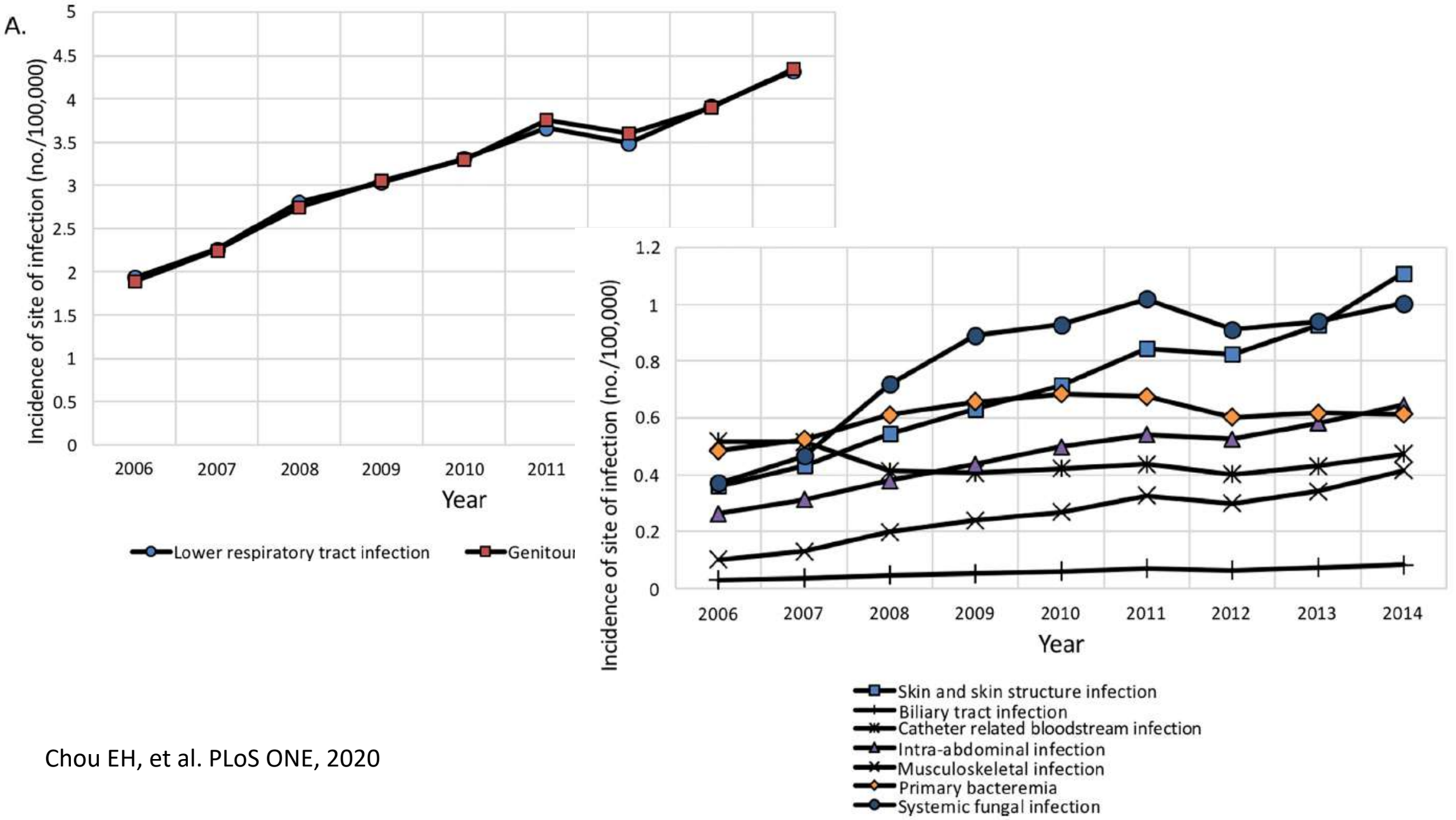
A

Leading causes, 1990	Leading causes, 2007	Mean % change in number of cases, 1990–2007	Mean % change in age-standardised incidence, 1990–2007	Leading causes, 2017	Mean % change in number of cases, 2007–17	Mean % change in age-standardised incidence, 2007–17
1 Diarrhoeal diseases	1 Diarrhoeal diseases	–27·8	–31·8	1 Diarrhoeal diseases	–14·9	–23·2
2 Maternal disorders	2 Maternal disorders	–18·9	–35·8	2 Lower respiratory infections	–8·8	–20·0
3 Lower respiratory infections	3 Lower respiratory infections	–21·3	–27·4	3 Maternal disorders	–19·2	–25·6
4 Neonatal disorders	4 Neonatal disorders	–2·9	–2·1	4 Neonatal disorders	–7·8	–10·1
5 Malaria	5 Malaria	64·7	57·9	5 Malaria	–29·8	–34·6

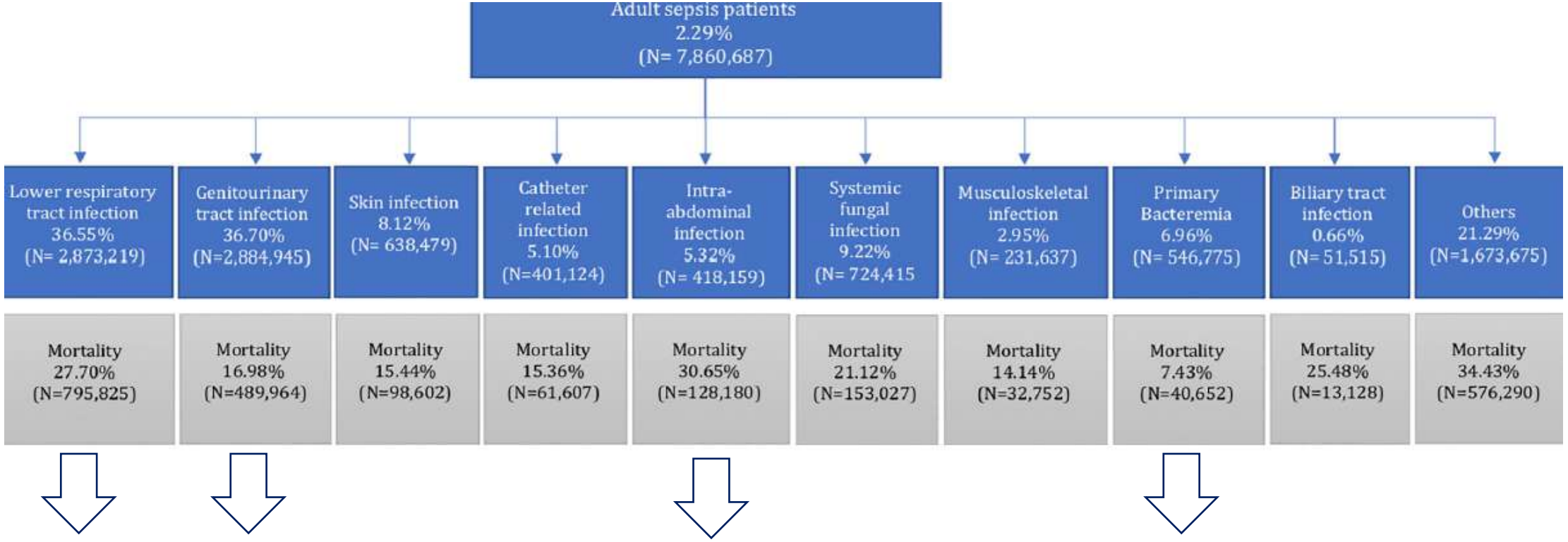
Rudd K.E. Et al.Lancet 2020



Baykara et al. Critical Care (2018) 22:93



Chou EH, et al. PLoS ONE, 2020



Pnömoni; % 27,7
ÜSİ; % 16,98

İAE; % 30,65

Primer bakteriyemi
%7,43

Chou EH, et al. PLoS ONE, 2020

Toplum Kökenli?
Nozokomiyal?
Yoğun bakım ilişkili ?

RESEARCH Open Access

Epidemiology of sepsis in intensive care units in Turkey: a multicenter, point-prevalence study

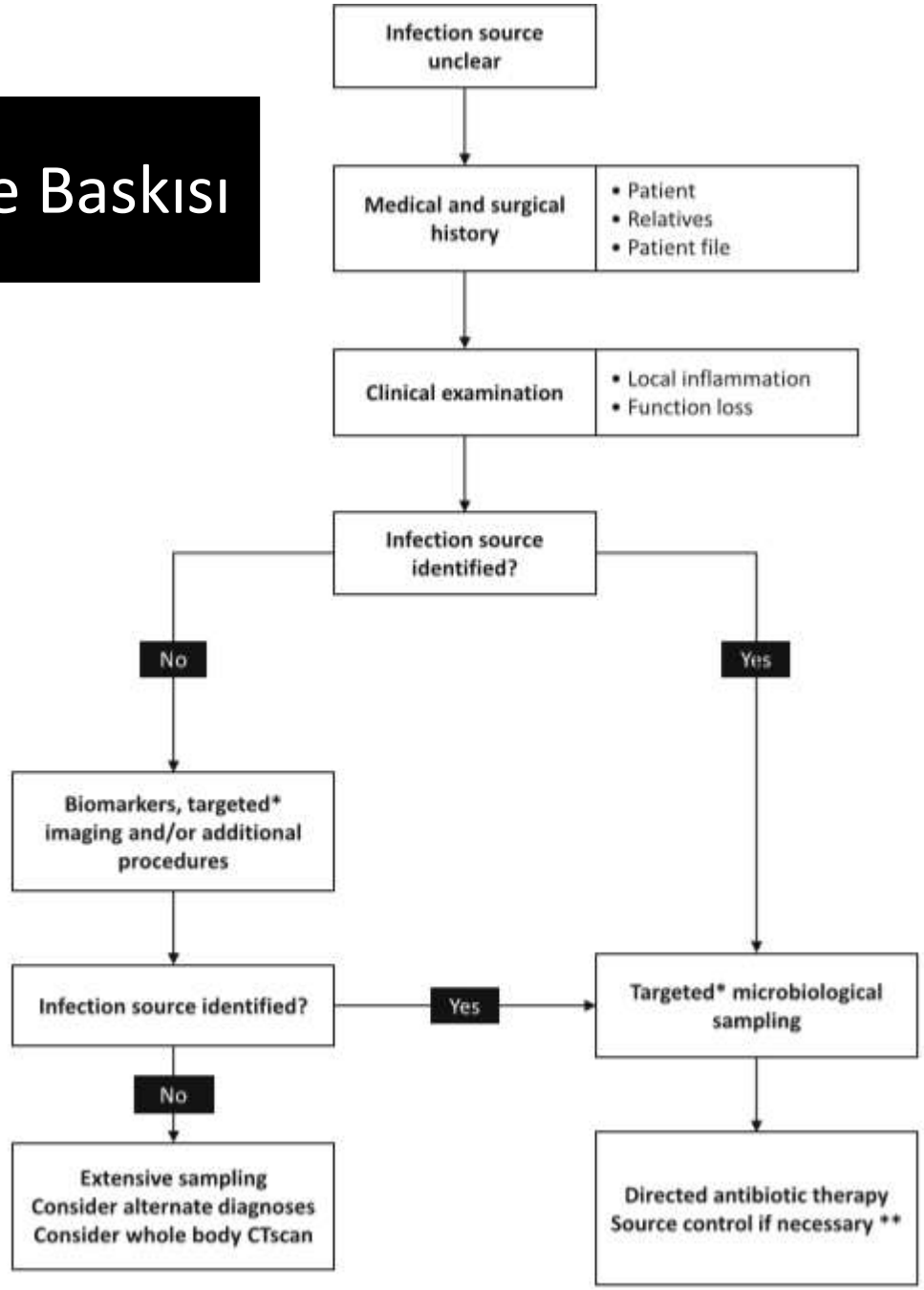
Nur Baykara[1*], Halis Akalın[2], Mustafa Kemal Arslantaş[3], Volkan Hancı[4], Çiğdem Çağlayan[5], Ferda Kahveci[6], Kubilay Demirağ[7], Canan Baydemir[8], Necmettin Ünal[9] and Sepsis Study Group

Table 3 Origin and type of infection in infected patients

	All infected patients n = 863	Infection n = 237	Infection + SIRS n = 163	Severe sepsis without shock n = 260	Septic shock (SEPSIS I) n = 203	Septic shock[a] (SEPSIS-III) n = 104
Origin of infection, n (%)						
Community-acquired	285 (32.8)	85 (35.8)	52 (31.9)	86 (33)	62 (30.5)	30 (28.8)
Hospital-acquired	259 (30)	59 (24.8)	52 (31.9)	75 (28.8)	73 (35.9)	38 (36.5)
ICU-acquired	211 (24.4)	62 (26.1)	44 (26.9)	64 (24.6)	41 (20.1)	21 (20.1)
Unknown	108 (12.5)	31 (13.0)	15 (9.2)	35 (13.4)	27 (13.3)	15 (14.4)
Type of infection[b], n (%)						
Respiratory	618 (71.6)	158 (66.6)	118 (72.3)	188 (72.3)	154 (75.9)	85 (81.7)
Bloodstream	77 (8.9)	28 (11.8)	15 (9.2)	22 (8.5)	12 (5.9)	9 (8.6)
Renal/urinary	67 (7.8)	21 (8.8)	12 (7.4)	19 (7.3)	15 (7.3)	7 (6.7)
Catheter-related	56 (6.5)	17 (7.1)	8 (4.9)	18 (6.9)	13 (6.4)	6 (5.7)
Intra-abdominal	49 (5.6)	10 (4.2)	9 (5.5)	12 (4.6)	18 (8.8)	13 (12.5)
Surgical	32 (3.7)	6 (2.5)	5 (3.0)	9 (3.4)	12 (5.9)	3 (2.8)
Skin/soft tissue	24 (2.7)	6 (2.5)	8 (4.9)	10 (3.8)	0 (0)*	0 (0)
Others	22 (2.5)	2 (0.8)	6 (3.7)	9 (3.4)	5 (2.5)	3 (2.9)

Baykara et al. Critical Care (2018)

Süre Baskısı



Hasta öyküsü (Medikal ve cerrahi)

Fizik muayene (lokal enfeksiyon bulguları)

Biyomarkerler, hedefe yönelik görüntüleme, spesifik girişimler

Tüm vücut BT, örnekleme (tanı ve kaynak kontrolü)
Alternatif tanı

De Waele and Sakr Critical Care, 2019

The NEW ENGLAND JOURNAL of MEDICINE

CLINICAL DECISIONS

INTERACTIVE AT NEJM.ORG

Sepsis Guidelines

This interactive feature addresses the approach to a clinical issue. A case vignette is followed by specific options, neither of which can be considered either correct or incorrect. In short essays, experts in the field then argue for each of the options. Readers can participate in forming community opinion by choosing one of the options and, if they like, providing their reasons.

