ANTİBİYOTİKLERİN KULLANIMINDA ZOR KARARLAR

Dr. Şİran Keske
VKV Amerİkan Hastanesİ
İnfeksİyon Hastalıkları Bölümü

Developed indicators	Number of articles mentioning the indicator / total number of articles	Percentage of articles mentioning the indicator
Prescribe empirical antibiotic therapy according to (local or national) guidelines	10/14	71
Switch from intravenous to oral therapy	9/14	64
Perform at least two sets of blood cultures	8/14	57
Change to pathogen-directed therapy when culture results become available	8/14	57
Timely initiation of antibiotic therapy	7/14	50
Adapt dose and dosing interval of antibiotics to renal function	7/14	50
Documentation of antibiotic plan in medical record	7/14	50
Perform a site culture	6/14	43
Discontinue antibiotic therapy if infection not confirmed	6/14	43
Duration of antibiotic therapy	6/14	43

Kallen MC. *Infect Dis Rep.* 2017 Mar 30;9(1):6821

Parenteral Tedaviden Oral Tedaviye Ne zaman Geçelim?

J Antimicrob Chemother 2012; **67**: 2289–2296
doi:10.1093/jac/dks193 Advance Access publication 23 May 2012

Journal of Antimicrobial Chemotherapy

Antibiotic stewardship and early discharge from hospital: impact of a structured approach to antimicrobial management

M. Dryden[1]*, K. Saeed[1], R. Townsend[2], C. Winnard[2], S. Bourne[1], N. Parker[1], J. Coia[3], B. Jones[3], W. Lawson[4], P. Wade[5], P. Howard[6] and S. Marshall[7]

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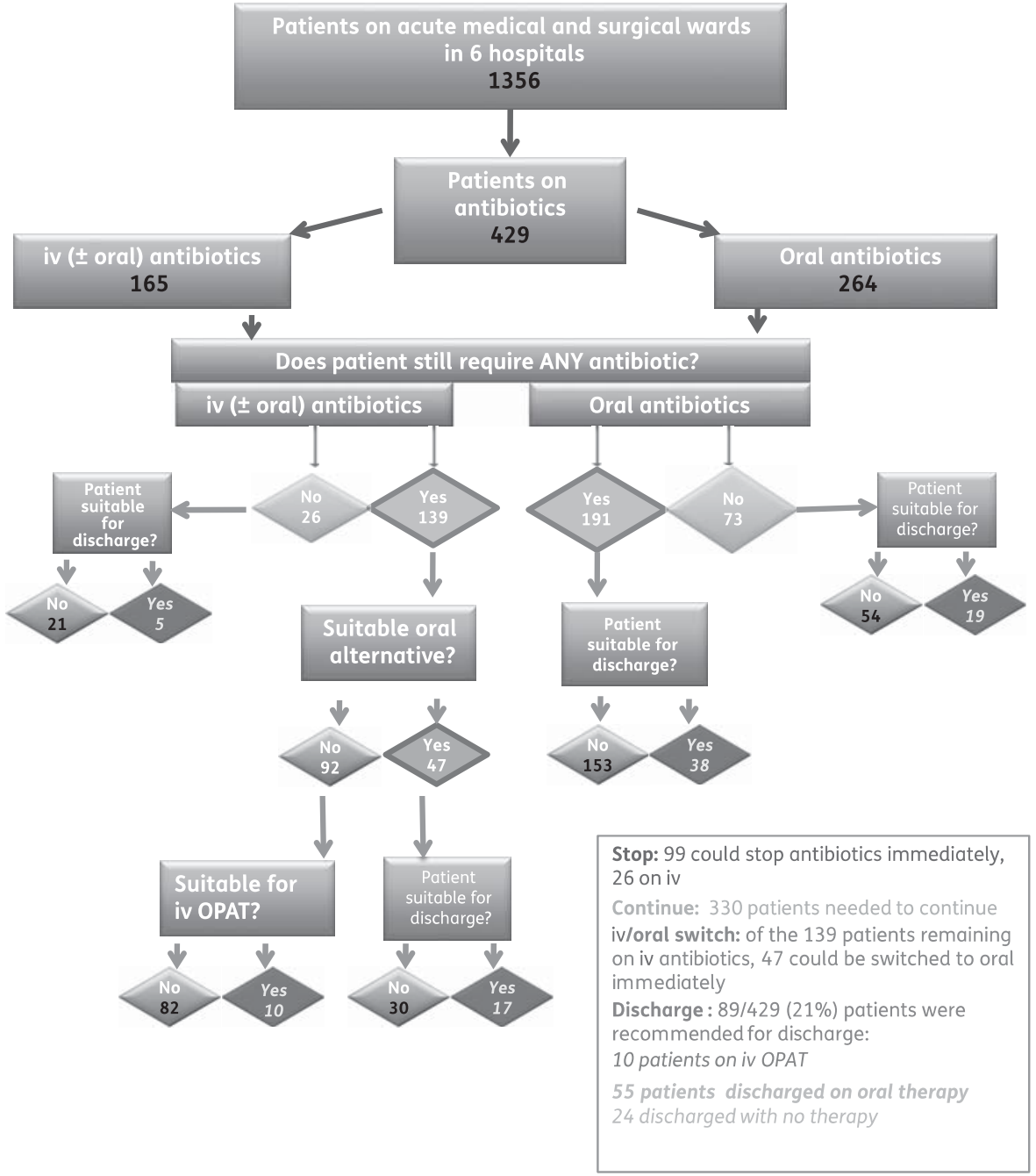
Criteria for antibiotic change and early discharge: X – not essential, ☑ - essential

	iv/oral switch	Stop Abx	Early discharge
Appropriate duration for clinical focus based on guidelines/accepted practice	×	☑	×
Able to tolerate and absorb oral Abx	☑	×	×
Infection is resolving clinically and inflammatory markers (WBC count and CRP) are falling	☑	☑	☑
No sepsis syndrome	☑	☑	☑
Patient has no comorbidities that may preclude them from being sent home	×	×	☑
Patient is medically fit for discharge	×	×	☑
Post-discharge care plan in place	×	×	☑

Dryden M, et al. *J Antimicrob Chemother.* 2012; 67(9): 2289-96.



89 hasta taburcu edilmiş

47 hastada IV'den oral tedaviye geçilmiş.

Figure 2. Summary of early discharge and antibiotic management data.

Dryden M, et al. *J Antimicrob Chemother.* 2012; 67(9): 2289-96.

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Is switching to an oral antibiotic regimen safe after 2 weeks of intravenous treatment for primary bacterial vertebral osteomyelitis?

Baharak Babouee Flury[1*], Luigia Elzi[1], Marko Kolbe[2], Reno Frei[3], Maja Weisser[1], Stefan Schären[4], Andreas F Widmer[1] and Manuel Battegay[1]

Abstract

Background: Vertebral osteomyelitis (VO) may lead to disabling neurologic complications. Little evidence exists on optimal antibiotic management.

Methods: All patients with primary, non-implant VO, admitted from 2000–2010 were retrospectively analyzed. Patients with endocarditis, immunodeficiency, vertebral implants and surgical site infection following spine surgery were excluded. Persistence of clinical or laboratory signs of inflammation at 1 year were defined as treatment failure. Logistic regression was used to estimate the odds ratios (OR) of switch to an oral regimen after 2 weeks.

Conclusion

Our results suggest that switching to an oral antibiotic regimen after two weeks of intravenous therapy is safe in immunocompetent patients for primary non-implant vertebral osteomyelitis if epidural or paravertebral abscesses have been drained and if an oral antibiotic therapy with documented susceptibility, high bio-availability and bactericidal activity is available. Our results should be confirmed by a prospective randomized controlled trial.

Earlier switching from intravenous to oral antibiotics owing to electronic reminders☆,☆☆

Patrick E. Beeler[a], Stefan P. Kuster[b], Emmanuel Eschmann[a], Rainer Weber[b], Jürg Blaser[a,*]

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[b] *Division of Infectious Diseases and Hospital Epidemiology, University Hospital Zurich and University of Zurich, Zurich, Switzerland*

IV antibiyotiğin 60. saatinde bilgisayar bazlı uyarı sistemi aktive oluyor ve bir algoritma oluşuyor.

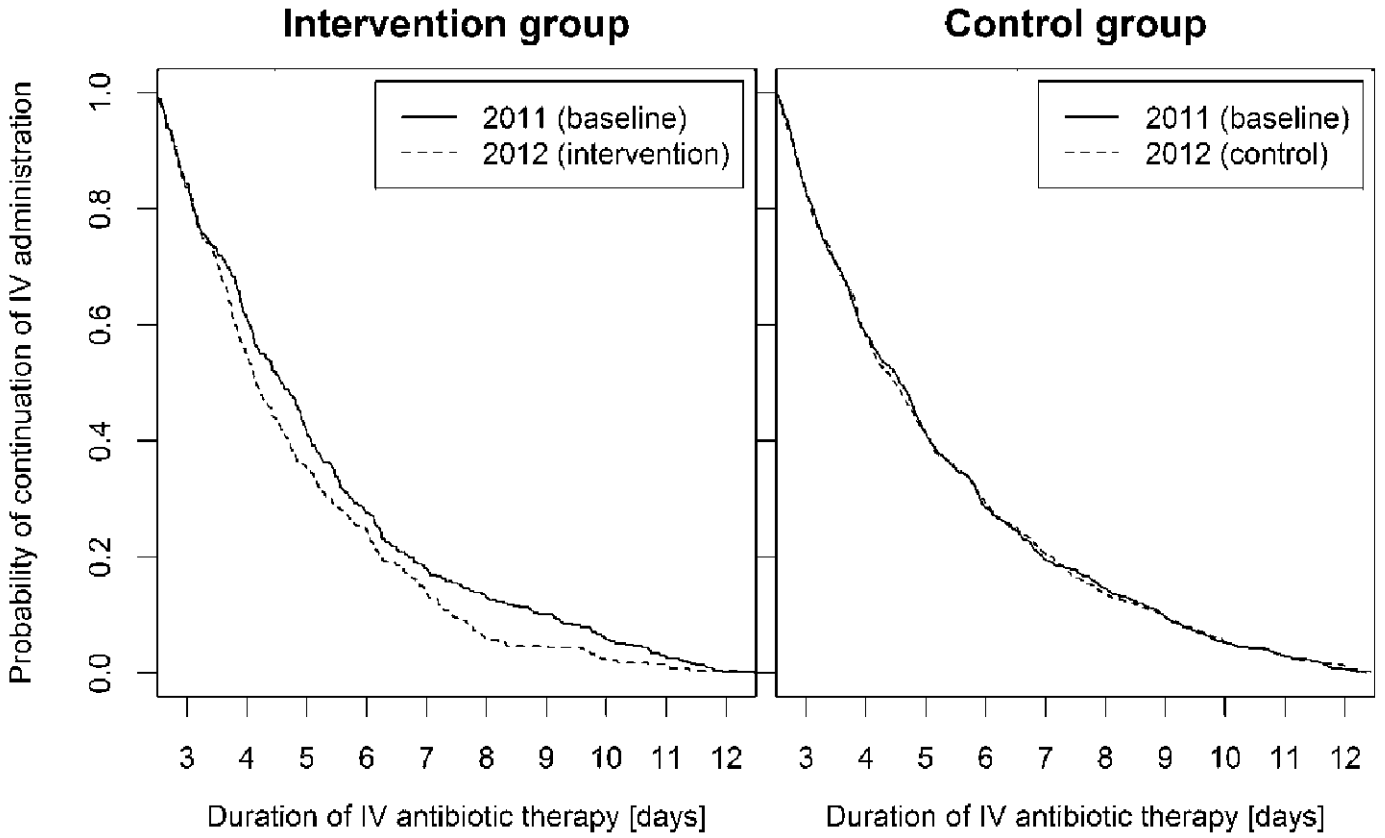


Fig. 1. Kaplan–Meier curves of the duration of intravenous (IV) antibiotic therapies that were switched to oral therapy within the time frame of 60–300 h in the inte group (P=0.0059) and the control group (P=0.88).

