Andrea Beltrame
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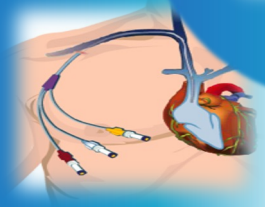
Sepsi nel paziente colonizzato da KPC: quale ruolo per i nuovi antibiotici tra terapia antibiotica empirica e mirata

3° Edizione

Area Critica in Medicina Interna

12 Aprile 2025



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- Consulente Advanz/Intercept

SURVEILLANCE REPORT

Antimicrobial resistance in the EU/EEA (EARS-Net)

Annual Epidemiological Report for 2023

Table 3a. Estimated total incidence of bloodstream infections with resistance phenotype (number per 100 000 population) and trend, 2019–2023, as well as the percentage change 2019-2023, by bacterial species and antimicrobial group/agent, EU[a] (excluding the UK; excluding France for results other than *Streptococcus pneumoniae*)

Klebsiella pneumoniae	Third-generation cephalosporin (cefotaxime/ceftriaxone/ceftazidime) resistance	7.59	7.26	7.67	7.93	9.25	↑	+21.9
	Carbapenem (imipenem/meropenem) resistance	2.52	2.77	3.19	3.11	3.97	↑	+57.5
	Fluoroquinolone (ciprofloxacin/levofloxacin/ofloxacin) resistance	7.48	7.24	7.46	7.65	8.83	↑	+18.0
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance[e]	5.07	4.69	5.01	5.11	5.96	↑	+17.6
	Combined resistance to third-generation cephalosporins, fluoroquinolones, and aminoglycosides[e]	4.46	4.14	4.47	4.52	5.26	↑	+17.9

SURVEILLANCE REPORT

Antimicrobial resistance in the EU/EEA (EARS-Net)

Annual Epidemiological Report for 2023

Table 3b. Total number of invasive isolates tested (n) and percentage of isolates with AMR phenotype (%) in the EU/EEA, by bacterial species and antimicrobial group/agent, population-weighted EU/EEA mean and trend (excluding the UK[a]; excluding France for results other than *Streptococcus pneumoniae*), 2019–2023

Klebsiella pneumoniae	Third-generation cephalosporin (cefotaxime/ceftriaxone/ceftazidime) resistance	33 115	34.8	34 803	35.0	38 866	35.9	43 171	34.1	48 143	34.8	5.7–81.5	-
	Carbapenem (imipenem/meropenem) resistance	32 436	10.4	34 483	11.6	37 857	13.6	42 295	12.7	47 570	13.3	0.0–69.7	↑*
	Fluoroquinolone (ciprofloxacin/levofloxacin/ofloxacin) resistance	33 172	34.6	35 065	34.9	38 762	35.2	42 952	33.4	48 056	33.7	7.1–76.9	↓*
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance[d]	32 975	24.7	34 210	24.6	38 053	24.9	42 370	23.5	47 412	23.6	2.6–73.3	↓*
	Combined resistance to third-generation cephalosporins, fluoroquinolones, and aminoglycosides[d]	32 618	21.8	33 639	21.8	37 488	22.4	41 584	21.0	46 457	21.0	0.0–64.9	↓*

Figure 4. ***Klebsiella pneumoniae*. Percentage of invasive isolates resistant to third-generation cephalosporins (cefotaxime/ceftriaxone/ceftazidime), by country, EU/EEA, 2023**