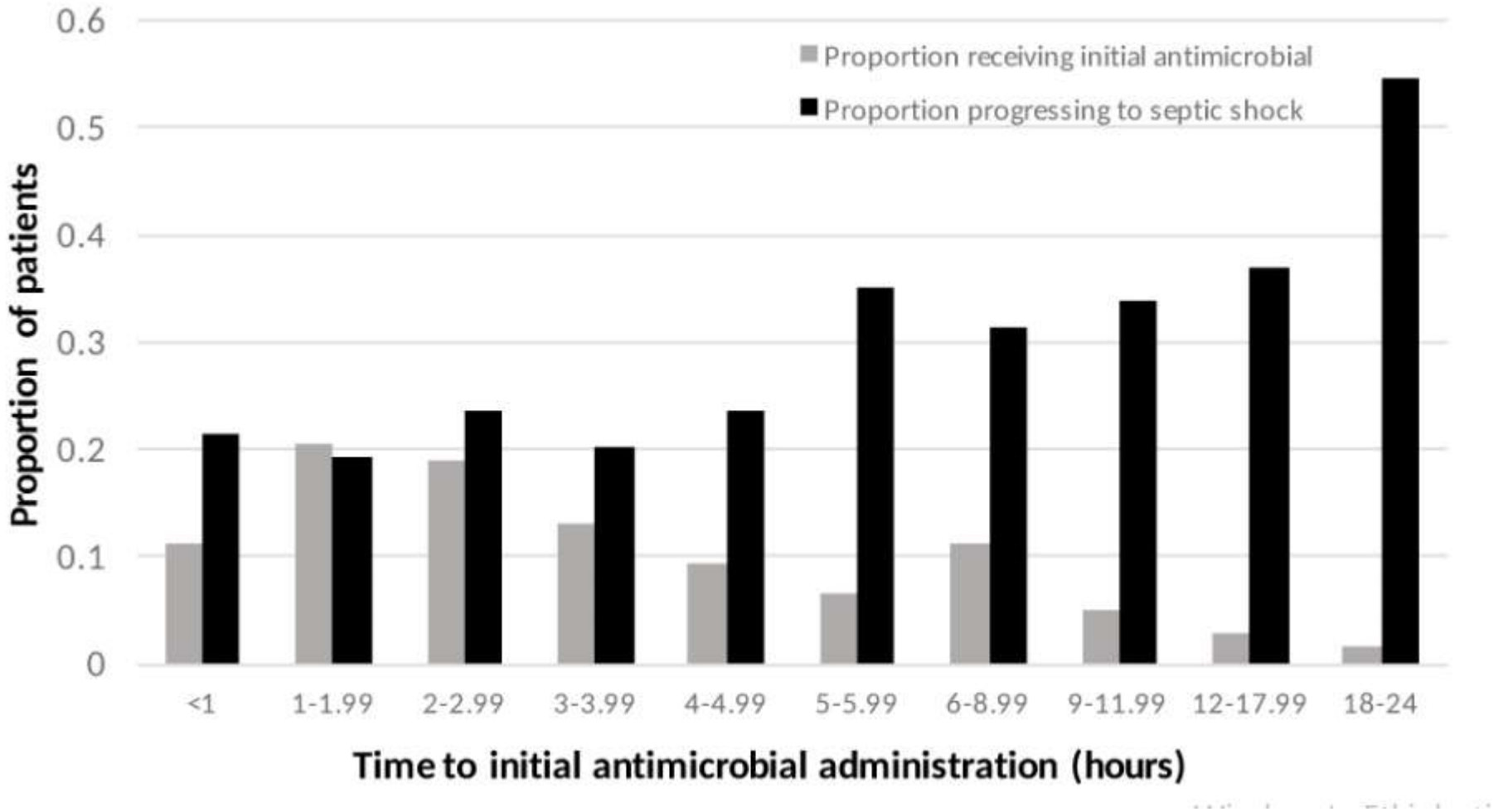
OPTION 1

Adopt a 1-Hour Goal for the Sepsis Bundle

OPTION 2

Maintain the 3-Hour Goal for the Sepsis Bundle

Süre Baskısı



Bristol B Whiles et al. Crit Care Med. 2017

Süre Baskısı

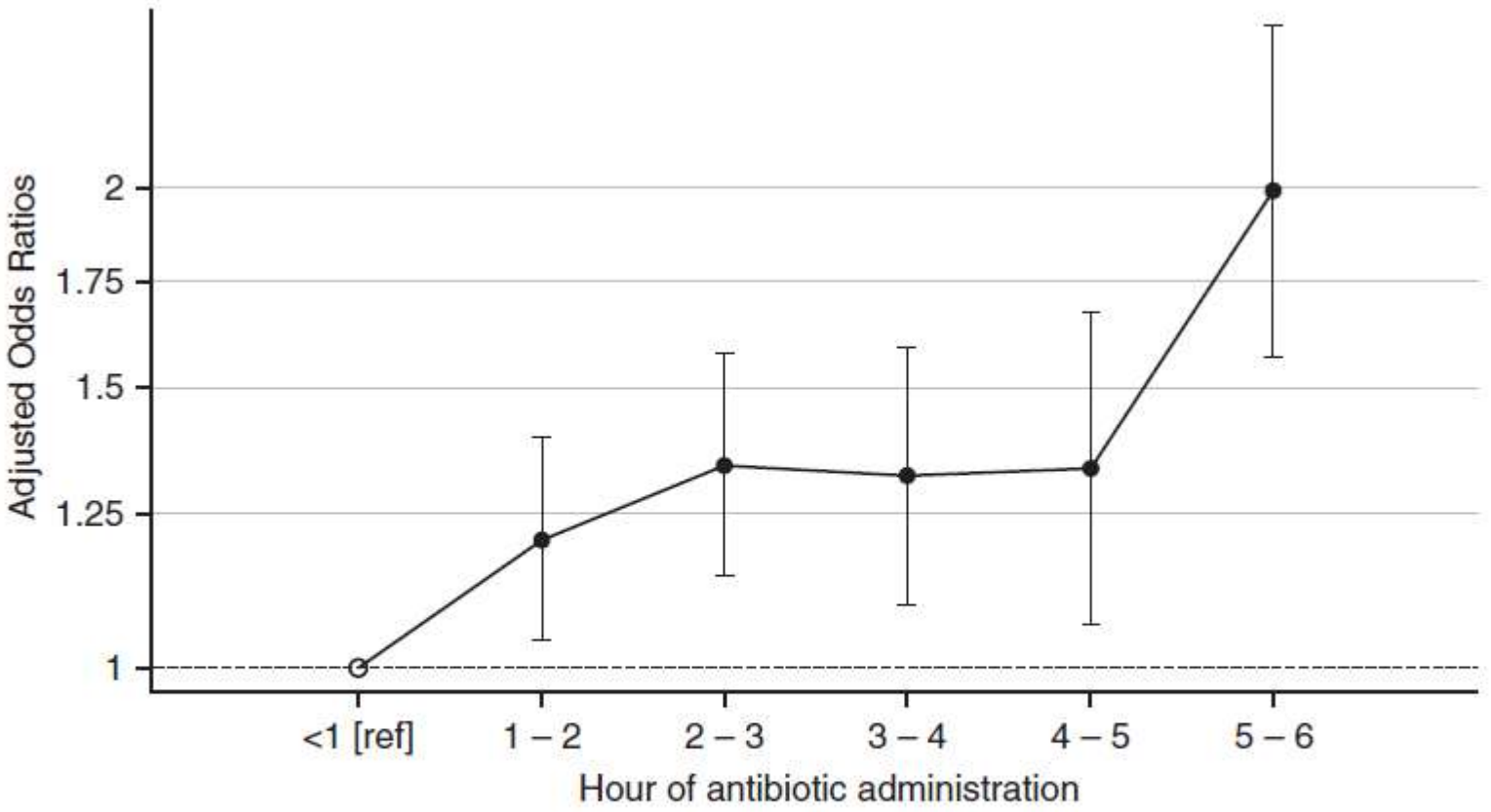


Figure 2. Adjusted odds ratios for hospital mortality comparing patients within each hourly antibiotic administration group with the reference group of patients given antibiotics in <1 hour. The *y-axis* is on logarithmic scale and the *error bars* represent 95% confidence intervals.

Konfirme edilen enfeksiyon sıklığı?

Uygun antibiyotik sıklığı?

Antibiyotik dışı tedavi uygunluğu?

Kaynak kontrolü
Sıvı resüstasyon uygunluğu ve hızı

Liu, Fielding-Singh, Greene, et al.
American Journal of Respiratory and Critical Care Medicine,2017

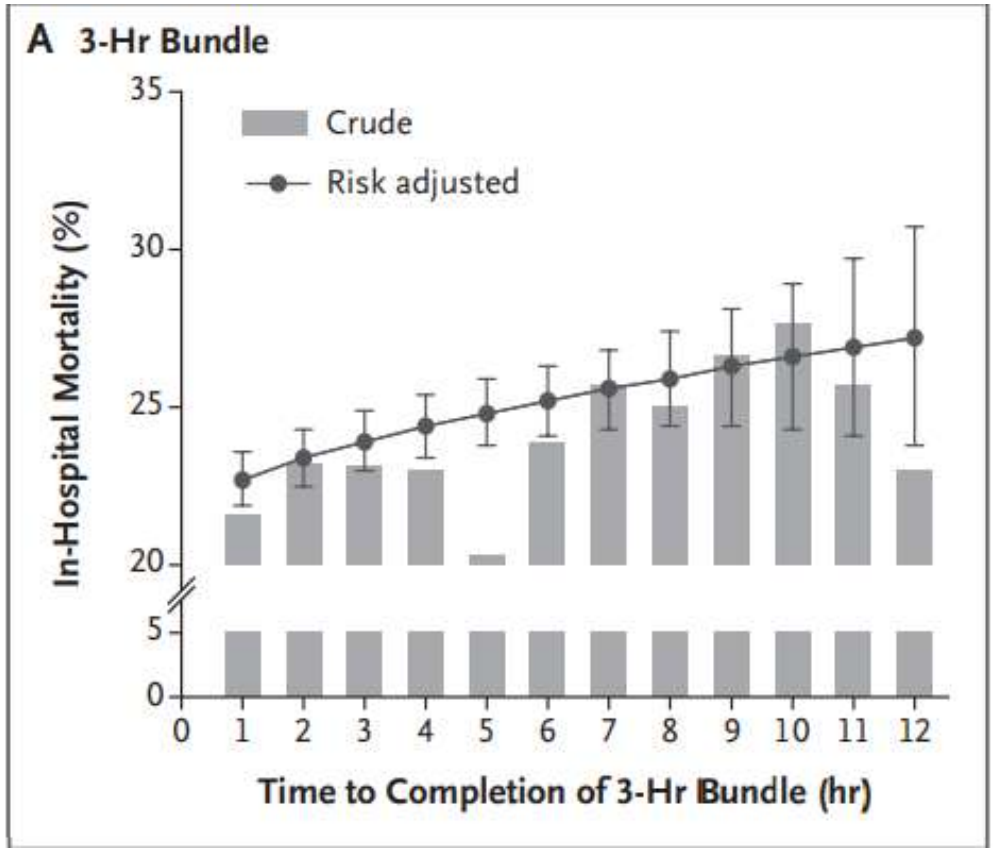
Süre Baskısı

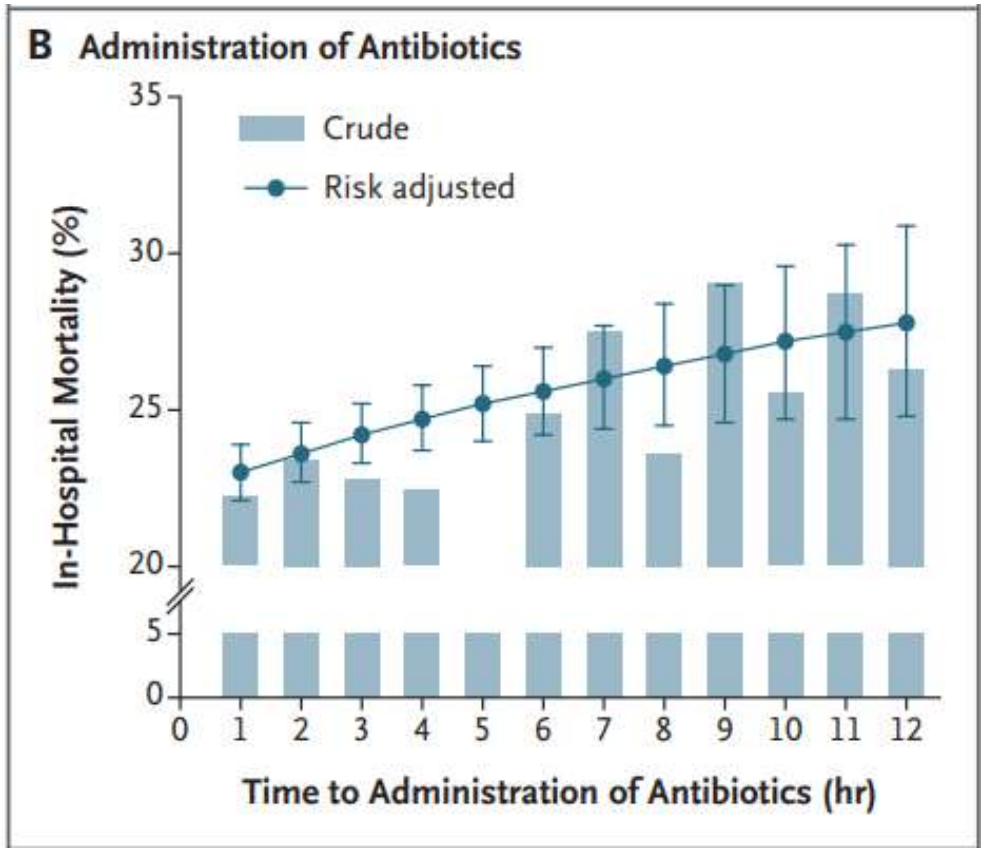
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Time to Treatment and Mortality during Mandated Emergency Care for Sepsis

Christopher W. Seymour, M.D., Foster Gesten, M.D., Hallie C. Prescott, M.D., Marcus E. Friedrich, M.D., Theodore J. Iwashyna, M.D., Ph.D., Gary S. Phillips, M.A.S., Stanley Lemeshow, Ph.D., Tiffany Osborn, M.D., M.P.H., Kathleen M. Terry, Ph.D., and Mitchell M. Levy, M.D.