Beeler PE, et al. Int J Antimicrob Agents. 2015;46(4):428-33

Efficacy of early switch from intravenous to oral antimicrobials in patients with aspiration pneumonia: A prospective observational study

Table 1 – Novel switch criteria for aspiration pneumonia.

Vital signs stability*
Body temperature $\leq$ 38 °C
Respiratory rate $\leq$ 24 breaths/min
Pulse rate $\leq$ 100 beats/min
Swallowing ability
Repetitive saliva swallowing test $\geq$ 2
Modified water swallow test $\geq$ 4

All the criteria listed above should be met prior to switching to oral antimicrobials.

* Vital signs stability should be maintained consistently for $\geq$ 24 h.

Uni M, et al. *Respir Investig.* 2015;53(5):225-31.

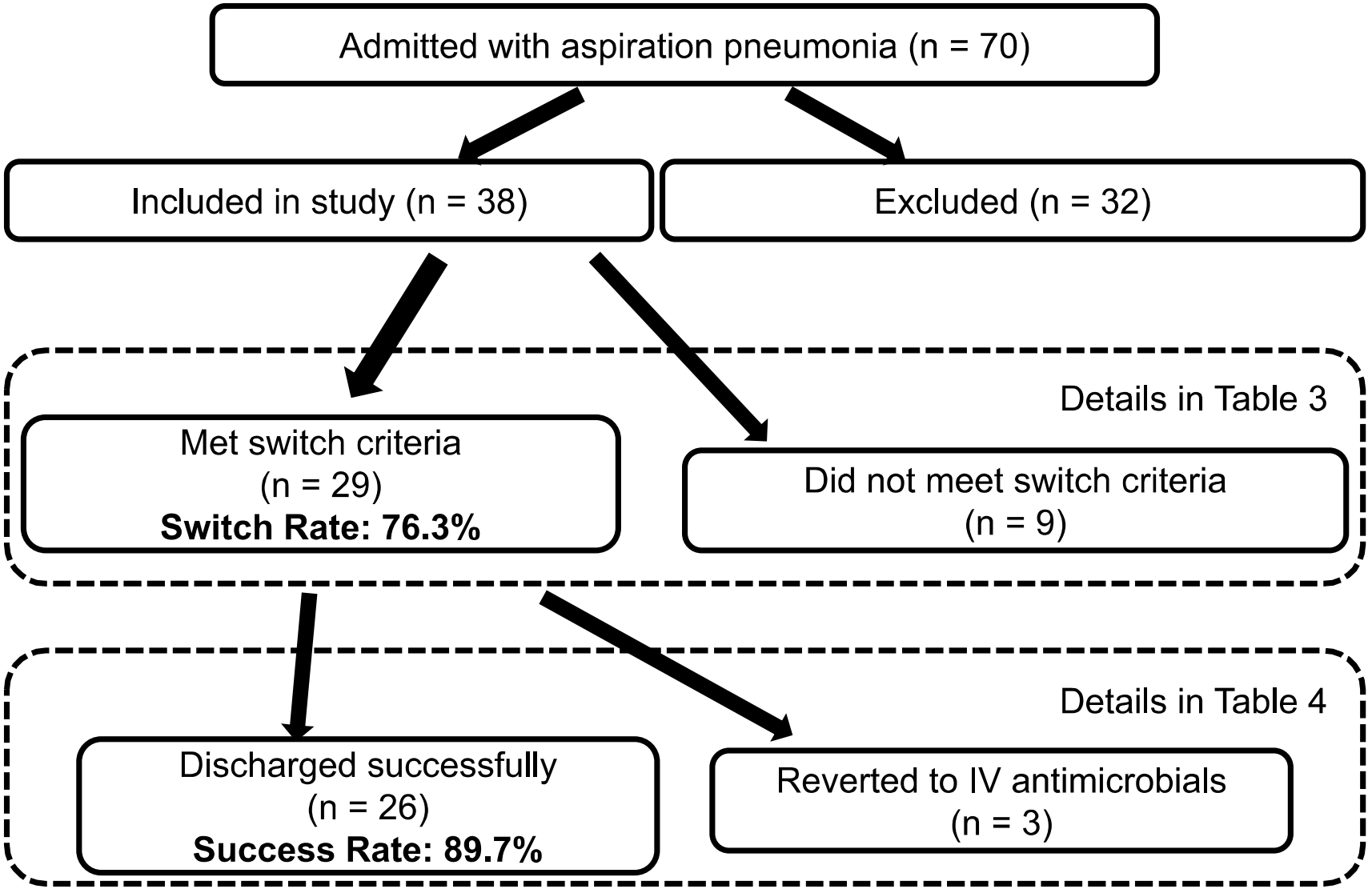


Fig. 3 – Summary of results.

KOLİSTİN DOZU

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, July 2011, p. 3284–3294 Vol. 55, No. 7
0066-4804/11/$12.00 doi:10.1128/AAC.01733-10

Population Pharmacokinetics of Colistin Methanesulfonate and Formed Colistin in Critically Ill Patients from a Multicenter Study Provide Dosing Suggestions for Various Categories of Patients[▽]

Colistimethate sodium (IU)	Colistimethate sodium (mg)	Colistin-base activity (CBA) (mg)[1]
12 500	1	0.4
150 000	12	5
1 000 000	80	34
4 500 000	360	150
9 000 000	720	300

- Günlük doz 9 milyon IU. 2-3 seferde.
- Ciddi infeksiyonlarda 9 milyon IU yükleme dozu.
- Kan beyin bariyerini geçerek etkin doza ulaşamadığı için intraventriküler uygulanabilir. En fazla 125 bin IU/gün
- İnhalasyon dozu ise 1-2 milyon IU. 2-3 seferde

EMA

TABLE 1. Suggested Modification of Dosage Schedules of Coly-Mycin M Parenteral for Adults with Impaired Renal Function

Renal Function	Degree of Impairment			
	Normal	**Mild**	**Moderate**	**Considerable**
Plasma creatinine, mg/100 mL	0.7–1.2	1.3–1.5	1.6–2.5	2.6–4.0
Urea clearance,% of normal	80–100	40–70	25–40	10–25
Dosage				
Unit dose of Coly-Mycin M, mg	100–150	75–115	66–150	100–150
Frequency, times/day	4 to 2	2	2 or 1	every 36 hr
Total daily dose, mg	300	150–230	133–150	100
Approximate daily dose, mg/kg/day	5.0	2.5–3.8	2.5	1.5

Note: The suggested unit dose is 2.5–5 mg/kg; however, the time INTERVAL between injections should be increased in the presence of impaired renal function.

Table 1
Polymyxin dosing recommendations

Creatinine clearance	CMS US package insert	CMS EMA package insert	CMS authors' recommendation (US based)	Polymyxin B package insert	Polymyxin B authors' recommendation
≥80 mL/min	5 mg/kg/day CBA	9 MIU CMS	5 mg/kg/day CBA	1.5–2.5 mg/kg/day	2.5 mg/kg/day
50–79 mL/min	3.8 mg/kg/day CBA			Dose 'reduced downward'	
30–49 mL/min	2.5 mg/kg/day CBA	5.5–7.5 MIU CMS	3.5 mg/kg/day CBA		
10–29 mL/min	1 mg/kg/day CBA	4.5–5.5 MIU CMS	2.5 mg/kg/day CBA		
<10 mL/min	1 mg/kg/day CBA	3.5 MIU CMS	1.5 mg/kg/day CBA		

CBA, colistin base activity; CMS, colistin methanesulphonate; EMA, European Medicines Agency; MIU, million international units.
*The US package insert does not specify what dosing weight should be used for determining colistin dose, the authors would recommend using ideal body weight or actual body weight, whichever is lower.

Pogue JM, et al. Clin Microbiol Infect. 2017 Apr;23(4):229-33.

Table 2. Recommended Colistin Dosing Regimens Based on Renal Function[21,25,26,a]

Estimated Renal Function (CL_{cr})	FDA-Approved Labeling	EMA-Approved Labeling[b]	ESCMID Task Force[c]
≥80 mL/min	2.5–5 mg CBA/kg (divided into 2–4 doses per day)	9 MIU of CMS (divided into 2–3 doses per day)	4.5 MIU of CMS every 12 hr
50–79 mL/min	2.5–3.8 mg CBA/kg (divided into 2 doses per day)	9 MIU of CMS (divided into 2–3 doses per day)	4.5 MIU of CMS every 12 hr
30–49 mL/min	2.5 mg CBA/kg (once daily or divided into 2 doses per day)	5.5–7.5 MIU of CMS (divided into 2 doses per day)	. . .[d]
10–29 mL/min	1.5 mg CBA/kg (every 36 hr)	4.5–5.5 MIU of CMS (divided into 2 doses per day)	. . .
<10 mL/min	. . .	3.5 MIU of CMS (divided into 2 doses per day)	. . .
Dialysis	. . .	Patients receiving intermittent hemodialysis: on nonhemodialysis days, 2.25 MIU of CMS per day; on hemodialysis days, 3 MIU of CMS per day (divided into 2 doses per day) Patients receiving continuous venovenous hemofiltration: same dose as for those with normal renal function (divided into 3 doses per day)	Patients receiving intermittent hemodialysis: 2 MIU of CMS every 12 hr Patients receiving continuous venovenous hemofiltration: same dose as for those with normal renal function (divided into 2–3 doses per day); higher doses may be used

[a]CL_{cr} = creatinine clearance, FDA = Food and Drug Administration, EMA = European Medicines Agency, ESCMID = European Society of Clinical Microbiology and Infectious Diseases, CBA = colistin base activity, CMS = colistimethate sodium, MIU = million international units.

[b] In critically ill patients, a colistin loading dose of 9 MIU should be given.

[c] A loading dose of 6–9 MIU is recommended in all patients, including those with renal dysfunction.

[d] No specific recommendation.

Nazer LH. Am J Health-Syst Pharm. 2017; 74:e9-16

Sanford Guide Antimicrobial App Feedback (2)

Sanford Guide Technical Support <techsupport@sanfordguide.com> Nis 23 saat 2:20 PM

Kime Şiran Keske

Dear Sanford Guide Customer,

Our editorial board made the decision to remove the Colistin Calculator from the app since recommendations for the dosing of Colistin have changed (see note below). You can find more information about the dosing of Colistin on our Polymyxin E/Colistin page in the app.

Currently there are colistin (polymyxin E) dosing recommendations from three sources: 1) an international pharmacokinetics (PK) study group, using creatinine clearance (CrCl)-based dosing, 2) the European Medicines Agency (EMA), also CrCl-based (with broader divisions than the PK study group), and 3) the US FDA, which uses weight- and CrCl-based dosing as found in the official prescribing information. **The Sanford Guide editors favor the approach of the PK study group** as published (Clin Infect Dis 2016 Dec 23 [Epub ahead of print]).

In 2011 the PK study group published complex colistin dosing recommendations derived from an interim analysis of 105 critically ill patients (Antimicrob Agents Chemother 55:3284, 2011). The group has now updated these recommendations based on their final analysis of data from 214 patients. **The result is a more clinician-friendly dosing approach** designed to achieve an average steady-state colistin plasma concentration of 2 µg/mL. Patients are administered a loading dose (expressed as mg of colistin base activity) of 4 x body weight (using the lower of actual or ideal body weight) followed by a maintenance regimen beginning 12 hours later using a "look-up" table of daily dose based on CrCl (divided in 10 mL/min increments). The maintenance dose should be administered in two divided doses 12 hours apart. The group also provides dosing recommendations for patients receiving intermittent hemodialysis, SLED, and CRRT. Full details are provided on our colistin page. Colistin dosing remains a challenge. We recommend use of polymyxin B rather than colistin with one importance exception: polymyxin B does not achieve adequate urine concentrations. Hence, colistin is required to treat multidrug-resistant gram-negative infections of the urinary tract.