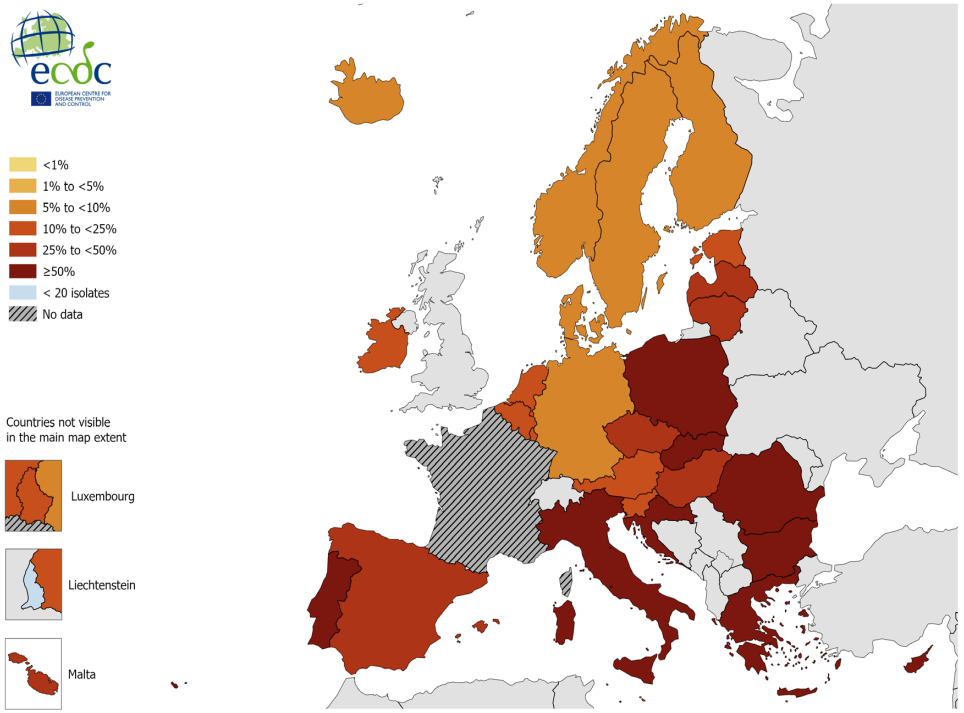

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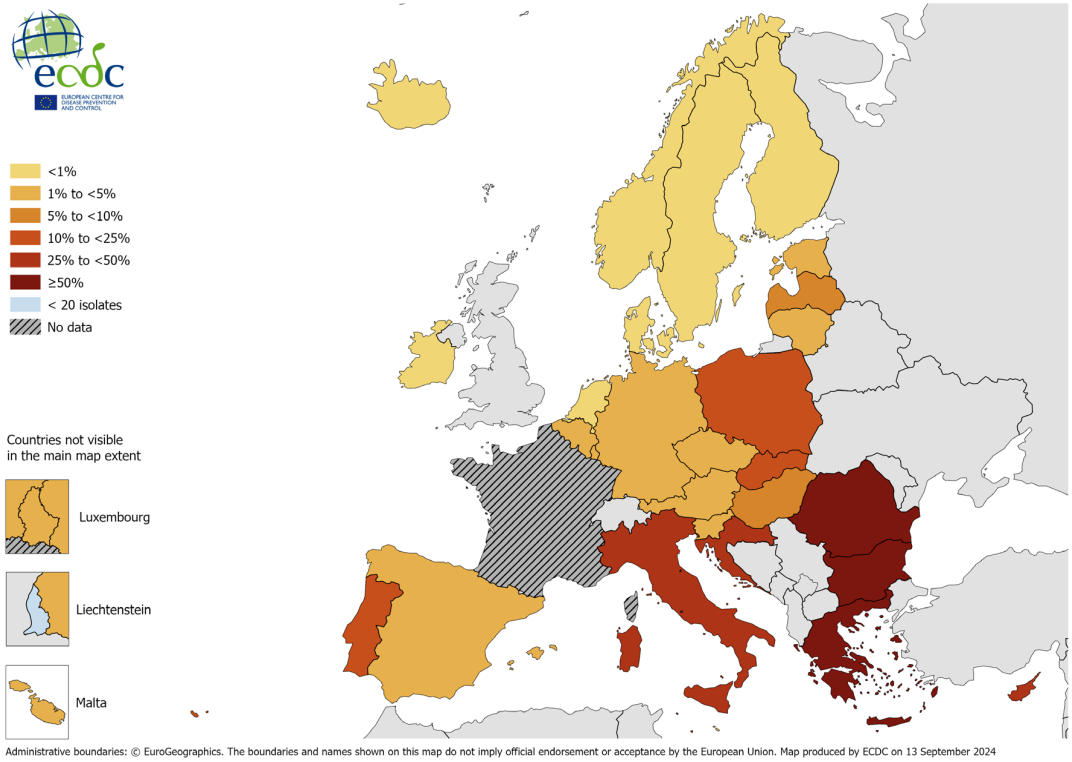
Figure 5. ***Klebsiella pneumoniae*****. Percentage of invasive isolates resistant to carbapenems (imipenem/meropenem), by country, EU/EEA, 2023**



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RESEARCH ARTICLE

Association between Timing of Colonization and Risk of Developing *Klebsiella pneumoniae* Carbapenemase-Producing *K. pneumoniae* Infection in Hospitalized Patients