Clinical Infectious Diseases

VIEWPOINTS

Infectious Diseases Society of America (IDSA) POSITION STATEMENT: Why IDSA Did Not Endorse the Surviving Sepsis Campaign Guidelines

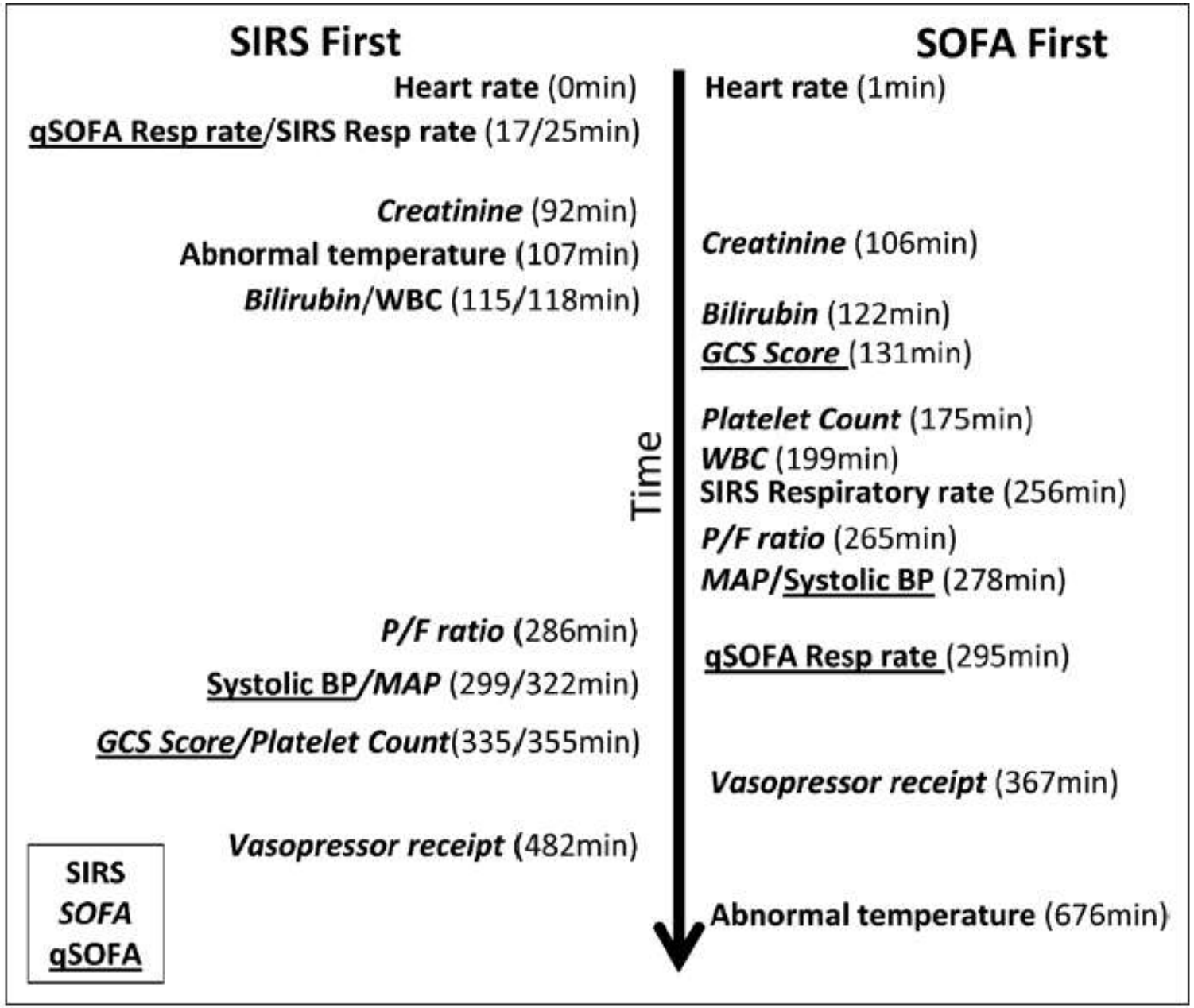
IDSA Sepsis Task Force*

‘Yavaş olmak iyidir’ İDDİASI YOK

Belirsizliklerin TANIMLANMASI (zaman, antibiyotik)

Kargaşa;
Tanı, Zaman ve Mortalite

‘Zaman 0’



Priya A. Prasad et al. Critical Care Medicine,2019

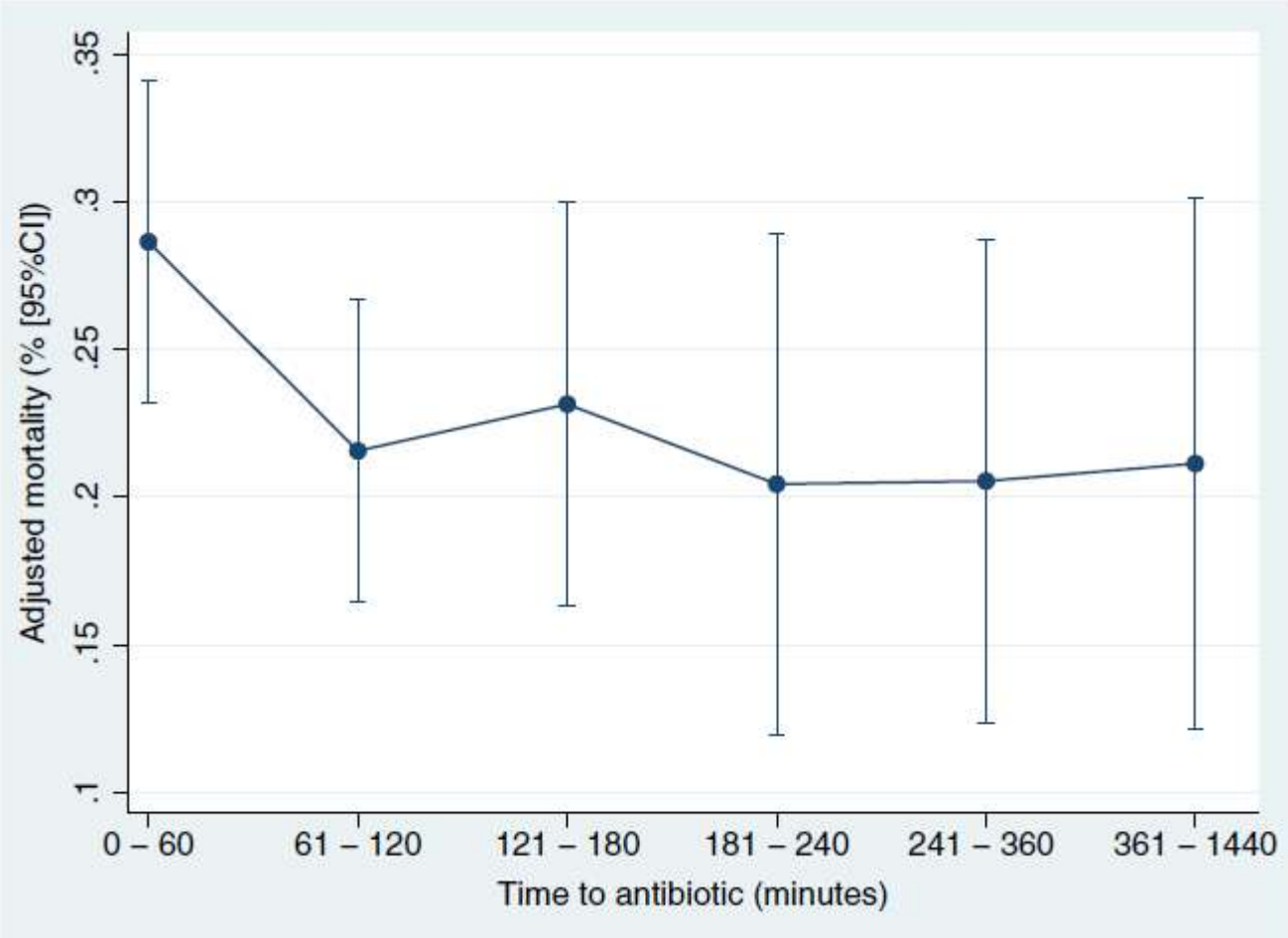
Süre Baskısı

Abe et al. Critical Care (2019) 23:360
https://doi.org/10.1186/s13054-019-2644-x

Critical Care

RESEARCH Open Access

Implementation of earlier antibiotic administration in patients with severe sepsis and septic shock in Japan: a descriptive analysis of a prospective observational study



Süre Baskısı

Crit Care Med. 2015 September ; 43(9): 1907–1915. doi:10.1097/CCM.0000000000001142.

The Impact of Timing of Antibiotics on Outcomes in Severe Sepsis and Septic Shock: A Systematic Review and Meta-analysis

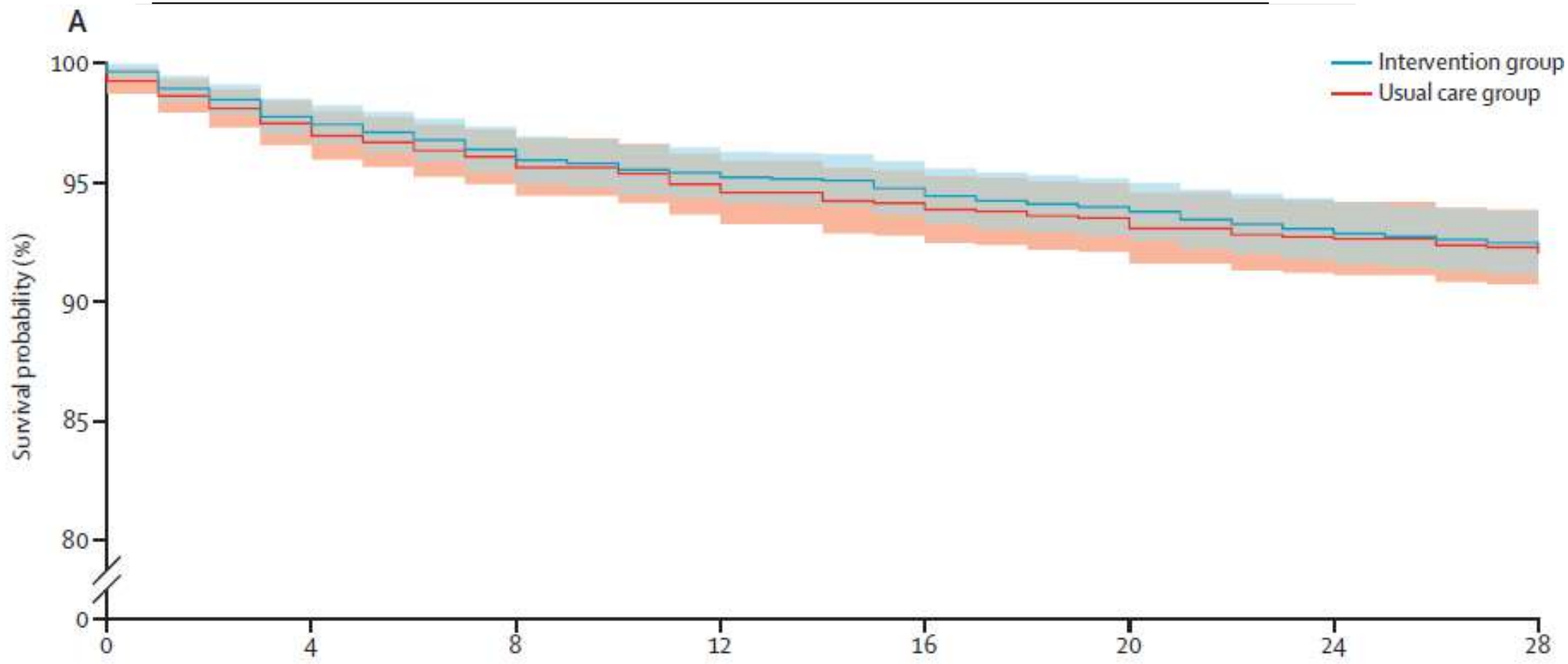
Sarah A. Sterling, MD, **W. Ryan Miller, MD**, **Jason Pryor, MD**, **Michael A. Puskarich, MD**, and **Alan E. Jones, MD**

<1 >5 saat arasındaki antibiyotik uygulamaları mortalite riskinde artışa neden olmamaktadır

Kullanılan zaman ölçütlerinin mevcut kanıtlarla desteklenmediği gösterilmiştir

Prehospital antibiotics in the ambulance for sepsis: a multicentre, open label, randomised trial

*Nadia Alam, Erick Oskam, Patricia M Stassen, Pieternel van Exter, Peter M van de Ven, Harm R Haak, Frits Holleman, Arthur van Zanten, Hien van Leeuwen-Nguyen, Victor Bon, Bart A M Duineveld, Rishi S Nannan Panday, Mark H H Kramer, Prabath W B Nanayakkara, on behalf of the PHANTASi Trial Investigators and the ORCA (Onderzoeks Consortium Acute Geneeskunde) Research Consortium the Netherlands**