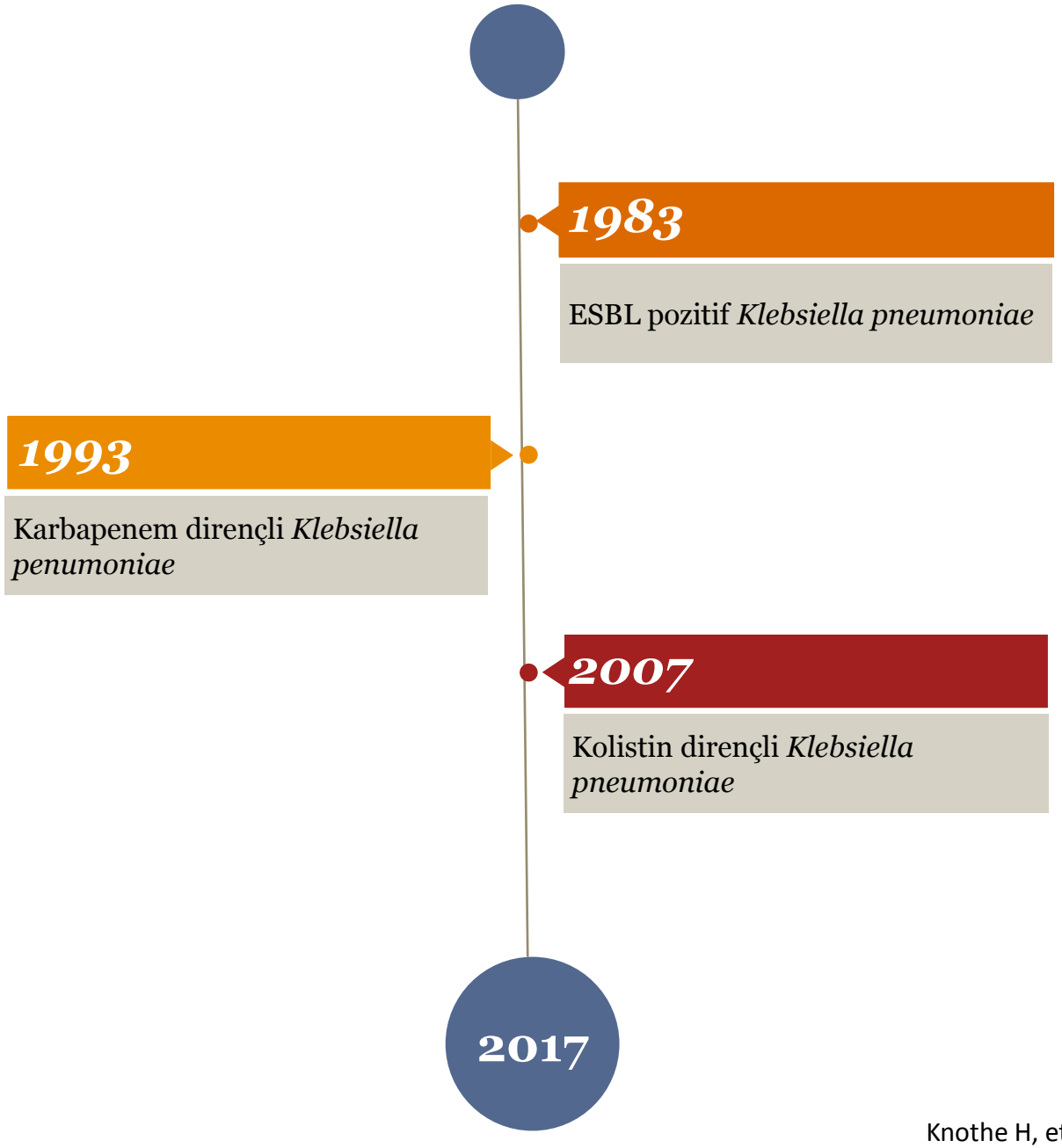
Scott Kelly
Antimicrobial Therapy Inc.
Publisher of The Sanford Guides
http://www.sanfordguide.com/

Table 3. "Look-up" Table of Daily Doses of Colistimethate for a Desired Target colistin $C_{ss,avg}$ of 2 mg/L for Narrow Windows of Creatinine Clearance

Creatinine clearance, mL/min	Dose of Colistimethate for $C_{ss,avg}$ of 2 mg/L[a]	
	CBA, mg/d	Million IU/d
0	130	3.95
5 to <10	145	4.40
10 to <20	160	4.85
20 to <30	175	5.30
30 to <40	195	5.90
40 to <50	220	6.65
50 to <60	245	7.40
60 to <70	275	8.35
70 to <80	300	9.00
80 to <90	340	10.3
≥90	360	10.9

Abbreviations: CBA, colistin base activity; $C_{ss,avg}$, average steady-state plasma concentrations of colistin.

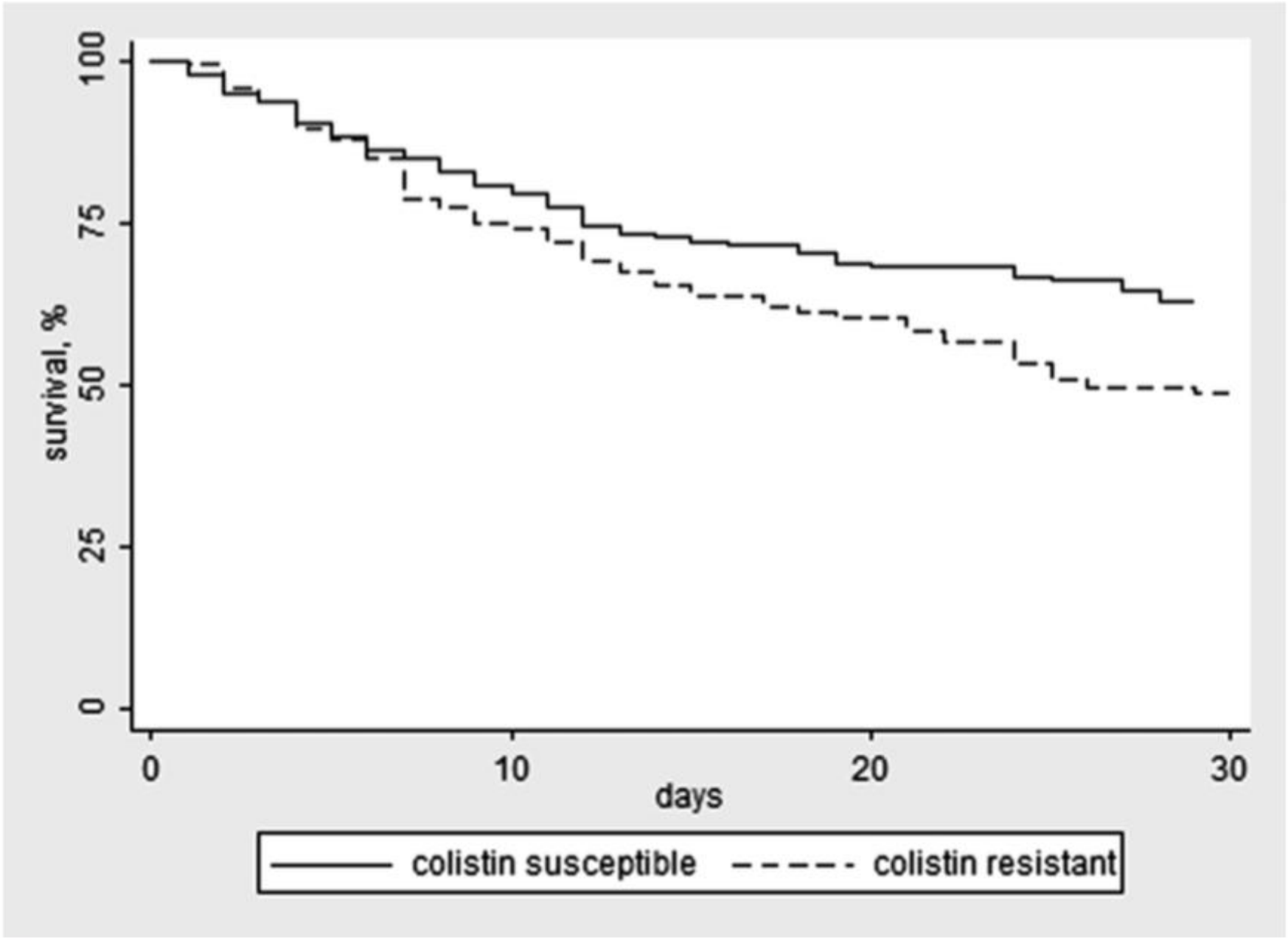
KARBAPENEM/KOLİSTİN DİRENÇLİ KLEBSIELLA TEDAVİSİ



Naas T, Nordmann P. *Proc Natl Acad Sci.* 1994; 91: 7693-7.

Knothe H, et al. *Infection.* 1983; 11: 315-7

Antoniadou A, et al. *J Antimicrob Chemother.* 2007; 59(4): 769-90



%61

%49

p= 0.02

FIG. 2. Kaplan-Meier survival curves of patients with bloodstream infection due to *Klebsiella pneumoniae* carbapenemase-producing *K. pneumoniae* according to colistin resistance or susceptibility of isolates.

Giacobbe DR, et al. *Clin Microbiol Infect* 2015; 21: 1106.e1–8

J Antimicrob Chemother 2015; **70**: 2133–2143
doi:10.1093/jac/dkv086 Advance Access publication 21 April 2015

Journal of Antimicrobial Chemotherapy

Infections caused by KPC-producing *Klebsiella pneumoniae*: differences in therapy and mortality in a multicentre study

Mario Tumbarello[1]*, Enrico Maria Trecarichi[1], Francesco Giuseppe De Rosa[2,3], Maddalena Giannella[4], Daniele Roberto Giacobbe[5], Matteo Bassetti[6], Angela Raffaella Losito[1], Michele Bartoletti[4], Valerio Del Bono[5], Silvia Corcione[2,3], Giuseppe Maiuro[1], Sara Tedeschi[4], Luigi Celani[1], Chiara Simona Cardellino[2,3], Teresa Spanu[7], Anna Marchese[8], Simone Ambretti[9], Roberto Cauda[1], Claudio Viscoli[5] and Pierluigi Viale[4] on behalf of ISGRI-SITA (Italian Study Group on Resistant Infections of the Società Italiana Terapia Antinfettiva)

Table 5. Multivariate analysis of risk factors for 14 day mortality in patients with infections caused by KPC-Kp

Variable	*P* value	OR (95% CI)
Combination therapy	0.001	0.52 (0.35–0.77)
BSI	<0.001	2.09 (1.34–3.29)
Septic shock at infection onset	0.001	2.45 (1.47–4.08)
APACHE III score	<0.001	1.05 (1.04–1.07)
Chronic renal failure	<0.001	2.27 (1.44–3.58)
Colistin-resistant isolate	0.001	2.18 (1.37–3.46)
Inadequate empirical antimicrobial therapy	0.04	1.48 (1.01–2.18)