Clinical Microbiology and Infection 24 (2018) 1264–1272

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

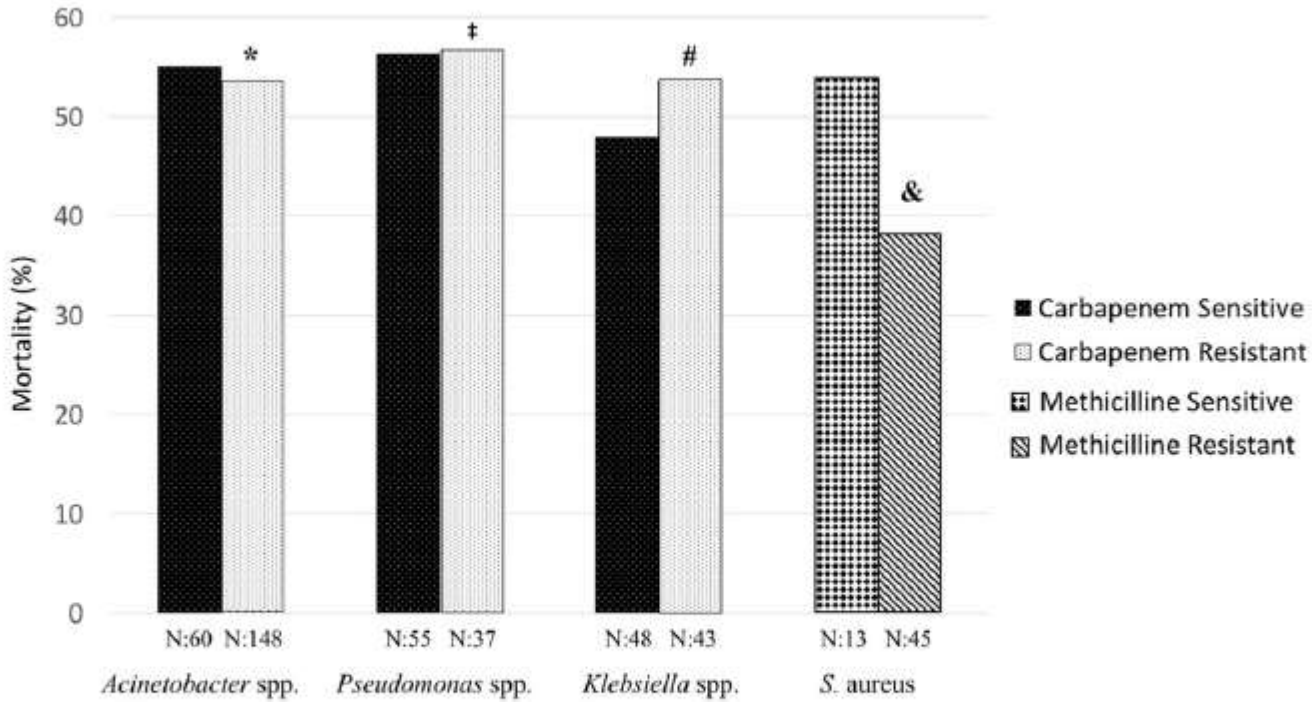


Fig. 2 Antibiotic susceptibility pattern of microorganisms and survival status at 30 days. Mortality ratio was not different among antibiotic-sensitive and -resistant strains when evaluated by chi-squared test. *$p = 0.832$, compared with carbapenem-sensitive *Acinetobacter* spp. ‡$p = 0.970$, compared with carbapenem-sensitive *Pseudomonas* spp. #$p = 0.595$, compared with carbapenem-sensitive *Klebsiella* spp. &$p = 0.474$, compared with methicillin-sensitive *S. aureus*

DALI: Defining Antibiotic Levels in Intensive Care Unit Patients: Are Current β-Lactam Antibiotic Doses Sufficient for Critically Ill Patients?

Jason A. Roberts,[1,2] Sanjoy K. Paul,[3,4] Murat Akova,[5] Matteo Bassetti,[6] Jan J. De Waele,[7] George Dimopoulos,[8] Kirsi-Maija Kaukonen,[9] Despoina Koulenti,[1,8] Claude Martin,[10,11] Philippe Montravers,[12] Jordi Rello,[13] Andrew Rhodes,[14] Therese Starr,[2] Steven C. Wallis,[1] and Jeffrey Lipman[1,2]; for the DALI Study[a]

Hastaların %16'sında hedef PK/PD (50% f T>MIC) parametrelerin altında Beta-laktam konsantrasyonu saptanmıştır.

APACHE II ve SOFA ile beraber kötü prognoz ile ilişkili
(OR, 0.68 [95% CI,.52 –.91]; P = .009)

Prolonged versus short-term intravenous infusion of antipseudomonal β-lactams for patients with sepsis: a systematic review and meta-analysis of randomised trials

Konstantinos Z Vardakas, Georgios L Voulgaris, Athanasios Maliaros, George Samonis, Matthew E Falagas

Mortalite riskinde % 30 azalma (RR 0·70, 95% CI 0·56–0·87)
Meropenem; uzamış infüzyon veya sürekli infüzyon
İmipenem; uzamış infüzyon
Piperasilin-tazobaktam; sürekli infüzyon
Seftazidim; uzamış infüzyon, sürekli infüzyon
Sepepim,, sefaperazon ; sürekli infüzyon

Klinik kür?
Mikrobiyoloji eradikasyon?
Yaşlı grup?
Renal yetmezlik?
Dirençli bakteri

Bloos et al. Critical Care 2014, 18:R42
http://ccforum.com/content/18/2/R42

CRITICAL CARE

RESEARCH Open Access

Impact of compliance with infection management guidelines on outcome in patients with severe sepsis: a prospective observational multi-center study

Kaynak kontrolündeki gecikmenin mortaliteye etkisi
(% 42,9 & 26,7, p<0.001)

VIEWPOINT

Antibiotics for Sepsis—Finding the Equilibrium

Michael Klompas, MD, MPH
Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, Massachusetts; and Department of Medicine, Brigham and

Sepsis is medicine's last remaining preserve for unrestrained antibiotic prescribing. The Surviving Sepsis Campaign guidelines recommend empirical broad-spectrum therapy within one hour of triage for both sepsis and septic shock.[1] This recommendation, and mandates that compel it, encourage clinicians to adopt an approach of "treat first, ask questions later" for patients with any possibility of serious infection. This ap-

Sepsis is defined as infection leading to organ dysfunction, but both diagnosing infection and attributing organ dysfunction to infection are often subjective. Fever and leukocytosis are neither sensitive nor specific signs for infection. Deciding whether organ dysfunction is due to infection or some other factor (eg, volume depletion, cardiomyopathy, inflammatory or autoimmune diseases, toxic ingestions, medication

Önce tedavi et, sonra s[X]sor !

KUNG FU PANDA QUOTES ON LIFE SCOOPWHOOP.com

"Anything is possible when you have inner peace."

— Master Shifu —

Clinical Infectious Diseases
VIEWPOINTS

Infectious Diseases Society of America (IDSA) POSITION STATEMENT: Why IDSA Did Not Endorse the Surviving Sepsis Campaign Guidelines

Sepsis şü

ɔn yaklaşımı

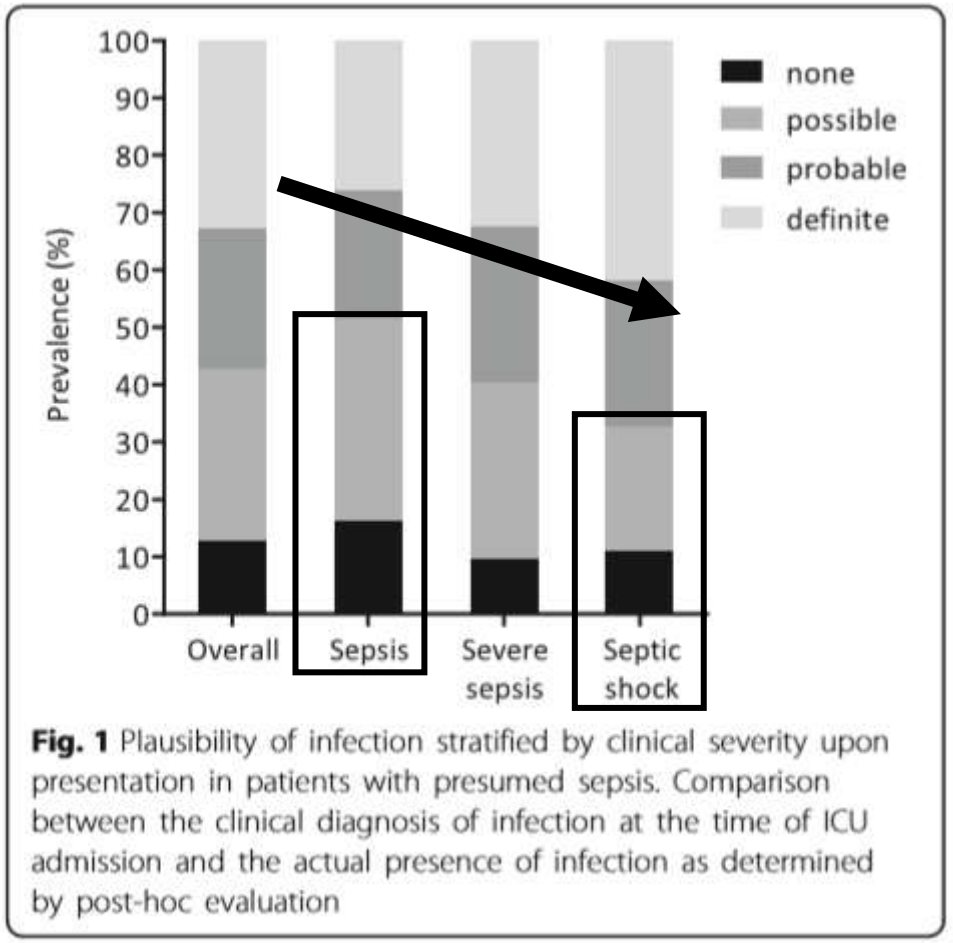


Fig. 1 Plausibility of infection stratified by clinical severity upon presentation in patients with presumed sepsis. Comparison between the clinical diagnosis of infection at the time of ICU admission and the actual presence of infection as determined by post-hoc evaluation

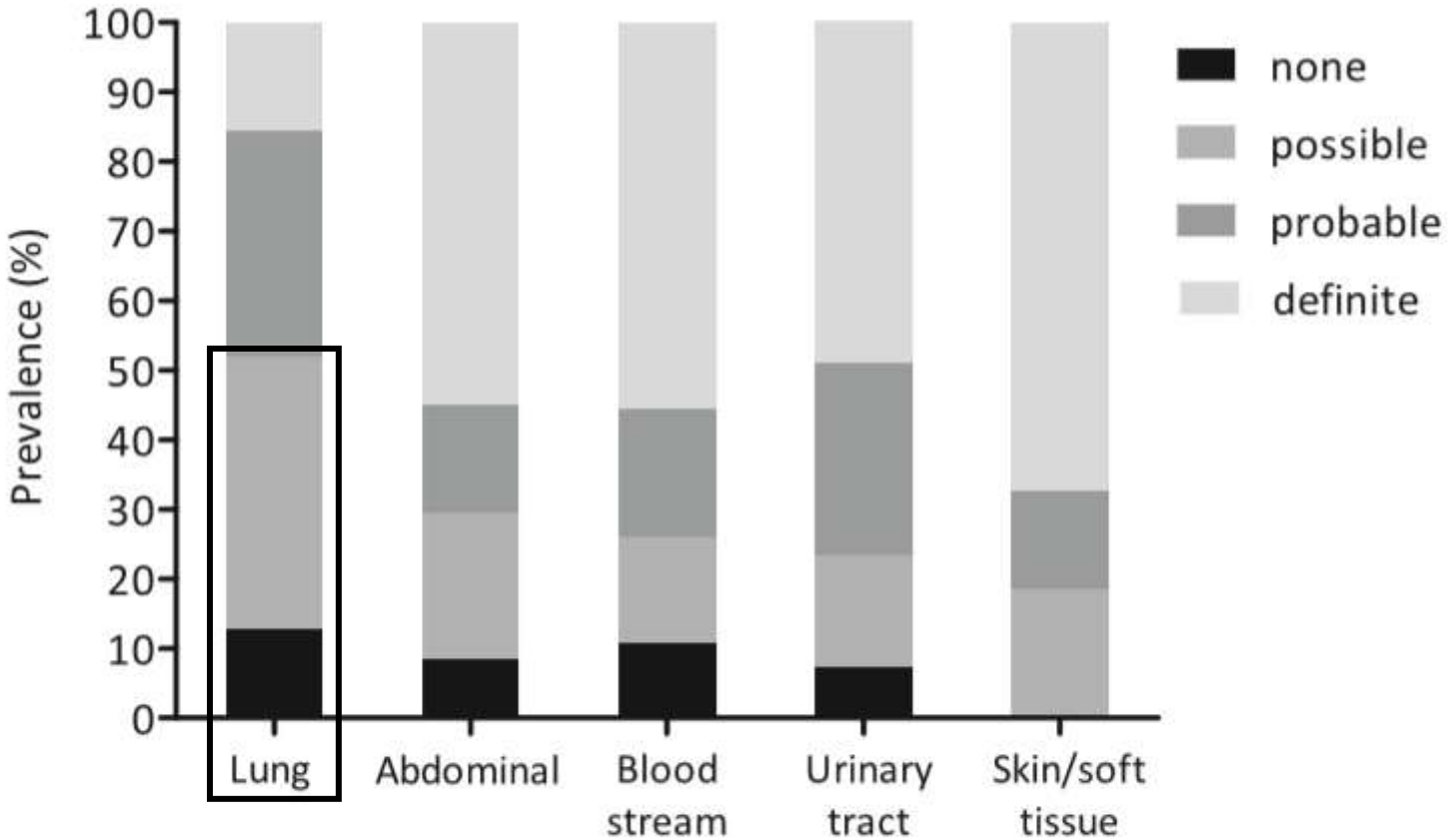


Fig. 2 Plausibility of infection in patients with presumed sepsis upon presentation for the most frequent sites of infection. Distribution of