Tumbarello M, et al. *J Antimicrob Chemother* 2015; 70: 2133–43

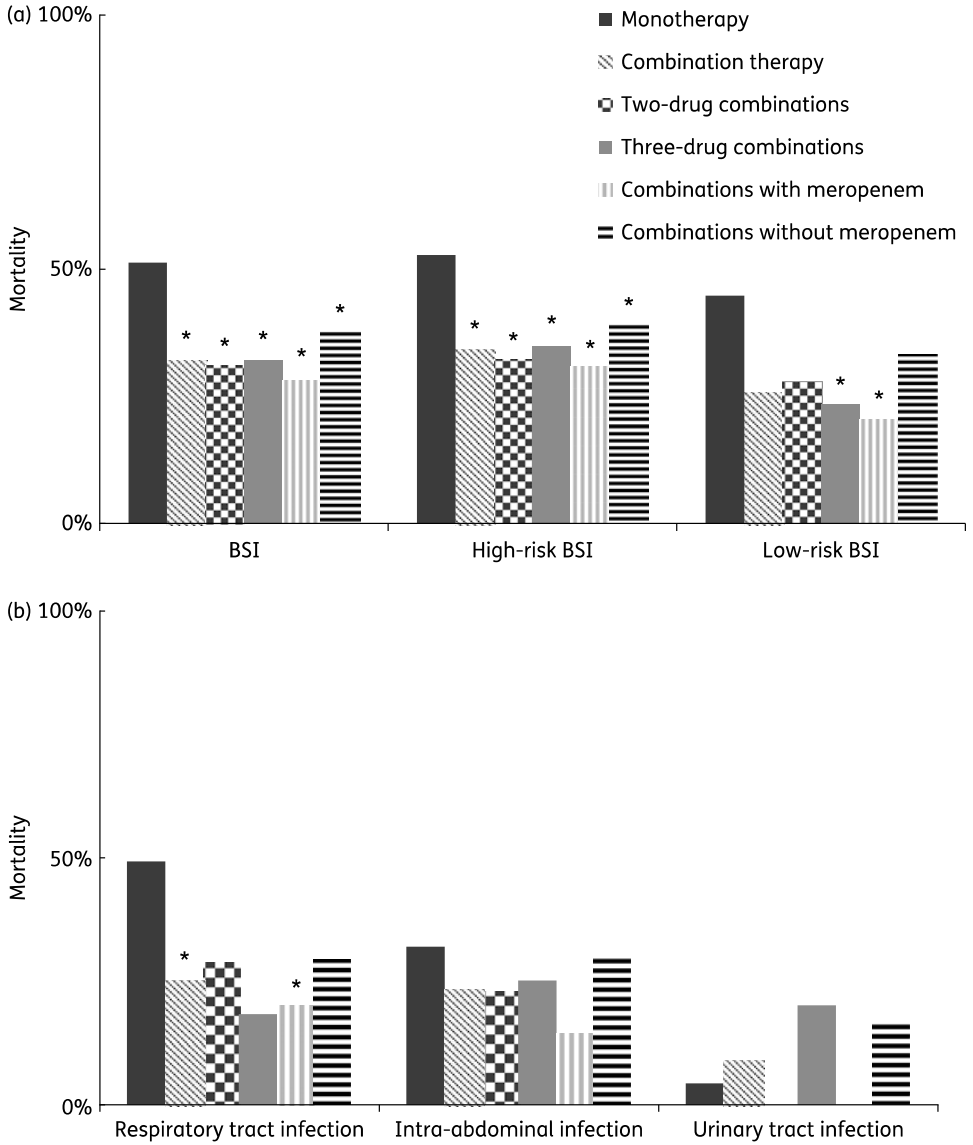


Figure 2. Mortality rates associated with different antimicrobial drug regimen categories in patients with BSIs (a) or non-bacteraemic infections (b).
*Statistically significant differences ($P < 0.05$) among different types of combination therapy and monotherapy.

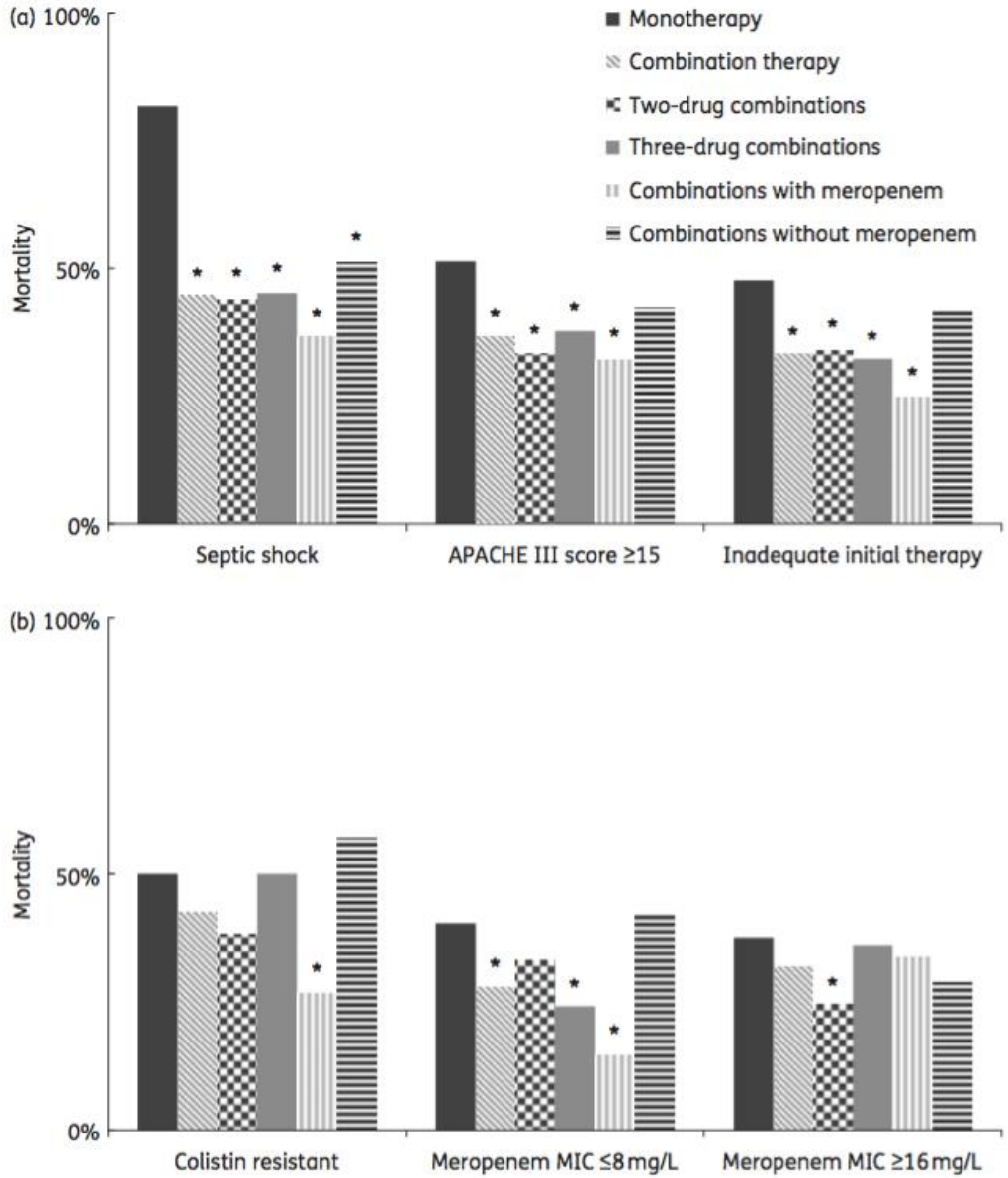


Figure 3. Mortality rates associated with different antimicrobial drug regimen categories in patients with different presenting features (a) or in patients with different KPC-Kp isolate characteristics (b). *Statistically significant differences ($P < 0.05$) among different types of combination therapy and monotherapy.

Tumbarello M, et al. *J Antimicrob Chemother* 2015; 70: 2133–43

Journal of Antimicrobial Chemotherapy Advance Access published September 13, 2016

J Antimicrob Chemother
doi:10.1093/jac/dkw377

Journal of Antimicrobial Chemotherapy

Polymyxin monotherapy or in combination against carbapenem-resistant bacteria: systematic review and meta-analysis

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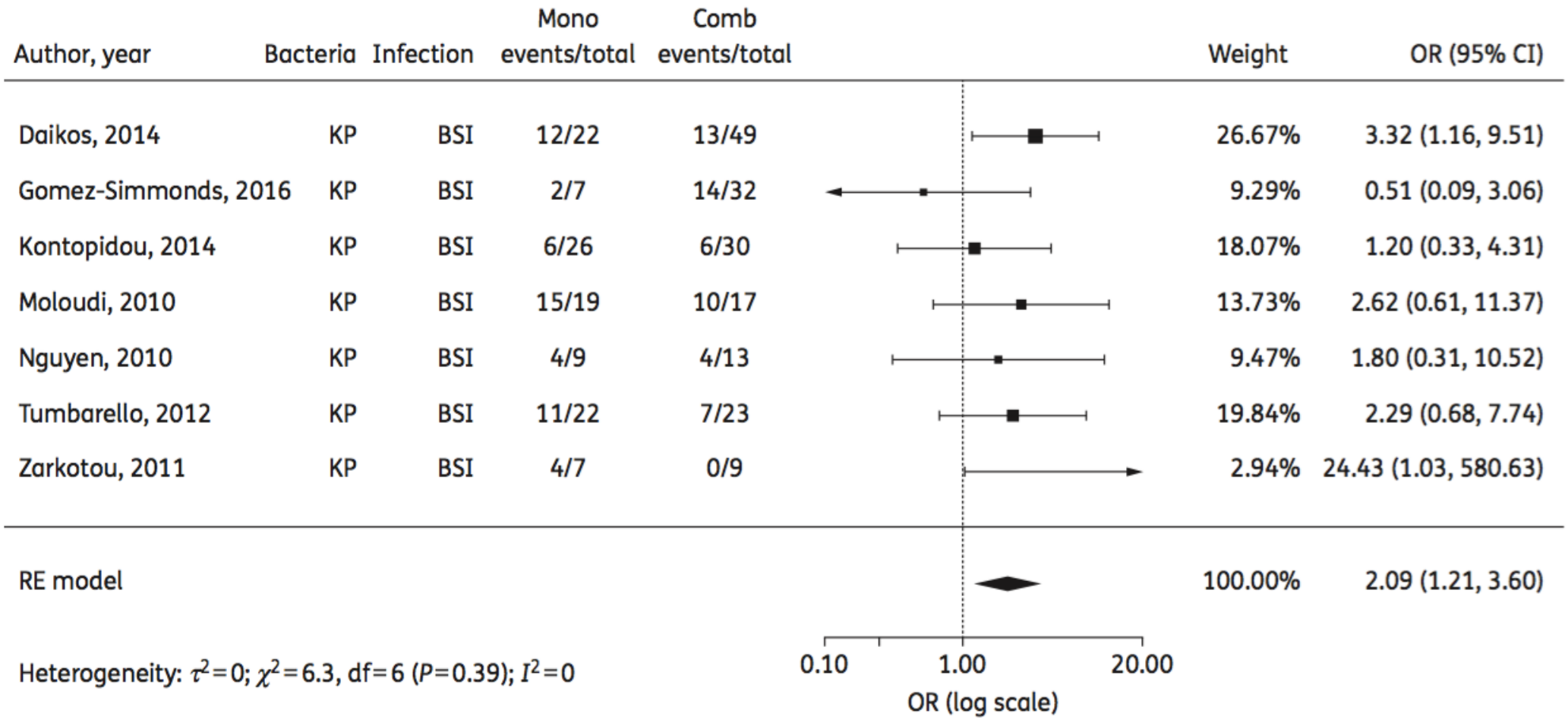
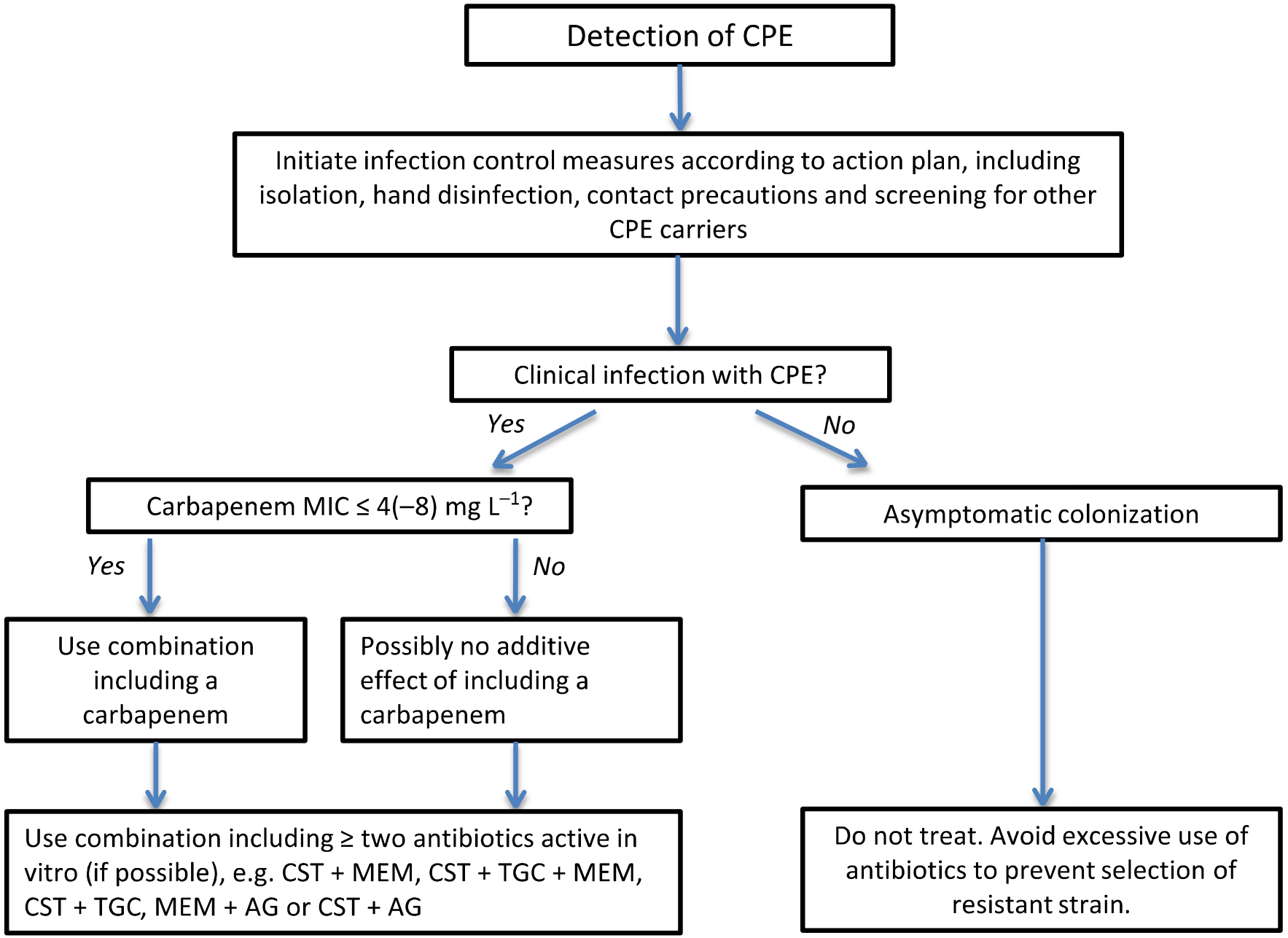