Improving Sepsis Treatment by Embracing Diagnostic Uncertainty

Hallie C. Prescott, MD, MSc[1,2,3] and Theodore J. Iwashyna, MD, PhD[1,2,3,4]

Enfeksiyon riski yüksek olan hastalarda antibiyotik kullanma sıklığı yüksek olmalıdır
Ağır hastalarda antibiyotik daha hızlı ve geniş spektrumlu olmalı ancak antibiyotik devam etmeme oranıda yüksek olmalı
Ağır olmayan hastalarda ek tanısal tetkikler yapılabilmeli

Prescott H.C et al., AnnalsATS, 2019

Aggressive versus conservative initiation of antimicrobial treatment in critically ill surgical patients with suspected intensive-care-unit-acquired infection: a quasi-experimental, before and after observational cohort study

Tjasa Hranjec, Laura H Rosenberger, Brian Swenson, Rosemarie Metzger, Tanya R Flohr, Amani D Politano, Lin M Riccio, Kimberley A Popovsky, Robert G Sawyer

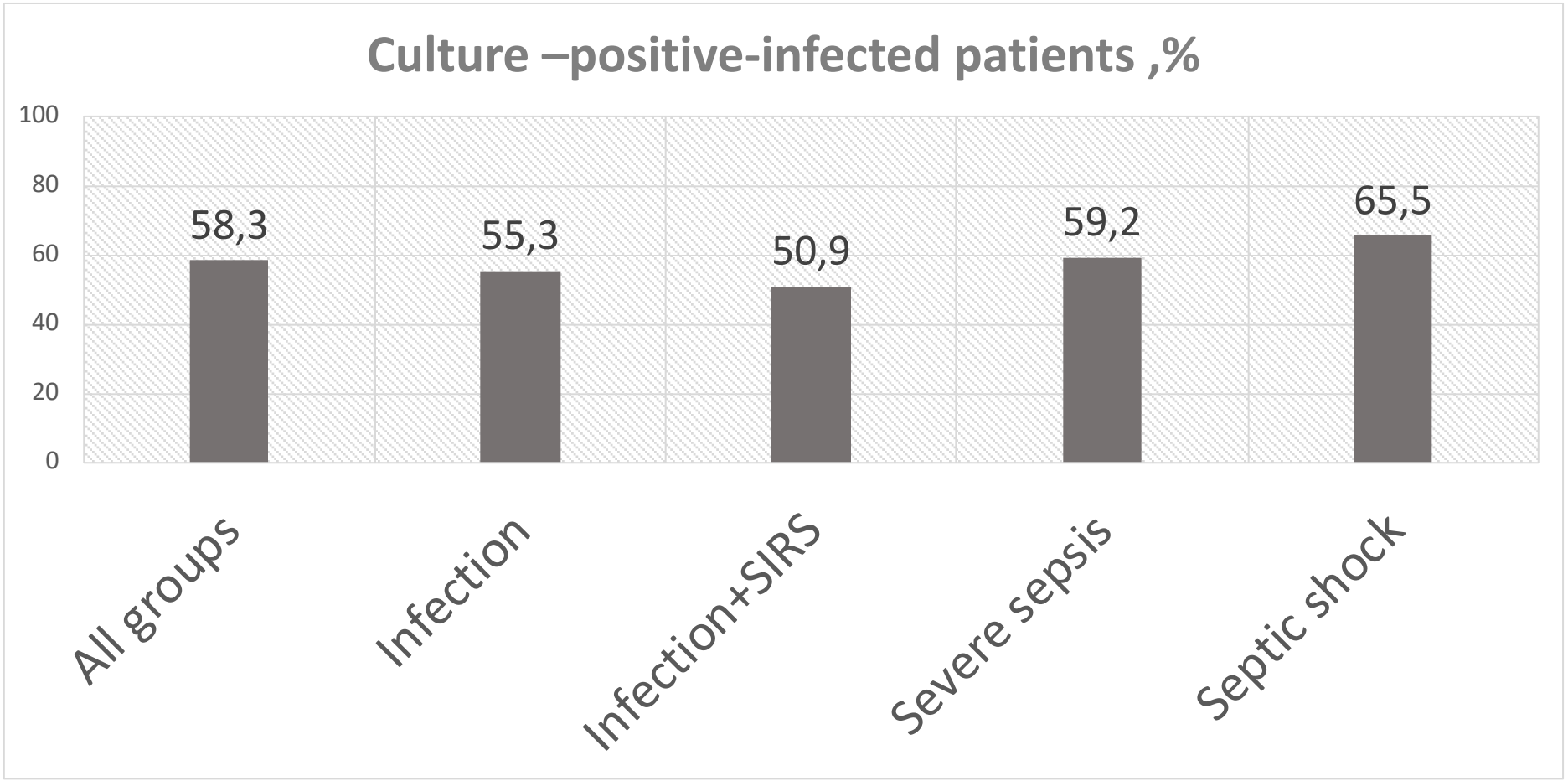
	Aggressive (n=247)	Conservative (n=237)	p value
Time from blood culture to start of treatment (h)			
Number	189	206	
Mean (SE)	20·9 (24·4)	34·8 (34·4)	<0·0001
Median (IQR)	12 (3–30)	22 (7–58)	<0·0001
Time from fever to start of treatment (h)			
Number	103	139	
Mean (SD)	11·1 (14·9)	35·2 (37·4)	
Median (IQR)	6 (3–14)	24 (9–44)	
Duration of antimicrobial treatment (days)			
Mean (SD)	17·7 (28·1)	12·5 (10·7)	
Median (IQR)	11 (7–8)	10 (7–14)	
Appropriate antimicrobials (number [%])			
Initial*	144 (62%)	158 (74%)	
Switched	64 (28%)	48 (23·5%)	
Overall	208 (90%)	206 (96%)	

Not all patients had blood cultures drawn or had fever (tempe
Antibiotics were generally switched to appropriate coverage 3
were sent when sensitivities returned. *Data for appropriate initial therapy were available from 214 patients in the aggressive group, and 231 in the conservative group.

Table 4: **Time to start of treatment and appropriateness of antibiotic therapy**

	Aggressive (n=27)	Conservative (n=13)	p value
Death while receiving antimicrobials	20 (74%)	8 (62%)	0·66
Death due to infection	14 (52%)	7 (54%)	1·00
Death due to underlying pathology	10 (37%)	6 (46%)	0·84
Death due to new onset, non-infectious disorder	2 (7%)	0 (0%)	0·82
Multifactorial death	1 (4%)	0 (0%)	1·00

Table 6: **Causes of death while receiving antimicrobials**



Kan kültürü;

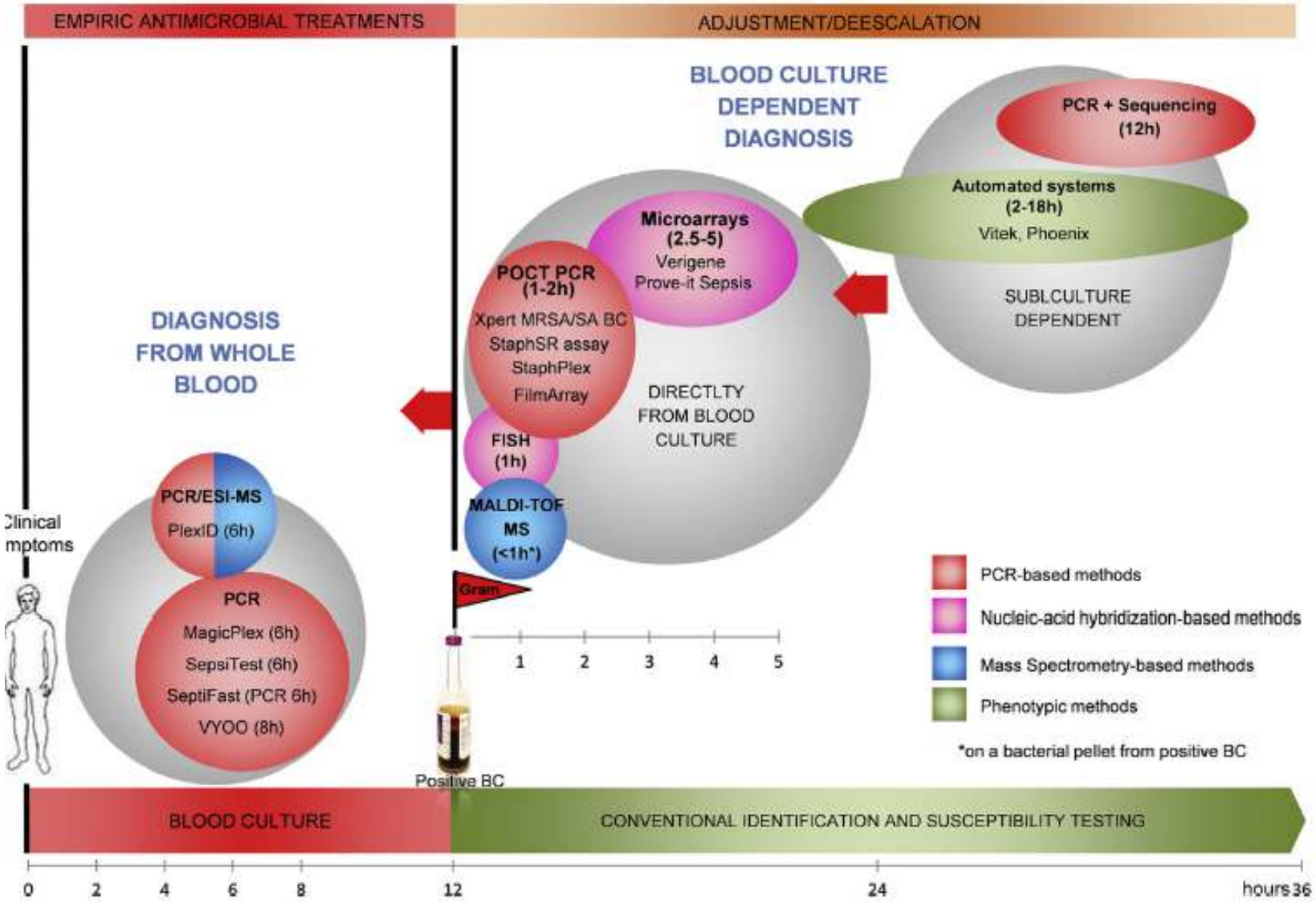
Sepsis hastalarının %30-40'ında pozitif

Pozitiflik zamanı 12-72 saat

Rello J. Et al, Clinical Microbiology and Infection,2018

Baykara et al. Critical Care (2018) 22:93

Hızlı tanısal (moleküler) testler



Opota et al. Clinical Microbiology and Infection, 2015

Ginn et al,Curr Opin Infect Dis 2017

Table 1
Methods applied on positive BCs [8,13–20,28–30]

Kit/system (manufacturer)	Principle	TAT (h)	Panel	Resistance genes or antibiotics	Sensitivity (%)	Specificity (%)	Cost	
							Instrument	Test
Microflex LT (Bruker Daltonics) Vitek MS (bioMérieux)	MALDI-TOF	0.2–0.5	Not limited	—	75[a] 92[b]	88[a] 81[b]	€€€	€
PNA-FISH/*Quick*FISH (AdvanDx)	Fluorescent *in situ* hybridization with PNA probes	1.5–3/0.5	4 different panels (*S. aureus*/CoNS; *E. faecalis*/*Enterococcus* spp.; *E. coli*/*K. pneumoniae*/*P. aeruginosa*; *Candida* spp.)	—	88–100	97–100	€	€€
Xpert MRSA/SA Blood Culture (Cepheid)	Multiplex real-time PCR	1	*S. aureus*/CoNS	*mecA*	98–99	99–100	€€	€€
GeneOhm StaphSR (BD)	Multiplex real-time PCR	1–1.5	*S. aureus*/CoNS	*mecA*	94–99	96–98	€€	€€
Prove-it Sepsis (Mobidiag)	Broad-range PCR +	3	60 bacteria, 13 fungi	*mecA*, *vanA*, *vanB*	96–99	98–100	€	€€
FilmArray Blood Cultur Identification [BCID]						91–100	€€	€€€
Verigene Gram-Positive Blood Culture [BC-GI						94–100	€€	€€€
Verigene Gram-Negativ Blood Culture [BC-GN						93–100	€€	€€€
Sepsis Flow Chip (Master Diagnostica)	Microarray-based assay	3	7 GP, 10 GN, 1 *Candida*	*mecA*, *vanA/B*, bla_{CTX-M}, bla_{SHV}, bla_{KPC}, bla_{NDM}, bla_{IMP}, bla_{OXA-48}, bla_{OXA-23}, $bla_{OXA-24/40}$, bla_{OXA-51}, bla_{OXA-58}	93	100	€	€€€
Accelerate Pheno System (Accelerate Diagnostics)	FISH (ID) Morphokinetic cellular analysis (AST)	1.5 (ID) 7 (AST)	6 GP, 8 GN, 2 *Candida*	CFT, DAP, ERY, LZD, VAN (S. aureus); DAP, VAN (CoNS); AMP, DAP, LZD (*Enterococcus* spp.); AMK, ATM, CAZ, CIP, CRO, ERT, FEP, GE, MEM, SAM, TOB, TZP (*E. coli*; *Klebsiella* spp.; *Proteus* spp.), AMK, ATM, CAZ, CIP, CRO, ERT, FEP, GE, MEM, SAM, TOB, TZP (*Enterobacter* spp., *Citrobacter* spp., *Serratia* spp.), AMK, CAZ, CIP, FEP, GE, MEM, TOB, TZP (*P. aeruginosa*); AMK, TZP (A. baumannii)	89–96 (ID) 91–95 (AST)[c]	99–100 (ID)	€€	€€€

MALDİ-TOF; Hızlı, basit, Maliyet etkin

Opota et al. Clinical Microbiology and Infection, 2015

TABLE I. Main commercially available systems for identification of microbes directly from blood samples

System	Method	Time to result (hours)	Blood volume (mL)	Microorganism coverage	Resistance and virulence markers	Sensitivity, specificity, and correlation with conventional methods (%)	Comments	Ref.
SepsiTest Molzym, Bremen, Germany	Broad-range PCR + sequencing	6	1–10[a]	>345 bacteria (Gram positive and Gram	0	21–87, 85–96, NR	Pros: can be used in other sterile samples; Cons:	[43,56,58–61]
SeptiFast Roche M System, Switzerla								4]
MagicPlex Seegene, Korea								
VYOO SIRS-Lab Germany				7 fungi			of studies, several manual steps	]
PLEX-ID, Abbott Molecular, Carlsbad, CA, USA	Multiplex broad-range PCR/ESI-MS	6	1.25–5[c]	Up to 800 (Gram positive, Gram negative, fungi)	*mecA*, *bla*$_{KPC}$ *vanA*/B	50–91[d], 98–99, 79–97	Pros: universal, detection of mixed bacterial populations, semiquantitative; Cons: no interventional studies	[11,76,77]

Kontaminasyon bazlı yalancı pozitifikler (Çevre, PCR reaktifi, ölü bakteri)
PCR inhbitörleri
Yüksek maliyet
Klinik kullanım için deneyim azlığı

PCR bazlı test; 45/184, % 24,5

Konvasiyonel kültür; 39/184, %21,2

Medyan antibiyotik tüketimine etkisi saptanmamış

Rodrigues et al. Journal of Intensive Care (2019) 7:37
https://doi.org/10.1186/s40560-019-0391-3

Journal of Intensive Care

RESEARCH Open Access

The effect of a rapid molecular blood test on the use of antibiotics for nosocomial sepsis: a randomized clinical trial

Table 2 Antimicrobial consumption in DOT/1000 PD during the study

Antimicrobial consumption:	All patients			Positive test		
	Intervention group	Control group	*P* value	Intervention group	Control group	*P* value
DOT/1000 PD, median, (IQR)	(*n* = 100)	(*n* = 100)		(*n* = 19)	(*n* = 25)	
- All antimicrobial	1621 (1196–2388)	2000 (1440–2433)	0.067*	1429 (1071–2000)	1889 (1357–2563)	0.017*
- Antimicrobial for Gram-negative bacteria coverage[a]	1000 (768–1466)	1071 (786–1665)	0.248*	1071 (786–1429)	1286 (536–1857)	0.427*
- Antimicrobial for Gram-positive coverage[b]	786 (554–1000)	866 (641–1000)	0.259*	71 (71–1000)	786 (354–1000)	0.013*

Biyobelirteç; Tanısal-----<-> Prognostik; Prokalsitonin

Intensive Care Med (2017) 43:304–377
DOI 10.1007/s00134-017-4683-6

CONFERENCE REPORTS AND EXPERT PANEL

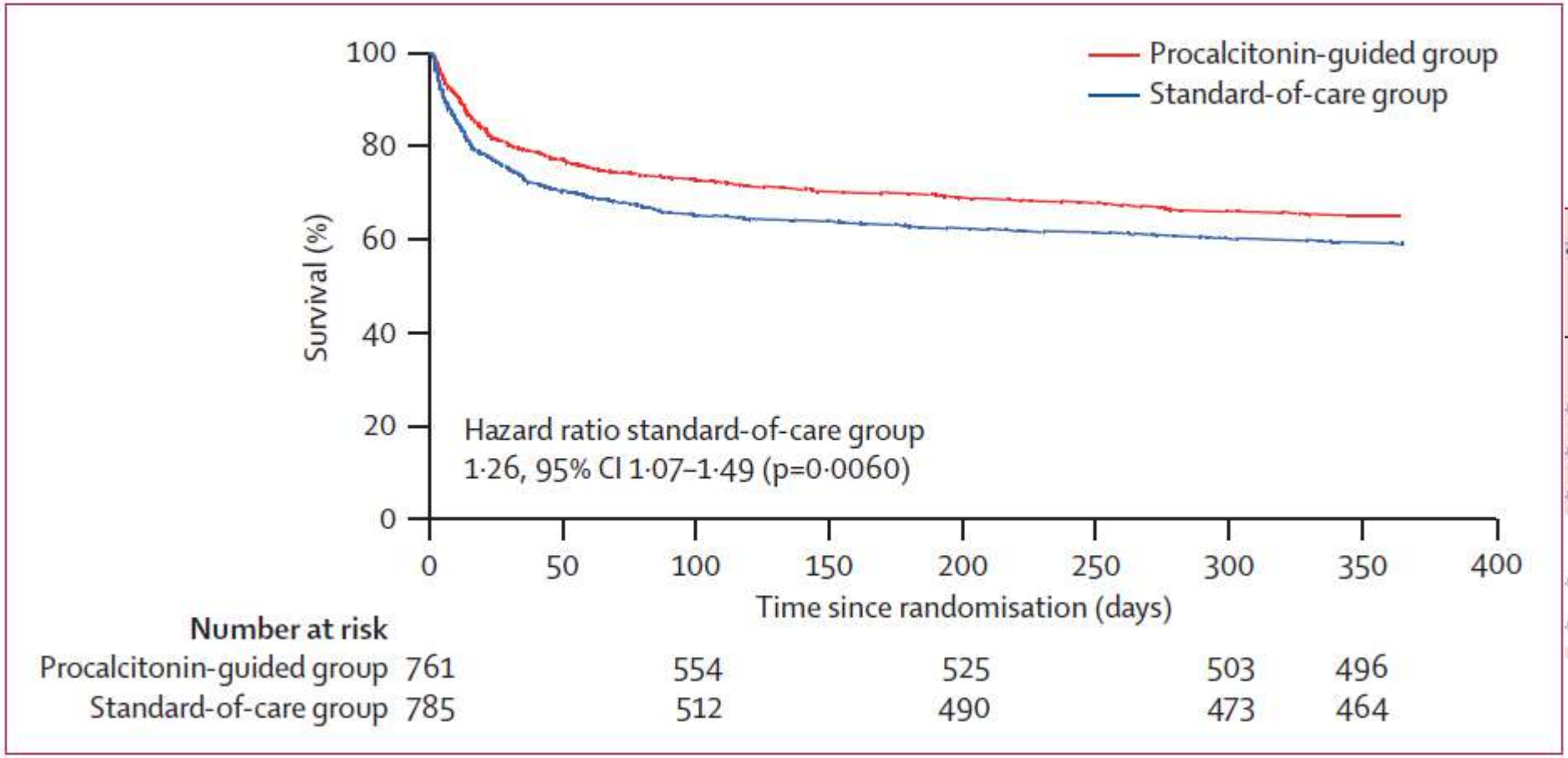
Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016

Prokalsitonin, anti-mikrobiyal tedavisinin kısaltılmasını desteklemek (yetersiz klinik veri durumunda empirik tedavinin kesilmesi)amacıyla kullanılabilir (?)

Antimikrobiyal tedaviye başlama, tedaviyi değiştirme ve kesme kararı hiçbir zaman yalnızca herhangi bir biyo-belirteçteki değişimler temelinde yapılmamalıdır.

Efficacy and safety of procalcitonin guidance in reducing the duration of antibiotic treatment in critically ill patients: a randomised,

Evelien de Jong, Jos A van Oers, Alt
Gertrude C van Melsen, Yvette C K
Hans Kieft, Georg H Kluge, Veerle C
Jos W Twisk, Ewoudt M W van de C



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Wirz et al. Critical Care (2018) 22:191
https://doi.org/10.1186/s13054-018-2125-7

Critical Care

REVIEW Open Access

Effect of procalcitonin-guided antibiotic treatment on clinical outcomes in intensive care unit patients with infection and sepsis patients: a patient-level meta-analysis of randomized trials

Antibiyotik süresinde kısalma

(9.3 vs 10.4 days, −1.19 days, $p < 0.001$)

Farklı sub-gruplarda (SOFA, septik şok,Renal yetmezlik, enfeksiyon odağı) mortalite azalması

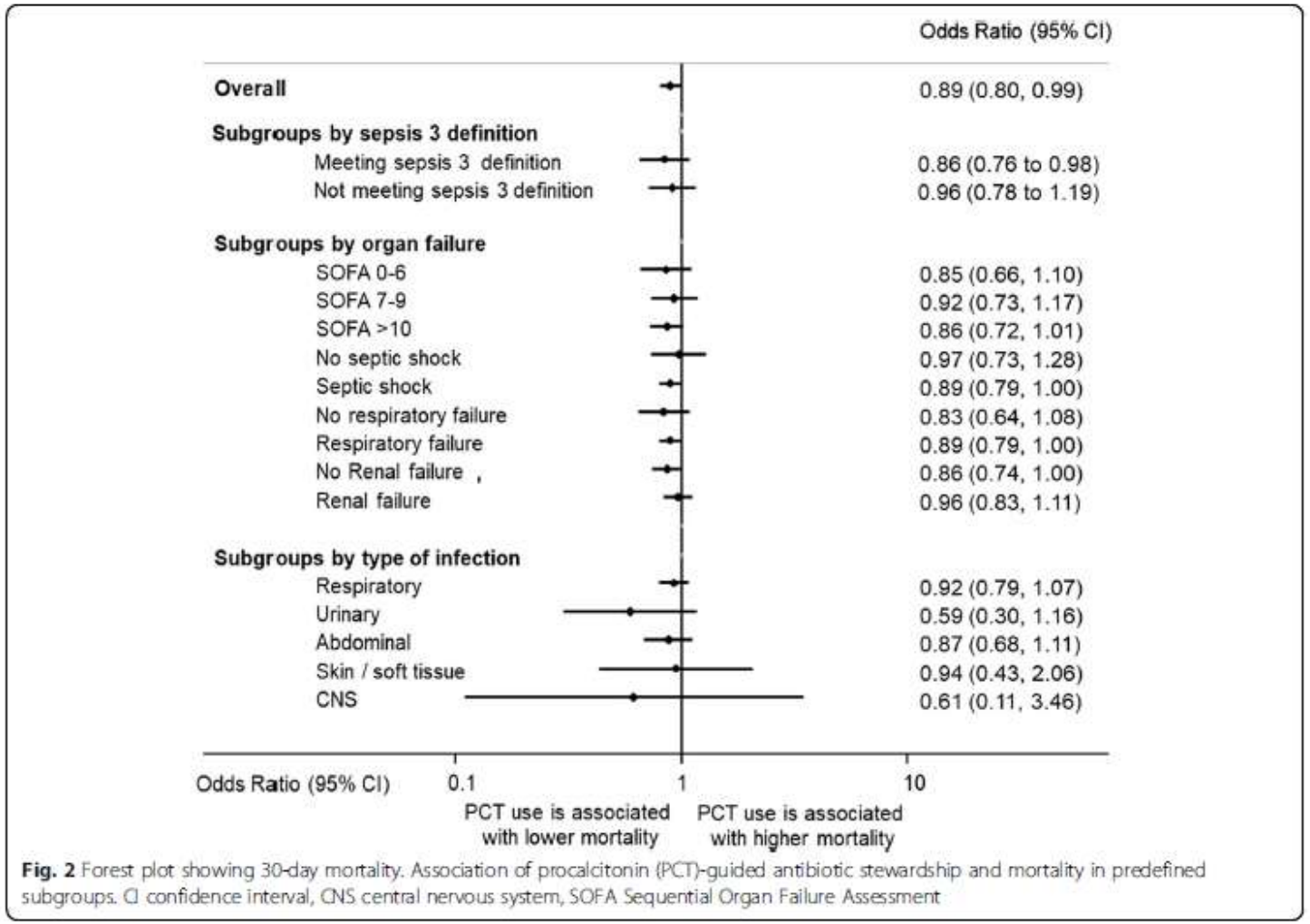


Fig. 2 Forest plot showing 30-day mortality. Association of procalcitonin (PCT)-guided antibiotic stewardship and mortality in predefined subgroups. CI confidence interval, CNS central nervous system, SOFA Sequential Organ Failure Assessment

International Journal of Infectious Diseases 85 (2019) 158–166

Contents lists available at ScienceDirect

International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid

Ineffectiveness of procalcitonin-guided antibiotic therapy in severely critically ill patients: A meta-analysis

Fei Peng, Wei Chang, Jian-Feng Xie, Qin Sun, Hai-Bo Qiu, Yi Yang*

Antibiyotik süresinde kısalma

(-0.99 days 95% CI 1.85 to 0.13 days; p = 0.02)

p 0.02)

Mortalite azalması SOFA<8

(RR 0.81, 95% CI 0.66–0.99; p = 0.04)

Tanısal biyobelirteç; Kolay elde edilebilir örneklerde yatak başı çalışılsın, spesifik laboratuvar gerektirmesin, çalışılma süresi kısa

Protein veya sitokin biyobelirteçleri

‘Geleneksel’

Prokalsitonin, CRP, IL-6,suPA

Combination Biomarkers to Diagnose Sepsis in the Critically Ill Patient

Sébastien Gibot[1,2], Marie C. Béné[3], Robin Noel[4], Frédéric Massin[5], Julien Guy[6], Aurélie Cravoisy[1], Damien Barraud[1], Marcelo De Carvalho Bittencourt[3], Jean-Pierre Quenot[4], Pierre-Edouard Bollaert[1], Gilbert Faure[3], and Pierre-Emmanuel Charles[4]