Figure 6. Polymyxin monotherapy versus combination with tigecycline or aminoglycoside in KP BSI, all-cause mortality.

Zusman O. *J Antimicrob Chemother.* 2017;72(1):29-39.



Tängdén T, Giske CG. *J Intern Med.* 2015; 277(5): 501-12.

AAC
Journals.ASM.org

Synergistic Activity of Colistin plus Rifampin against Colistin-Resistant KPC-Producing *Klebsiella pneumoniae*

Carlo Tascini,[a] Enrico Tagliaferri,[a] Tommaso Giani,[c] Alessandro Leonildi,[a] Sarah Flammini,[a] Beatrice Casini,[b] Russell Lewis,[e] Simone Ferranti,[a] Gian Maria Rossolini,[c,d,f] Francesco Menichetti[a]

U.O. Malattie Infettive, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy[a]; Dipartimento di Ricerca Traslazionale, Università di Pisa, Pisa, Italy[b]; Dipartimento di Biotecnologie Mediche, Università di Siena, Siena, Italy[c]; Dipartimento di Medicina Sperimentale e Clinica, Sezione di Medicina Critica e Medicine Specialistiche, Univers di Firenze, Florence, Italy[d]; U.O. Malattie Infettive, Policlinico S'Orsola-Malpighi, Università di Bologna, Bologna, Italy[e]; S.O.D. Microbiologia e Virologia, Azienda Ospedalie Universitaria Careggi, Florence, Italy[f]

No. of isolates	Method (inoculum, CFU/mL)	Drug 1 (concentration in μg/mL)	Drug 2 (concentration in μg/mL)	Bactericidal [*N* (%)]	Synergy [*N* (%)]	Antagonism [*N* (%)]	Reference
18	Time–kill assay[a] (N/A)	Colistin (5)	Imipenem (10)	2 (11)	2 (11)	10 (56)	[62]
3[b]	Time–kill assay[c] (ca. 10^6 and ca. 10^8)	Colistin (0.5)	Doripenem (2.5)	N/A	2 (67)[d]	N/A	[41]
		Colistin (0.5)	Doripenem (25)	N/A	3 (100)[d]	N/A	
		Colistin (2)	Doripenem (2.5)	N/A	3 (100)[d]	N/A	
		Colistin (2)	Doripenem (25)	N/A	3 (100)[d]	N/A	
10	Time–kill assay[a] (1×10^6)	Colistin (1)	Doripenem (8)	7 (70)	6 (60)	0 (0)	[61]
		Colistin (1)	Gentamicin (2)	5 (50)	2 (20)	0 (0)	
		Colistin (1)	Doxycycline (2)	0 (0)	1 (10)	3 (30)	
		Doripenem (8)	Gentamicin (2)	2 (20)	1 (10)	2 (20)	
		Doripenem (8)	Doxycycline (2)	1 (10)	3 (30)	2 (20)	
		Gentamicin (2)	Doxycycline (2)	2 (10)	4 (40)	2 (20)	
1	Time–kill assay[a] (ca. 10^5–10^6)	Colistin (0.25–0.5 × MIC)[e]	Vancomycin(0.25–0.5 × MIC)[e]	1 (100)	1 (100)	0 (0)	[65]
		Colistin (0.25–0.5 × MIC)[e]	Trimethoprim (0.25–0.5 × MIC)[e]	1 (100)	1 (100)	0 (0)	
		Colistin (0.25–0.5 × MIC)[e]	SXT (0.25–0.5 × MIC)[e]	1 (100)	1 (100)	0 (0)	
14	Etest	Colistin	Fosfomycin	N/A	5 (35.7)[f]	0 (0)	[22]
8	Time–kill assay[a] (N/A)	Fosfomycin (100)	Meropenem (10)	N/A[g]	5 (62.5)	N/A	[63]
		Fosfomycin (100)	Colistin (5)	N/A[h]	2 (25)	N/A	
		Fosfomycin (100)	Gentamicin (5)	N/A	0 (0)	N/A	
13	Checkerboard assay (2.5×10^5)	Colistin	Rifampicin	N/A[i]	13 (100)	0 (0)	[64]
		Colistin	Imipenem	N/A	5 (38.5)	0 (0)	
		Colistin	Meropenem	N/A	5 (38.5)	0 (0)	
		Colistin	Tigecycline	N/A	5 (38.5)	0 (0)	
		Colistin	Gentamicin	N/A	5 (38.5)	0 (0)	
		Tigecycline	Imipenem	N/A	0 (0)	0 (0)	
		Tigecycline	Meropenem	N/A	0 (0)	0 (0)	
		Tigecycline	Gentamicin	N/A	0 (0)	0 (0)	
		Imipenem	Gentamicin	N/A	3 (23.1)	0 (0)	
		Meropenem	Gentamicin	N/A	5 (38.5)	0 (0)	

In the checkerboard and Etest assays, synergy was defined as a fractional inhibitory concentration index (FICI) of ≤0.5 and antagonism as a FICI of >4. In time–kill assay a bactericidal effect was defined as a ≥3 $\log_{10}$ decrease from the starting inoculum. Synergy means a ≥2 $\log_{10}$ greater reduction for the combination treatments than th

J Antimicrob Chemother 2015; **70**: 905–913
doi:10.1093/jac/dku432 Advance Access publication 25 October 2014

Journal of Antimicrobial Chemotherapy

Gentamicin therapy for sepsis due to carbapenem-resistant and colistin-resistant *Klebsiella pneumoniae*

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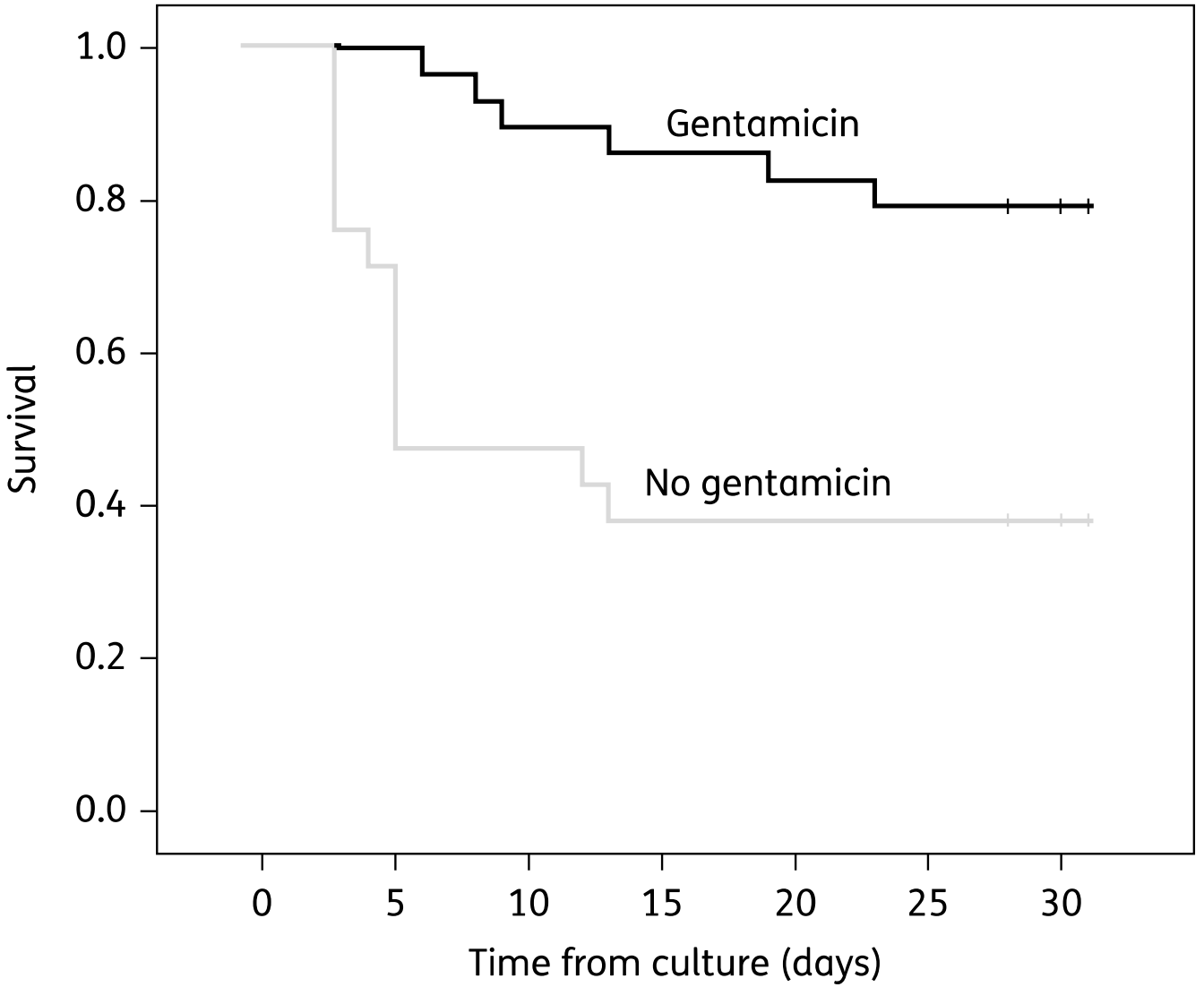


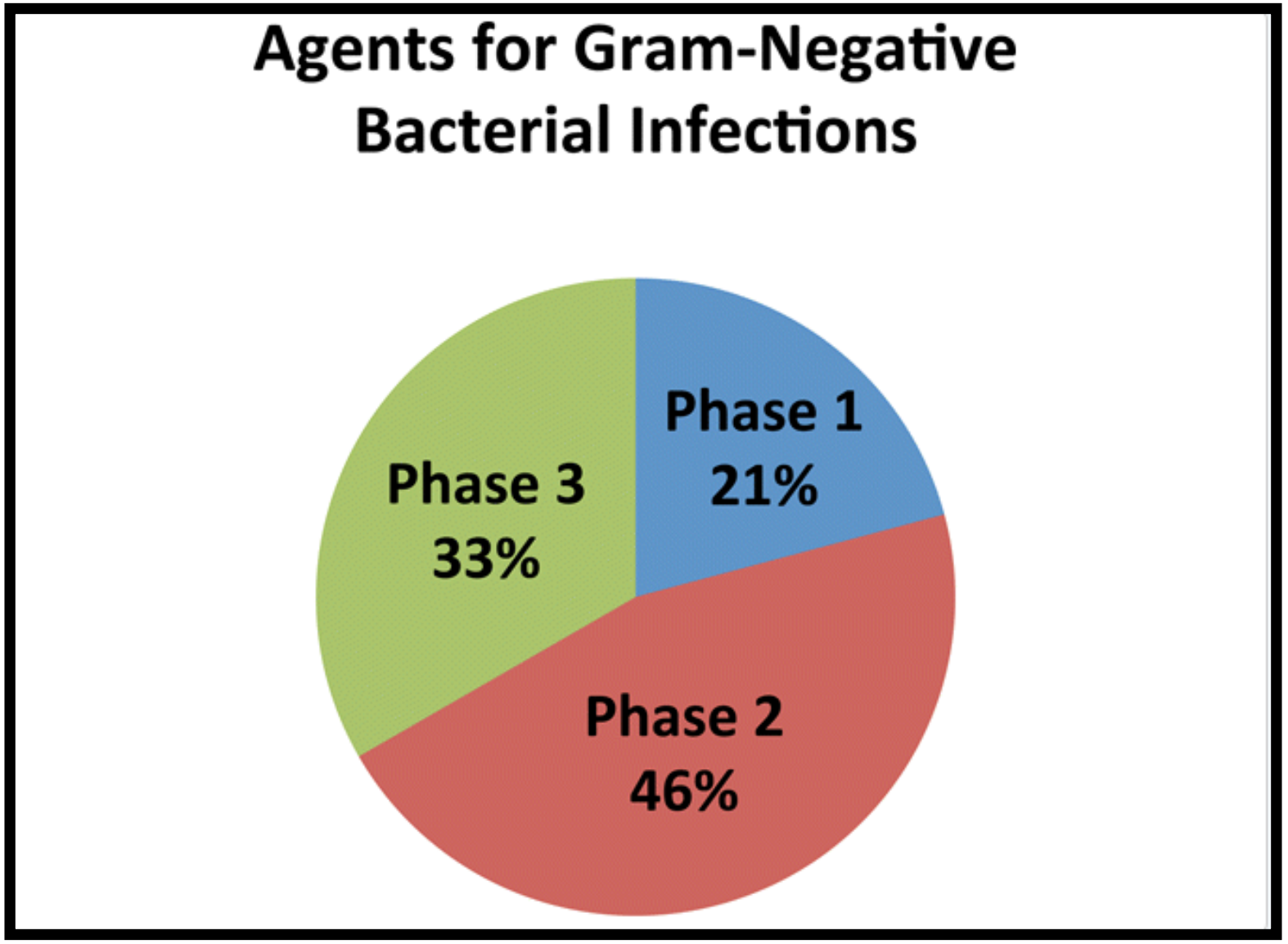
Figure 1. Kaplan–Meier curves showing the impact of targeted treatment with gentamicin on survival at 30 days in patients with severe infection caused by carbapenem-resistant and colistin-resistant *K. pneumoniae* (log-rank test 11.9, $P=0.001$).

CRE'de YENİ ANTİBİYOTİK SEÇENEKLERİ

Antibiyotik	Etki Mekanizması	Endikasyon	Diğer özellikler
Seftazidim-avibaktam	Ambler A, C ve D 'yi inhibe etmektedir CRE'li suşların %98'ine in vitro etkili.	Komplike Üriner sistem infeksiyonu ve intra-abdominal infeksiyon	Class B (NDM-1 ve IMP) ve bazı class D (OXA-23) direnç
Fosfomisin	NDM-1 suşlarının %94'üne in vitro etkili		IV yol belirsizlikler (4x4 g) Tedavi sırasında direnç Mükemmel doku penetrasyou Kombine tedavide
Tigesiklin	CRE suşlarının %88-96'sına in vitro etkili	Komplike intra-abdominal inf CYDE Toplum kökenli pnömoni	Monoterapide mortalite yüksek. Önerilmez Kombine tedavide oldukça etkin Yüksek dozda etkinlik artmakta
Meropenem-vaborbaktam	siklik boronik asit inh. Class A ve C'ye etkili. In vitro olarak KPC içeren Enterobacteriaceae etkinliği yüksek.		Akciğer dokusuna penetrasyonu iyi Faz 3 çalışma tamamlandı yayın aşamasında
Imipenem-relebaktam	serin beta-laktamaz inh. Class A ve C'ye etkili.		Imipenem ile karşılaştırıldığında MİK değerlerini düşürüyor. Karbapenem R suşlarda çalışmalar devam ediyor
Plazomisin	CRE'ye in vitro olarak oldukça etkili	346 ESBL/AmpC suşunda çok etkili	Nefrotoksisitesi diğer AG'lere göre düşük. Faz 2 çalışmada %5.
Eravasiklin	CRE'de tigesikline göre in vitro olarak 2-4 kat daha etkin	Ertapenemle karşılaştırmalı çalışmalarda intraabdomianal infeksiyonlarda etkin.	In vitro aktivitesine bakılırsa tigesiklinden daha etkili olduğu düşünülmekte. CRE'deki etkinliği ile ilgili çalışmalar sürüyor

Bowers DR et al, *Current Infect Dis Res*. 2016 Dec;18(12):48.
Thaden JT, et al. *Virulence.* 2016:1-14

CRE'de YENİ ANTİBİYOTİK SEÇENEKLERİ



Developed indicators	Number of articles mentioning the indicator / total number of articles	Percentage of articles mentioning the indicator
Prescribe empirical antibiotic therapy according to (local or national) guidelines	10/14	71
Switch from intravenous to oral therapy	9/14	64
Perform at least two sets of blood cultures	8/14	57
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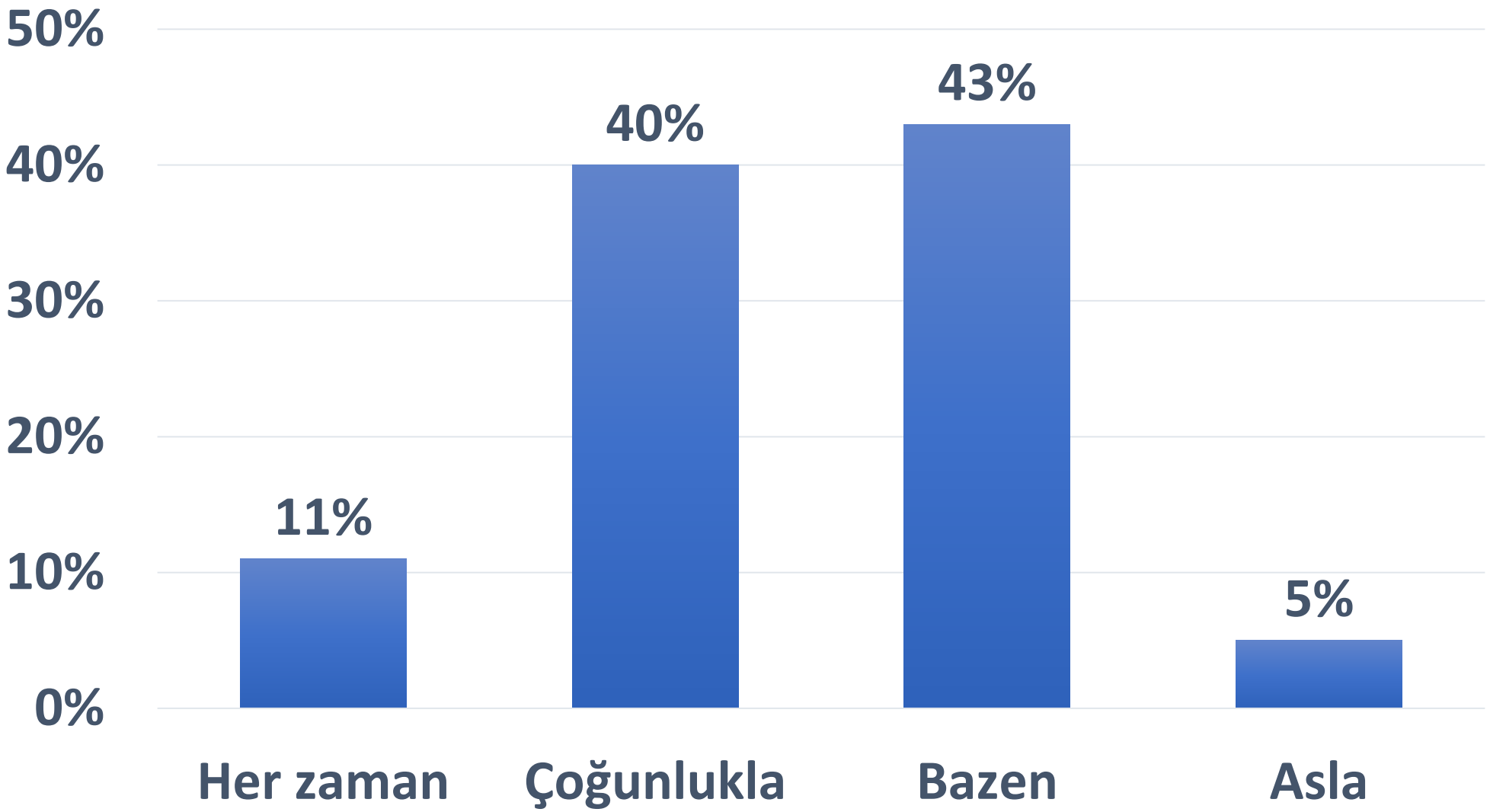
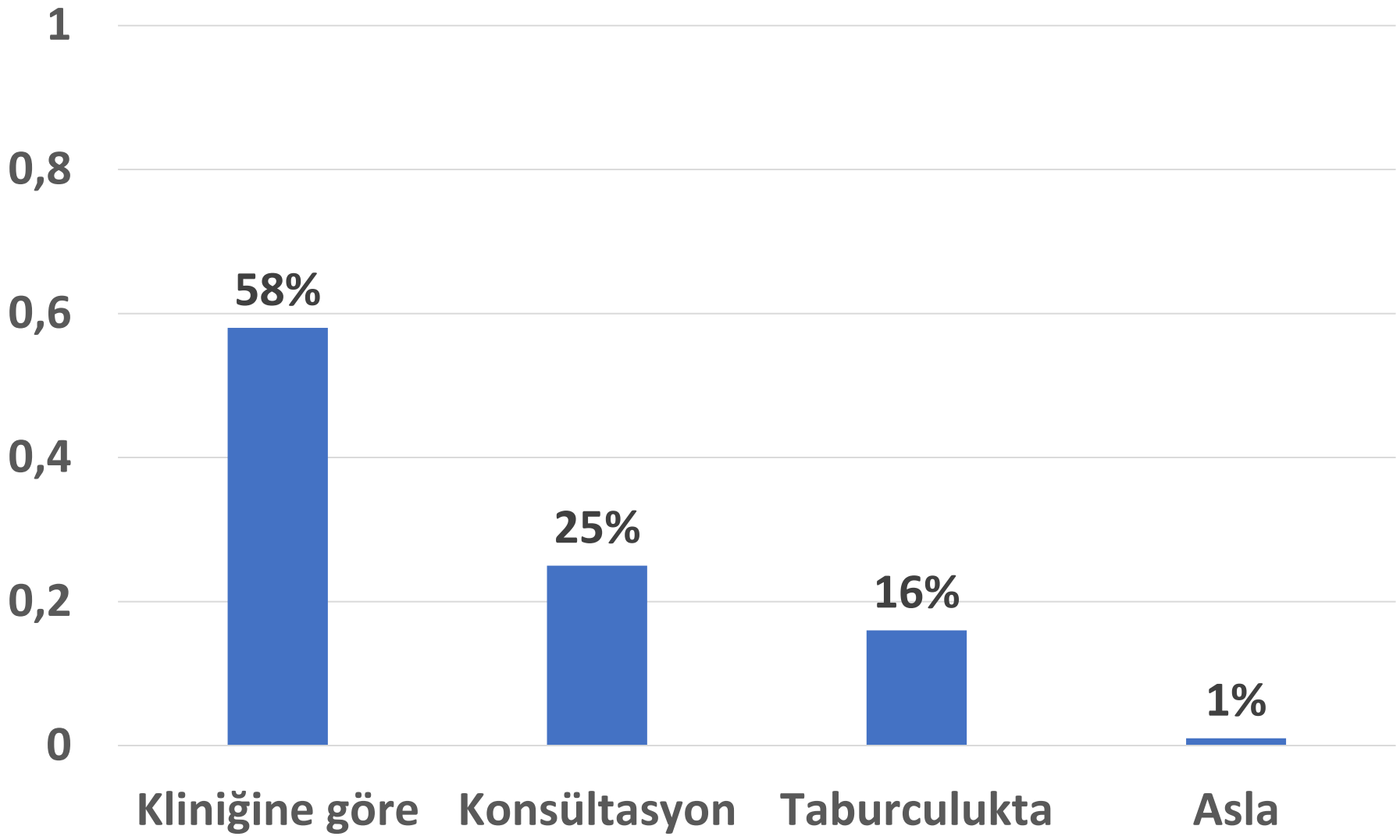
Perform a site culture	6/14	43
Discontinue antibiotic therapy if infection not confirmed	6/14	43
Duration of antibiotic therapy	6/14	43