Tek başına yeterli değil

Opota et al. Clinical Microbiology and Infection, 2015

Tanısal RNA biyomarkerları

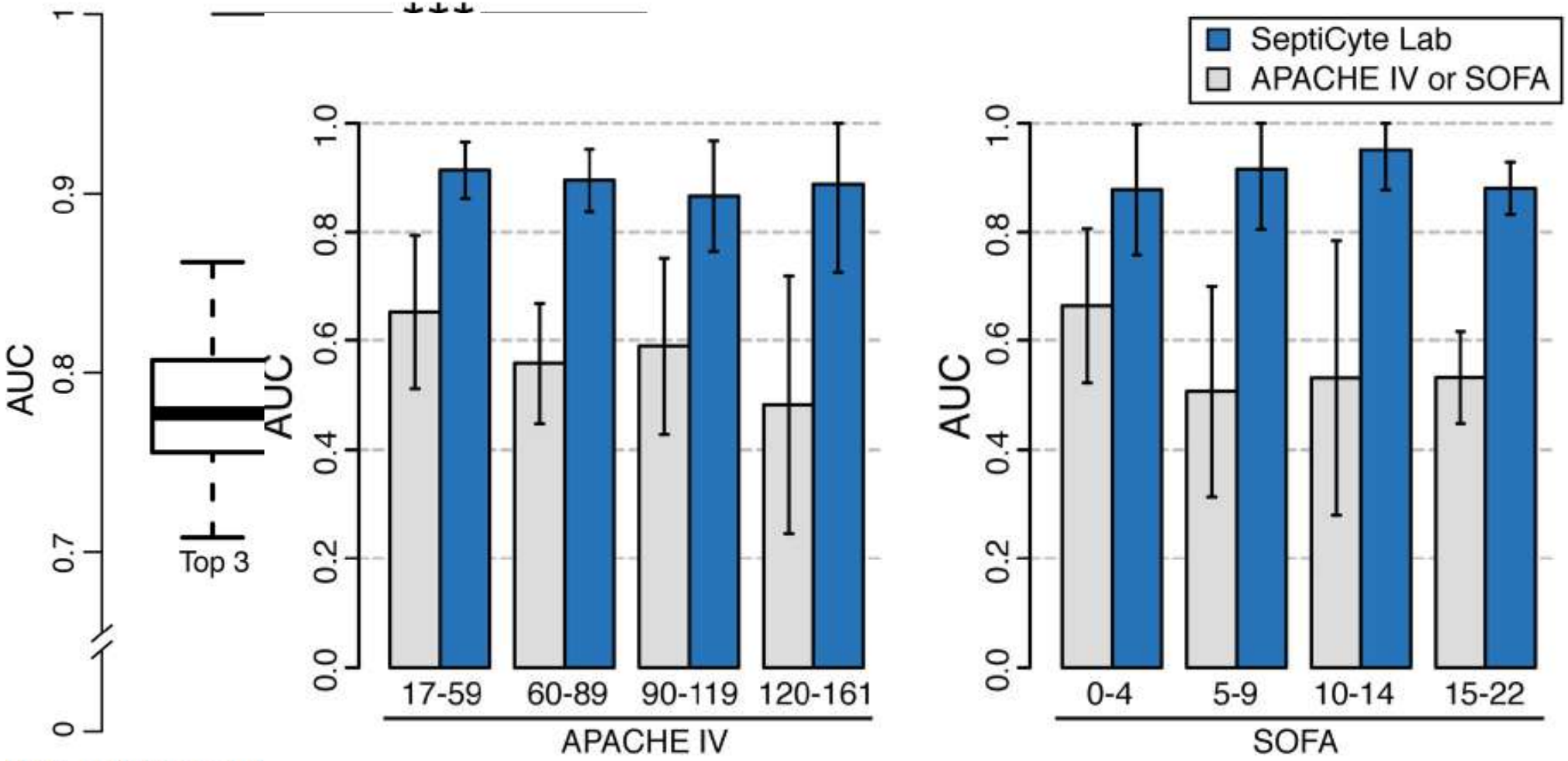
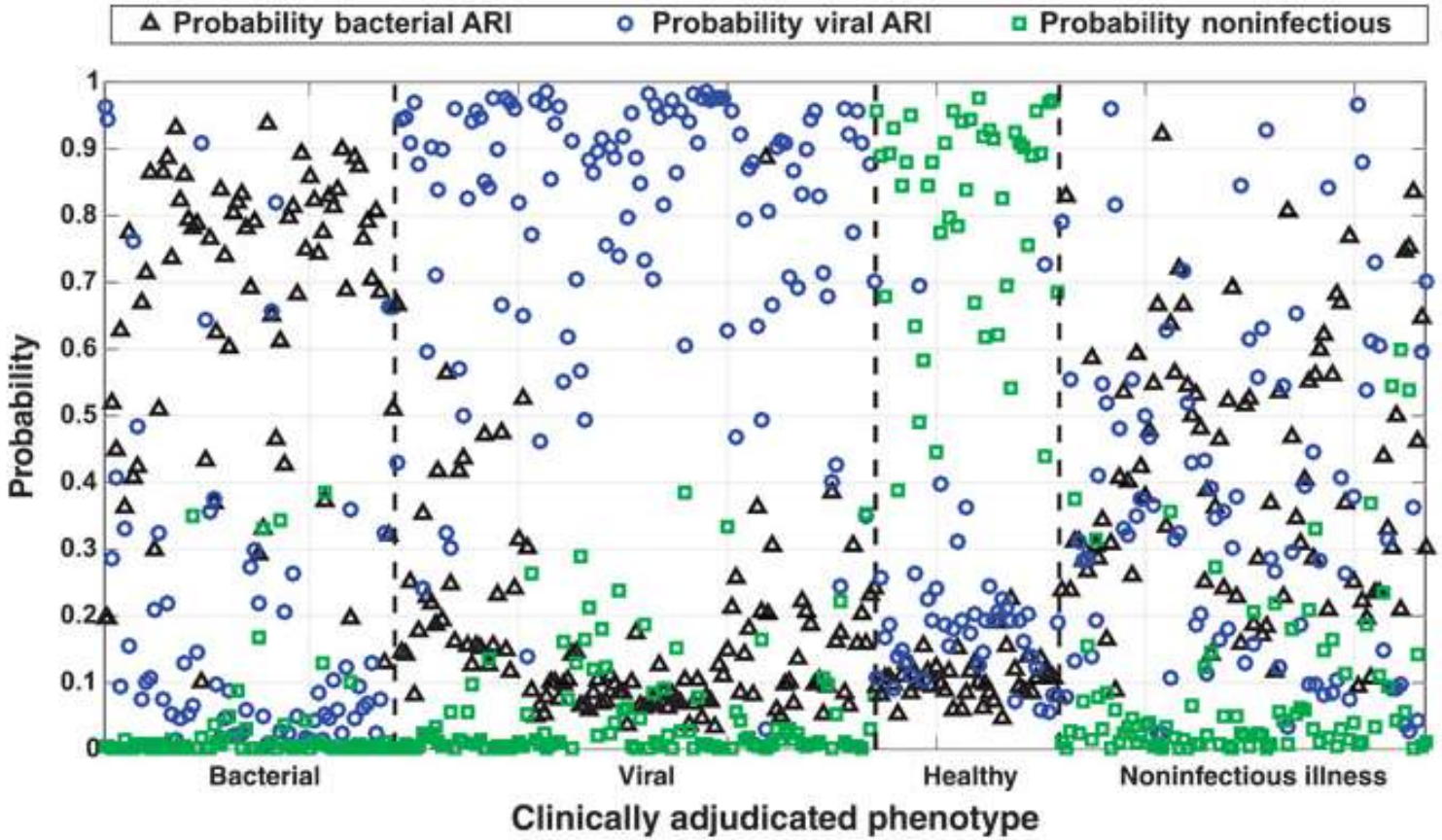
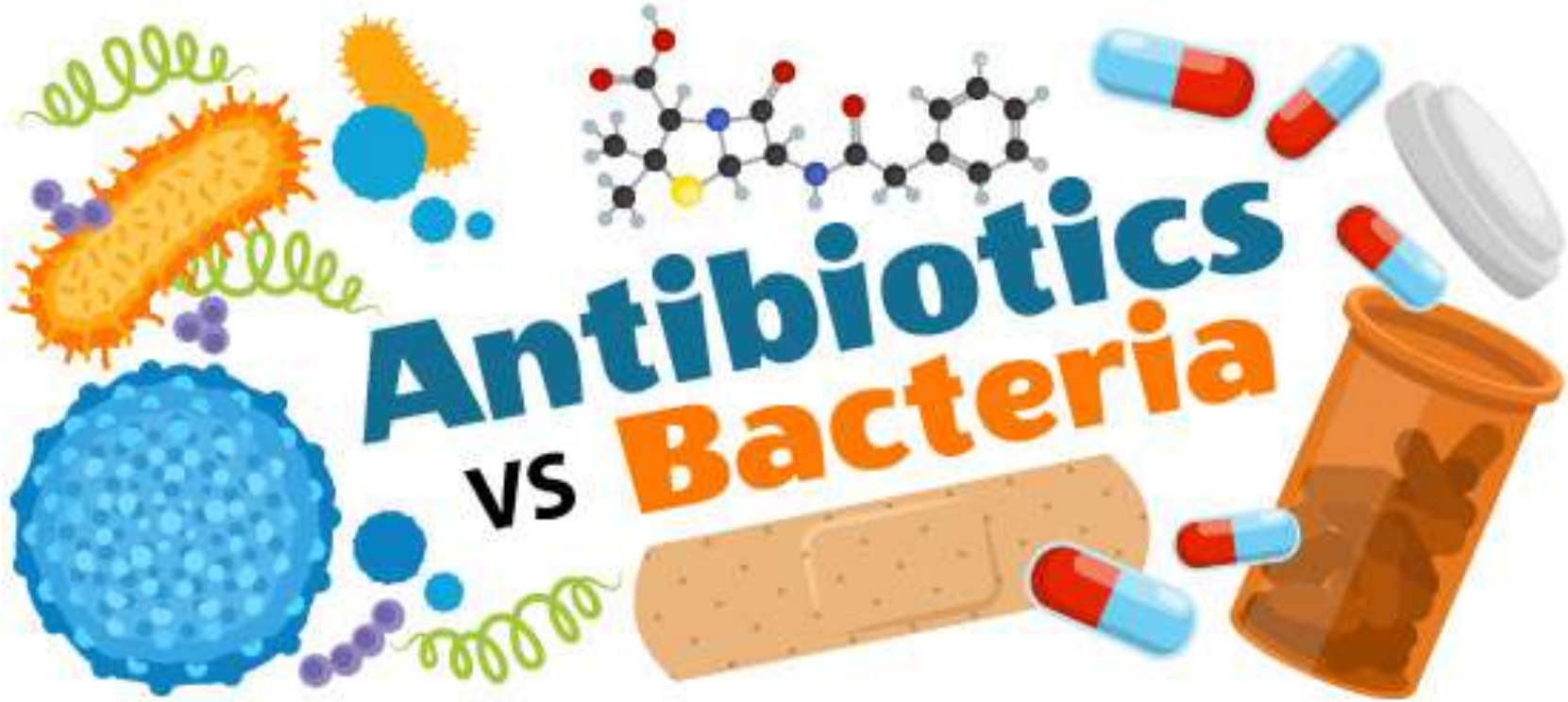


Fig 6. Performance of PCT, clinical parameters, and SeptiCyte Lab for the discrimination of sepsis versus infection-negative systemic inflammation. This comparative analysis used the largest set of



Tsalik E.L et al, Sci Transl Med 2016


Antibiotics
VS
Bacteria

Clinical Infectious Diseases
MAJOR ARTICLE

Risk of Subsequent Sepsis Within 90 Days After a Hospital Stay by Type of Antibiotic Exposure

James Baggs, John A. Jernigan, Alison Laufer Halpin, Lauren Epstein, Kelly M. Hatfield, and L. Clifford McDonald

Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia

Yüksek risk; 3. veya 4.kuşak sefalosporinler, karbapenemler, beta-lakta-bate-laktamaz inh., linkozamidler, oral vankomisin

Düşük risk; 1. veya 2.kuşak defalosporin, makrolid, tetrasiklin, metronidazol

Kontrol; aminoglikozid, IV vankomisin, penisilin

Exposures and Severe Sepsis or Septic Shock Within 90 Days After Hospital Discharge in a Cohort of US Hospitals[a]

Antibacterial Exposure	OR (95% CI) Primary Outcome: Severe Sepsis/Septic Shock[b]	OR (95% CI) Secondary Outcome: Sepsis[c]
High-risk antibacterial agents[d]	1.65 (1.59–1.70)	1.49 (1.47–1.52)
Low-risk antibacterial agents[e]	1.07 (1.02–1.13)	1.04 (1.02–1.06)
Control antibacterial agents[f]	1.22 (1.12–1.34)	1.20 (1.15–1.25)

Patients receiving high-risk antibacterial agents		
Antibiotic classes exposed to during stay, No.		
≥4	1.53 (1.44–1.63)	1.36 (1.32–1.40)
3	1.27 (1.20–1.34)	1.14 (1.11–1.17)
2	1.08 (1.03–1.14)	1.02 (1.00–1.05)
1	Reference	Reference
Duration of antibacterial therapy, d		
≥14	1.61 (1.49–1.74)	1.47 (1.41–1.52)
7–13	1.28 (1.19–1.37)	1.20 (1.16–1.24)
3–6	1.15 (1.08–1.23)	1.10 (1.07–1.13)