Kallen MC. *Infect Dis Rep.* 2017 Mar 30;9(1):6821

Parenteral Tedaviden oral tedaviye ne sıklıkla geçersiniz?



Parenteral tedaviden oral tedaviye geçme kararını neye göre veririsiniz?



BİLGİSAYAR BAZLI SİSTEMLER

- Cerrahi profilaksi
- Antibiyotik kullanım süreleri
- İlaç etkileşimleri
- Dirençli mikroorganizmaları hatırlatma
- Yan etki ile ilgili uyarılar
- Doz aşımı ile ilgili uyarılar

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AMERİKAN HASTANESİ

ERİŞKİN HASTALARDA ÜST SOLUNUM YOLU ENFEKSİYONLARI KLİNİK YOLU

HASTA BARKODU

AKUT TONSİLLİT/FARENJİT

Şüphesi olan hastaya aşağıdaki skorlama uygulanır.

Kriterler	Puan
Öksürük olmaması	1 ☐
Hassas ve şişmiş ön servikal nodlar	1 ☐
Ateş ≥ 38° C	1 ☐
Kriptik/Hipertrofik tonsil varlığı	1 ☐
Yaş	
45 yaş ve üstü	-1 ☐
Toplam Puan:	

Puan 0	Puan 1	Puan 2	Puan 3	Puan 4
AGBHS* Farenjit Riski	AGBHS Farenjit Riski %5-10	AGBHS Farenjit Riski %11-17	AGBHS Farenjit Riski %28-35	AGBHS Farenjit Riski %51-53

Seçenek

İleri tetkiğe gerek yok ve antibiyotik ENDİKASYONU YOK

Antibiyotik başlandı ise; ..... Nedeni:

Boğaz kültürü ya da Hızlı Antijen (Streptokok) Tarama Testi**

Negatif ☐ Antibiyotik ENDİKASYONU YOK.

Pozitif ☐ Antibiyotik ile tedavi

Antibiyotik başla;

- ☐ Amoksisilin-klavulonik asit [2X1g/gün (10 gün)]
- ☐ Benzatin penisilin [1,2X10^6 ü/tek doz IM]
- ☐ Makrolidler
  - ☐ Azitromisin tb [1x500mg/gün (5 gün)]
  - ☐ Klaritromisin tb [2x500mg/gün (10gün)]
  - ☐ Klindamisin tb [3x300mg/gün (10 gün)]
- ☐ Sefuroksim tb [2x500mg/gün (5 gün)]
- ☐ Diğer Antibiyotik; .....

Nedeni;

➢ Hastada viral etken düşünülüyorsa veya hasta grip benzeri hastalık semptomları taşıyorsa ve hastanın klinik durumu orta/ciddi olarak değerlendiriliyorsa hastadan influenza hızlı test/SYVP** istenebilir.

Hastayı Değerlendiren Hekim :.....

*AGBHS: A Grubu Beta Hemolitik Streptokoklar

**SYVP: Solunum Yolları Virüs Paneli (Multiplex PCR)

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AKUT RİNOSİNÜZİT	SOĞUK ALGINLIĞI VE SPESİFİK OLMAYAN ÜSYE	KOMPLİKE OLMAYAN BRONŞİT
%98'i viraldir	Etkenlerin tamamı virüstür	En sık tastlanan semptom öksürüktür

TANI

Aşağıdaki durumlardan en az birinin varlığı bakteriyel enfeksiyonu düşündürür.

*Ateş (>4gün ve ≥39°C)
ve Pürülan nazal akıntı veya
yüzde hassasiyet

*10 günü aşan burun akıntısı veya gün boyu süren öksürük

*Viral üst solunum yolu enfeksiyonu iyileştikten sonraki 5-6 gün içinde ateş, öksürük ve burun akıntısının yeniden başlaması/artması

Not: Rutin olarak sinüs

Semptomlar;

*Ateş
*Öksürük
*Burun akıntısı
*Nazal konjesyon
*Postnazal akıntı
*Boğaz ağrısı
*Baş ağrısı
*Kas ağrı.

Öncelikle akciğer dinleme bulgusu yok ise pnömoni dışlanmalıdır.

Semptomlar:
*Kalp atımı hızı ≥100/dk
*Solunum sayısı ≥24/dk
*Ateş <38

Renkli balgam çıkarmak bakteriyel enfeksiyonu GÖSTERMEZ.

Not: Çoğunlukla akciğer grafisi endikasyonu YOKTUR.

TEDAVİ

Bakteriyel enfeksiyon düşünülüyorsa;
İlk tercih:

- ☐ Amoksisilin klavulonik asit [2X1g/gün (10 gün)]

Penisilin alerjisi var ise;

- ☐ Doksisiklin [2x100mg/gün (7 gün)] veya
- ☐ Levofloksasin [1x500mg/gün (7 gün)] veya
- ☐ Moksifloksasin [1x400mg/gün (7 gün)] önerilir.

Azitromisin **ÖNERİLMEZ**.

- ☐ Diğer Antibiyotik .....

Nedeni:

Antibiyotik kullanımı ÖNERİLMEZ.

- ➢ Dekonjestan (pseudoefedrin ve fenilefrin) ve birinci kuşak antihistaminik kullanılabilir.
- ➢ Non-steroidal antienflamatuar ajanlar kullanılabilir.
- ➢ Tek başına antihistaminik, opioid kullanımı, intranazal kortikosteroid, burun içi tuzlu solüsyon kullanımı ÖNERİLMEZ.

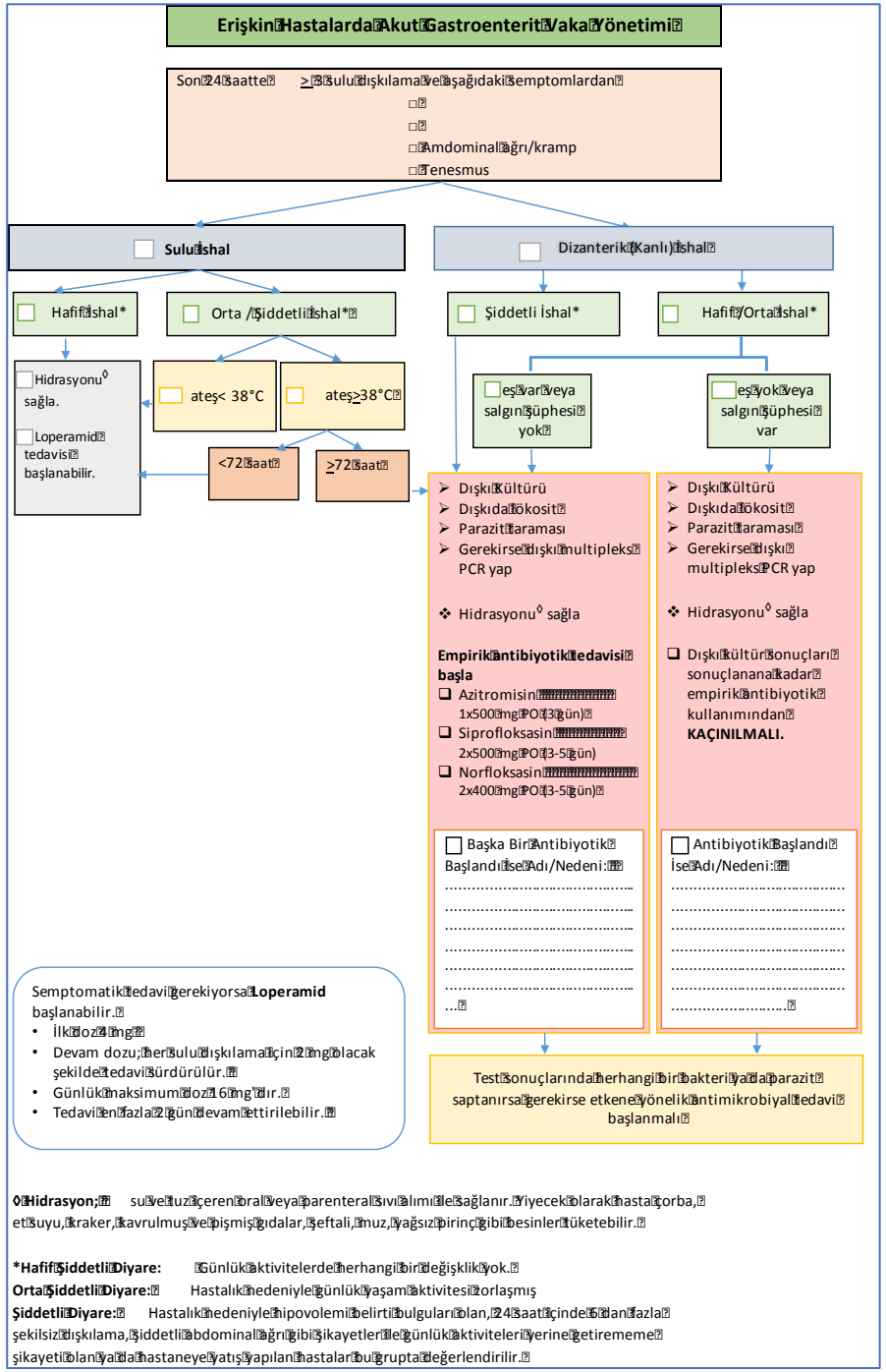
Antibiyotik kullanımı ÖNERİLMEZ.

Semptomatik tedavi yeterlidir.

- ➢ Öksürük baskılayıcı (Kodein, dekstrometorfan)
- ➢ Birinci kuşak antihistaminikler (Difenhidramin)
- ➢ Dekonjestan (Fenilefrin)
- ➢ Beta agonistler (albuterol)

Antibiyotik Başlandı ise; .....
Nedeni:

Not: Hastada Viral etken düşünülüyorsa veya hasta grip benzeri hastalık semptomları taşıyorsa ve ek olarak hastanın klinik durumu orta/ciddi olarak değerlendiriliyorsa hastadan influenza hızlı test/Solunum Yolları Virüs Paneli (Multiplex PCR) istenebilir.



◊ **Hidrasyon;** su ve tuz içeren oral veya parenteral sıvı alımı ile sağlanır. Yiyecek olarak hasta çorba, et suyu, kraker, kavrulmuş ve pişmiş gıdalar, şeftali, muz, yağsız pirinç gibi besinler tüketebilir.

***Hafif Şiddetli Diyare:** Günlük aktivitelerde herhangi bir değişiklik yok.
Orta Şiddetli Diyare: Hastalık nedeniyle günlük yaşam aktivitesi zorlaşmış
Şiddetli Diyare: Hastalık nedeniyle hipovolemi belirti bulguları olan, 24 saat içinde 6'dan fazla şekilsiz dışkılama, şiddetli abdominal ağrı gibi şikayetler ile günlük aktivitelerini yerine getirememe şikayeti olan ya da hastaneye yatış yapılan hastaları bu grupta değerlendirilir.

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AMERİKAN HASTANESİ

SEPSİS ERKEN TANI KLİNİK YOLU - YETİŞKİN

Hastayı aşağıdaki tanımlanan SIRS ve qSOFA Kriterlerine göre değerlendiriniz. Mutlaka her iki değerlendirme de yapılmalıdır.

SIRS* kriterlerinden **en az 2'sinin** ya da **qSOFA**** kriterlerinden **en az 2'sinin** pozitif olması durumunda hastada sepsis olasılığı ortaya çıkar.

SIRS (Sistemik Inflamatuar Yanıt Sendromu) Kriterleri

- ☐ Ateş > 38.0 ◦C veya < 36.0 ◦C
- ☐ Kalp atım hızı > 90/dk
- ☐ Solunum sayısı ≥ 22/dakika veya arteriyel karbondioksit basıncı ($PaCO_2$) < 32 mmHg
- ☐ Kanda beyaz küre sayısı > 12.000/mcL veya < 4000/mcL veya > %10 band formasyonu

qSOFA Kriterleri**

- ☐ Solunum sayısı ≥ 22/dakika
- ☐ Hastanın bilinç durumunda kötüleşme
- ☐ Sistolik kan basıncı ≤ 100 mmHg

HAYIR

HAYIR

EVET

EVET

Hastanın klinik durumunu takip et. Gerekirse kriterleri tekrar gözden geçir.

SEPSİS ŞÜPHESİ

PRİMER DOKTORU / KAT DOKTORUNA haber ver! **Saat:**

Doktor değerlendirme: Bulgular enfeksiyonla ilgili olabilir mi?
Öksürük, Balgam, Karın ağrısı, Batında gerginlik, Diyare, İdrar yapma güçlüğü, Ense sertliği ve Baş ağrısı, Yumuşak doku enfeksiyonu, Kateter enfeksiyonu, Endokardit.

Primer Doktor ve / veya Enfeksiyon Hastalıkları Doktorunu ara!

Sepsis şüphesi var.

Sepsis şüphesi yok. — Takip ☐

SEPSİS I

Kan kültürü al, Prokalsitonin bakılmasını sağla	**Saat:**	☐	UD ☐
İlk doz antibiotiği şimdi başla (Enfeksiyon Hastalıkları)	**Saat:**	☐	UD ☐
O_2 desteği sağla		☐	UD ☐
IV sıvı desteği		☐	UD ☐
Kan gazı al		☐	UD ☐
Aldığı - çıkardığı sıvı takibi		☐	UD ☐

Not: Sepsis 6 Uygulamaları doktor direktifi ile uygulanır.

Sepsis Düşünülmedi ☐

Kültür İle Doğrulanmış Sepsis ☐

Klinik Tanı Sepsis ☐

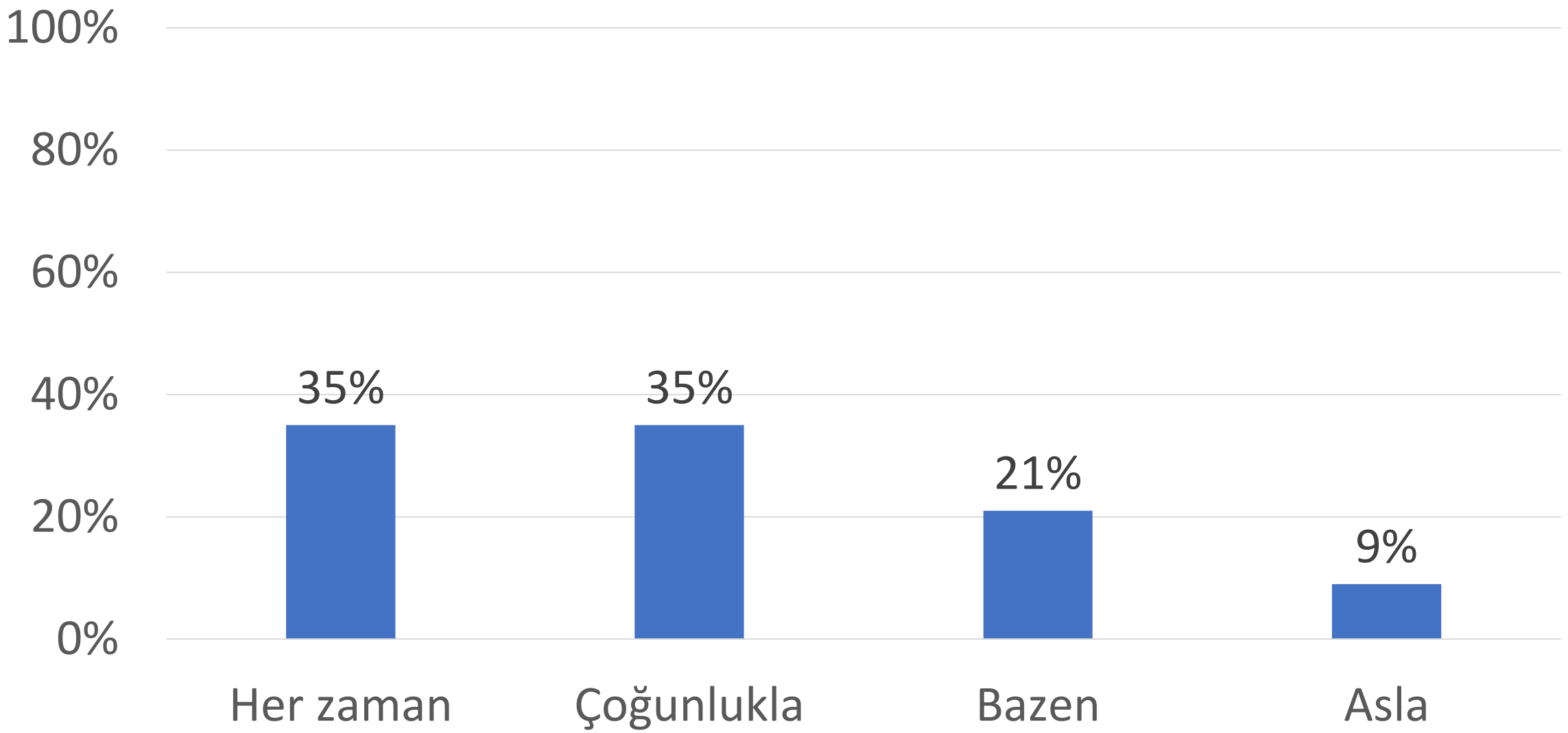
Hemşire	Hekim	Hasta Kimlik Etiketi
Tarih:		
İmza:		

* Systemic Inflammatory Response Syndrome ** Quick Sepsis-related Organ Failure Assessment

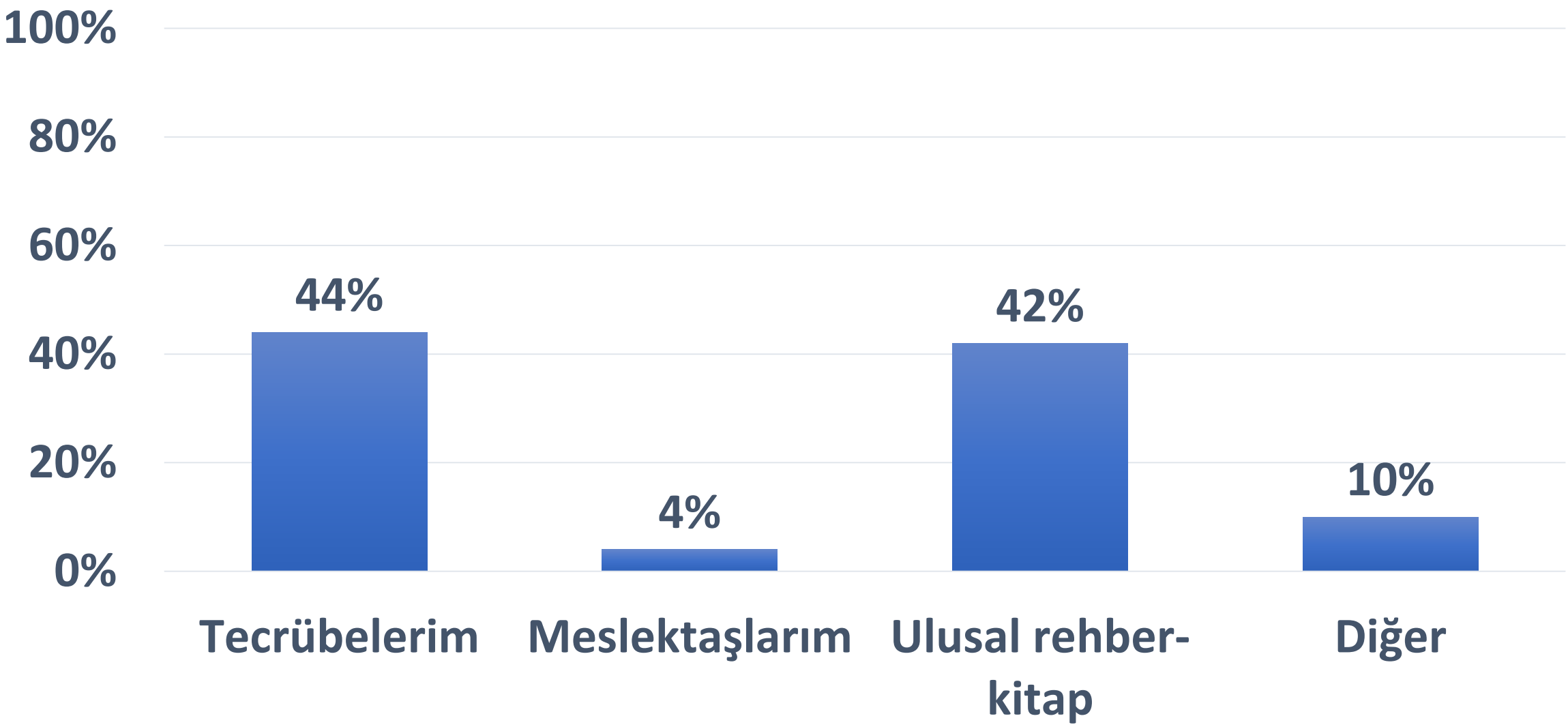
1. Seymour CW, Liu VX, Iwashyna TJ, Brunkhorst FM, Rea TD, Scherag A, Rubenfeld G, Kahn JM, Shankar-Hari M, Singer M, Deutschman CS, Escobar GJ, Angus DC. Assessment of Clinical Criteria for Sepsis: For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA.
2. Shankar-Hari M, Phillips GS, Levy ML, Seymour CW, Liu VX, Deutschman CS, Angus DC, Rubenfeld GD, Singer Mh; Sepsis Definitions Task Force. Developing a New Definition and Assessing New Clinical Criteria for Septic Shock: For the Third International Consensus Definitions for Sepsis and Septic Shock

UD:Uygun değil

Cerrahi profilaksi rehberini ne sıklıkla kullanıyorsunuz?



Profilaksi rehberini kullanmıyorsanız neye göre prof. antibiyotik başlıyorsunuz?




Antibiyotik kullanımındaki zorluklar
Zorlukların yerel ölçekte saptanması
Sorunlara yönelik müdahalelerin belirlenmesi
Yerel Antimikrobiyal Yönetim Programlarının oluşturulması
Programın hayata geçirilmesi ve etkisinin takibi