Baggs et al.,CID 2018:66

Intensive Care Med
https://doi.org/10.1007/s00134-019-05908-3

SYSTEMATIC REVIEW

Rate and ri
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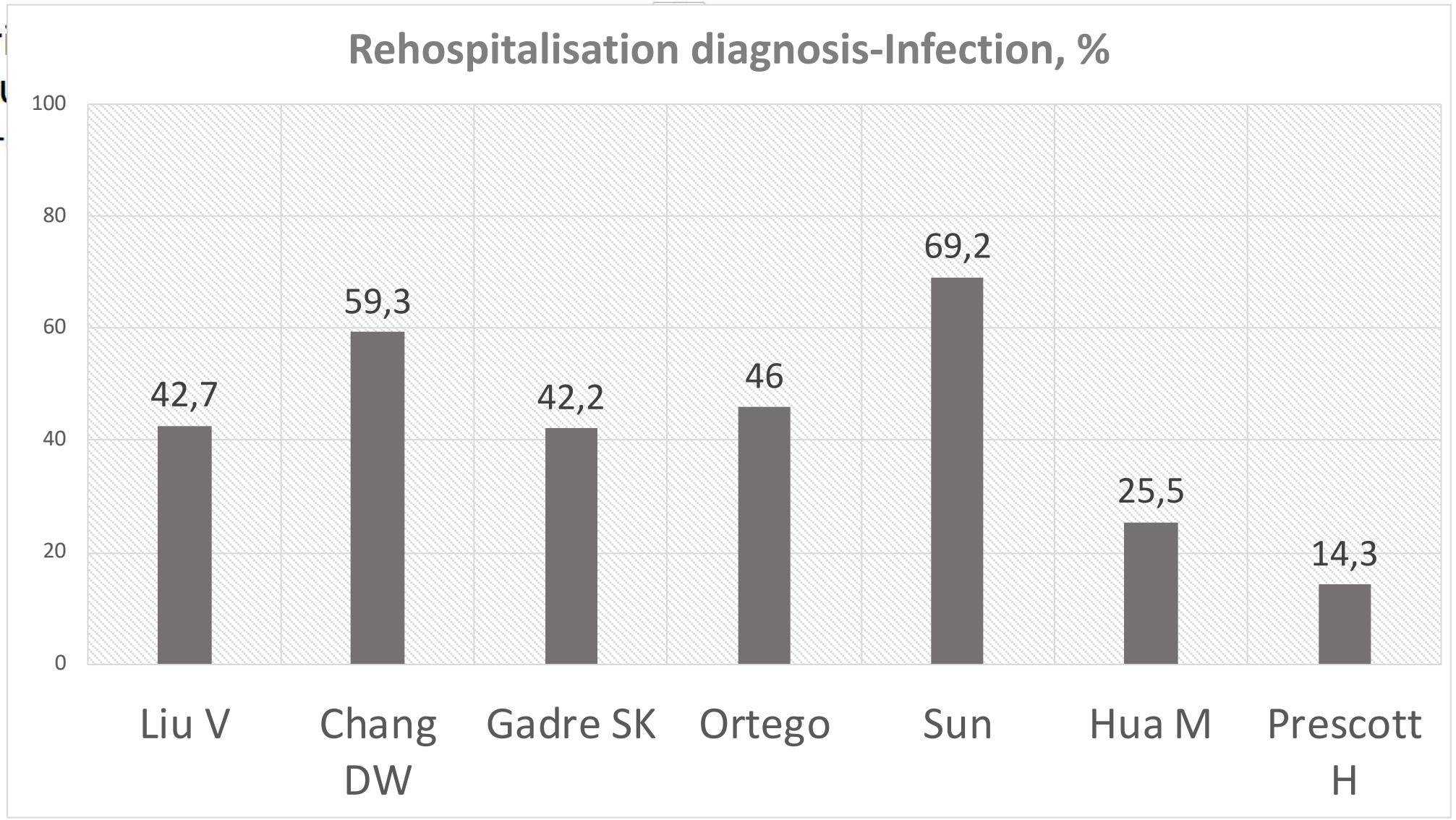
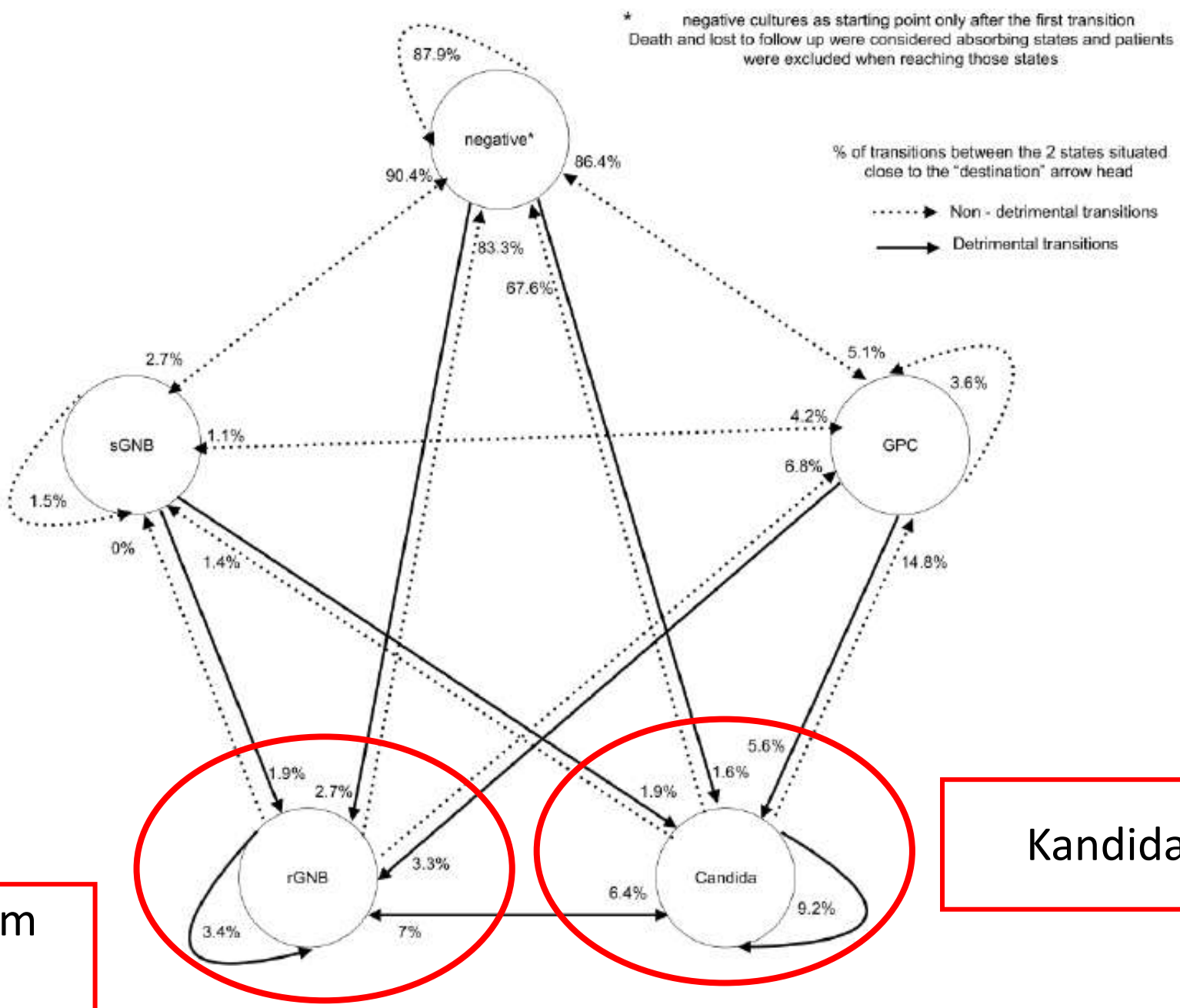




Dirençli gram negatifler

Kandidalar

M. Cristina Vazquez Guillamet et al.Clin Infect disease,2019

Preventing Chronic Critical Illness and Rehospitalization

A Focus on Sepsis

Hallie C. Prescott, MD, MSc[a,b,c,*]

Sepsis sonrası mortalitenin ve kronik hastalık gelişimin engellenmesi -Erken sepsis bakımı -İatrojenik komplikasyonlardan kaçınılması -Erken dönem mobilizasyon
Yaygın ve önlenebilir risklerin azaltılması -Kronik kullanılan ilaçların azaltılması veya titrasyonu -Re-enfeksiyondan kaçınılması -Sıvı replasman yönetimi -Aspirasyonun önlenmesi
İyileşme -Danışmanlık -Fonksiyonel kapasitenin iyileştirilmesi

Re-enfeksiyondan kaçınılması
De-eskalasyon
Aşılama
Enfeksiyon semptom ve bulguları, enfeksiyon riski konusunda danışmalık
Enfeksiyonu değerlendirmek ve tedavi etmek için daha düşük bir eşiğe sahip olmalısınız
İmmunmodülasyon ? Mikrobiyom ?

Hallie C. Et al, Crit Care Clin, 2018

Yoğun bakımlarda antibiyotik uygunsuz kullanım sıklığı ;
14.1% to 78.9%

Marquet K. Et al, Crit Care, 2015;

The Antibiotic Care Bundle (ABC-Bundle).

Evidence-Based Recommendations (EBRs)		Days of therapy				
		1	2	3	4	5
EBR1	Provide rationale for starting antibiotics in patient charts	x				
EBR2	Perform appropriate microbiological sampling according to local or international guidelines	x				
EBR3	Prescribe empirical antibiotic therapy according to local or international guidelines	x				
EBR4	Review diagnosis based on microbiological results		x	x	x	x
EBR5	Evaluate de-escalation based on microbiological results		x	x	x	x
EBR6	Consider discontinuation of treatment according to local or international guidelines and to the clinical picture			x	x	x

De-eskalasyon uyumumun % 2-8 arasında değişmektedir.

Mutters N.T. Et al.International Journal of Antimicrobial Agents,2018

Clinical Infectious Diseases

REVIEW ARTICLE

A Systematic Review of the Definitions, Determinants, and Clinical Outcomes of Antimicrobial De-escalation in the Intensive Care Unit

Alexis Tabah,[1,2,a] Menino Osbert Cotta,[1,2,3,a] Jose Garnacho-Montero,[6] Jeroen Schouten,[7] Jason A. Roberts,[1,2,3] Jeffrey Lipman,[1,2,4] Mark Tacey,[5] Jean-François Timsit,[8,9] Marc Leone,[10] Jean Ralph Zahar,[11] and Jan J. De Waele[12]; for the Working Group for Antimicrobial Use in the ICU

De-eskalasyon stratejisi mortalite gelişimi açısından koruyucu bir etkisi

(RR, 0.68; 95% CI,0.52–0.88)

Intensive Care Med (2019) 45:172–189
https://doi.org/10.1007/s00134-019-05520-5

REVIEW

Rationalizing antimicrobial therapy in the ICU: a narrative review

Jean-François Timsit[1,2*], Matteo Bassetti[3], Olaf Cremer[4], George Daikos[5], Jan de Waele[6], Andre Kallil[7], Eric Kipnis[8], Marin Kollef[9], Kevin Laupland[10], Jose-Artur Paiva[11], Jesús Rodríguez-Baño[12], Étienne Ruppé[2,13], Jorge Salluh[14], Fabio Silvio Taccone[15], Emmanuel Weiss[16,17] and François Barbier[18]

Antibiyotiklerin mikrobiyal direnç üzerine etkisi ve direnç için risk faktörleri
Ne zaman tedavi başlamalıyız?
İmmun supresif hasta
Empirik tedaviden hızlı uygun tedaviye geçiş
Doğru molekülde doğru doz (Terapötik ilaç izlemi)
Yeni antibiyotikler, infüzyon yaklaşımları (Sürekli infüzyonlar), de-eskalasyon, tedavi süresi, kaynak kontrolü…

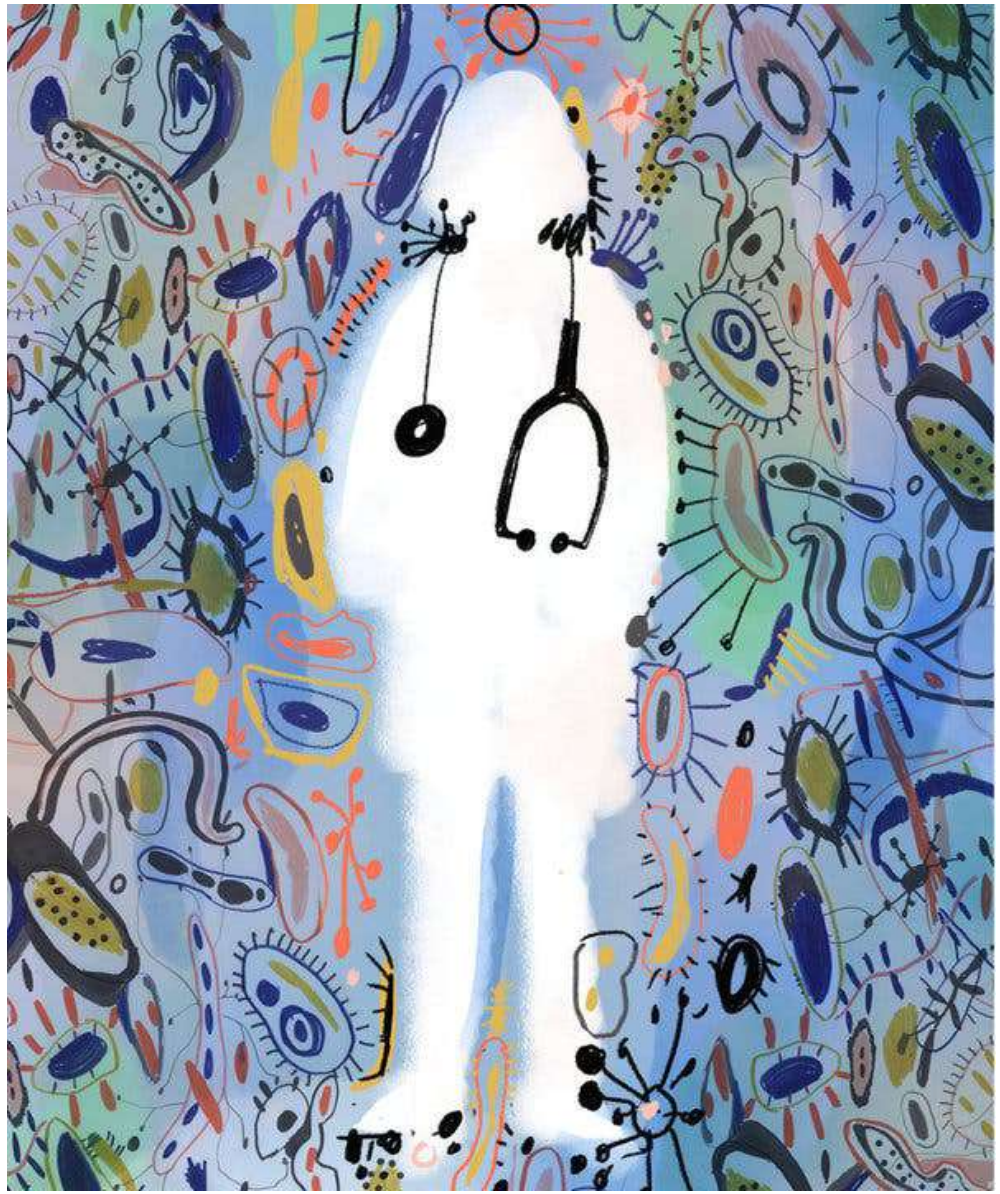
Opinion

The Scary Shortage of Infectious-Disease Doctors

Superbugs are spreading. We need doctors trained to treat them.

By Matt McCarthy

Dr. McCarthy specializes in infectious diseases.



Tiffany Jan