Ángela Cano,[a,b] Belén Gutiérrez-Gutiérrez,[b,c,d] Isabel Machuca,[a,b] Julián Torre-Giménez,[a] Irene Gracia-Ahufinger,[b,c,e] Alejandra M. Natera,[a,b,c] Elena Pérez-Nadales,[a,b,c] Juan Jose Castón,[a,b,c] Jesús Rodríguez-Baño,[b,c,d] Luis Martínez-Martínez,[b,c,e,f] Julián Torre-Cisneros[a,b,c]

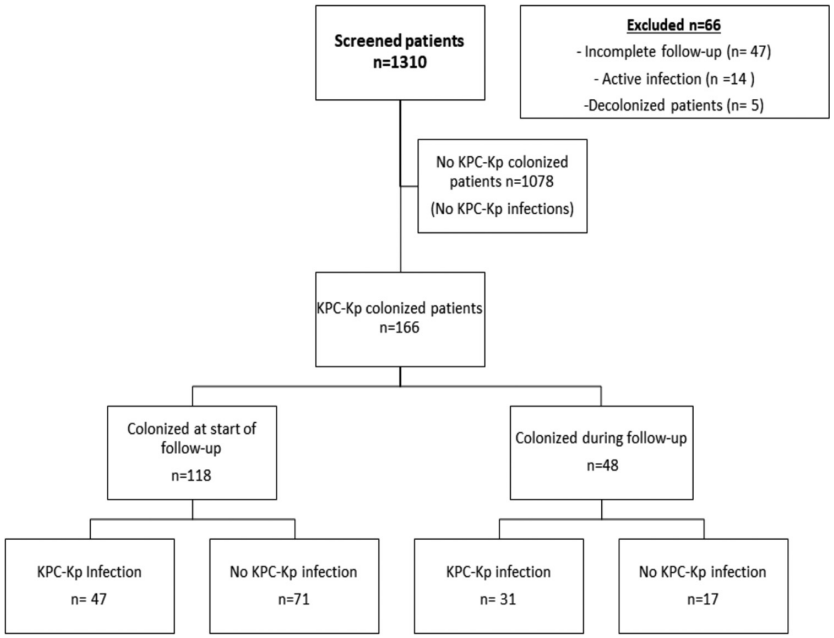


FIG 1 Flow chart.

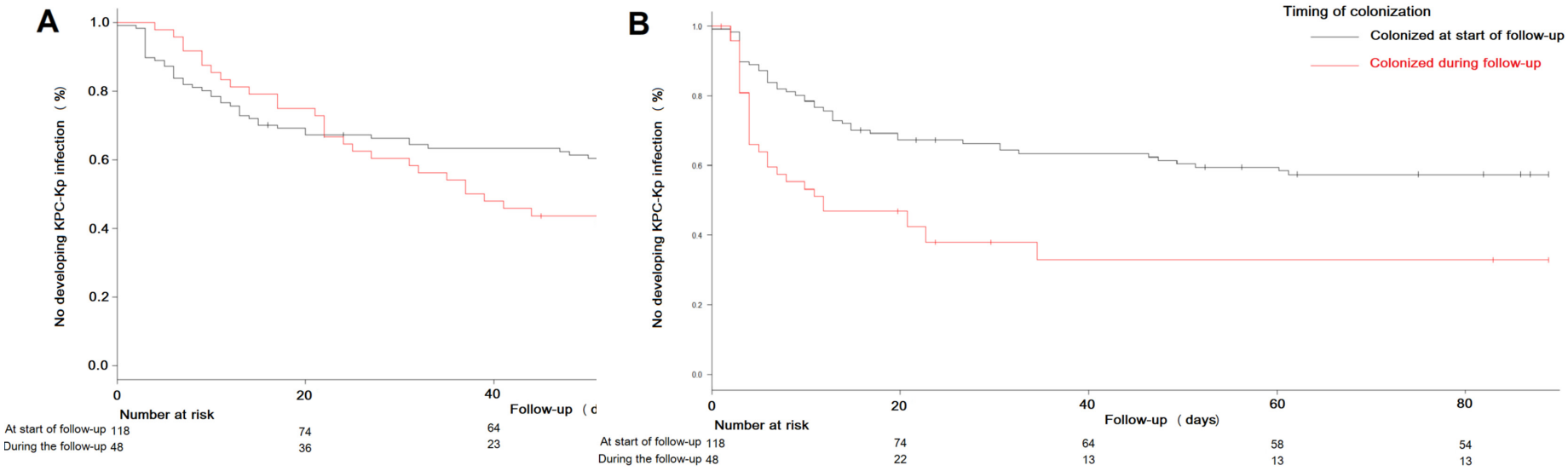
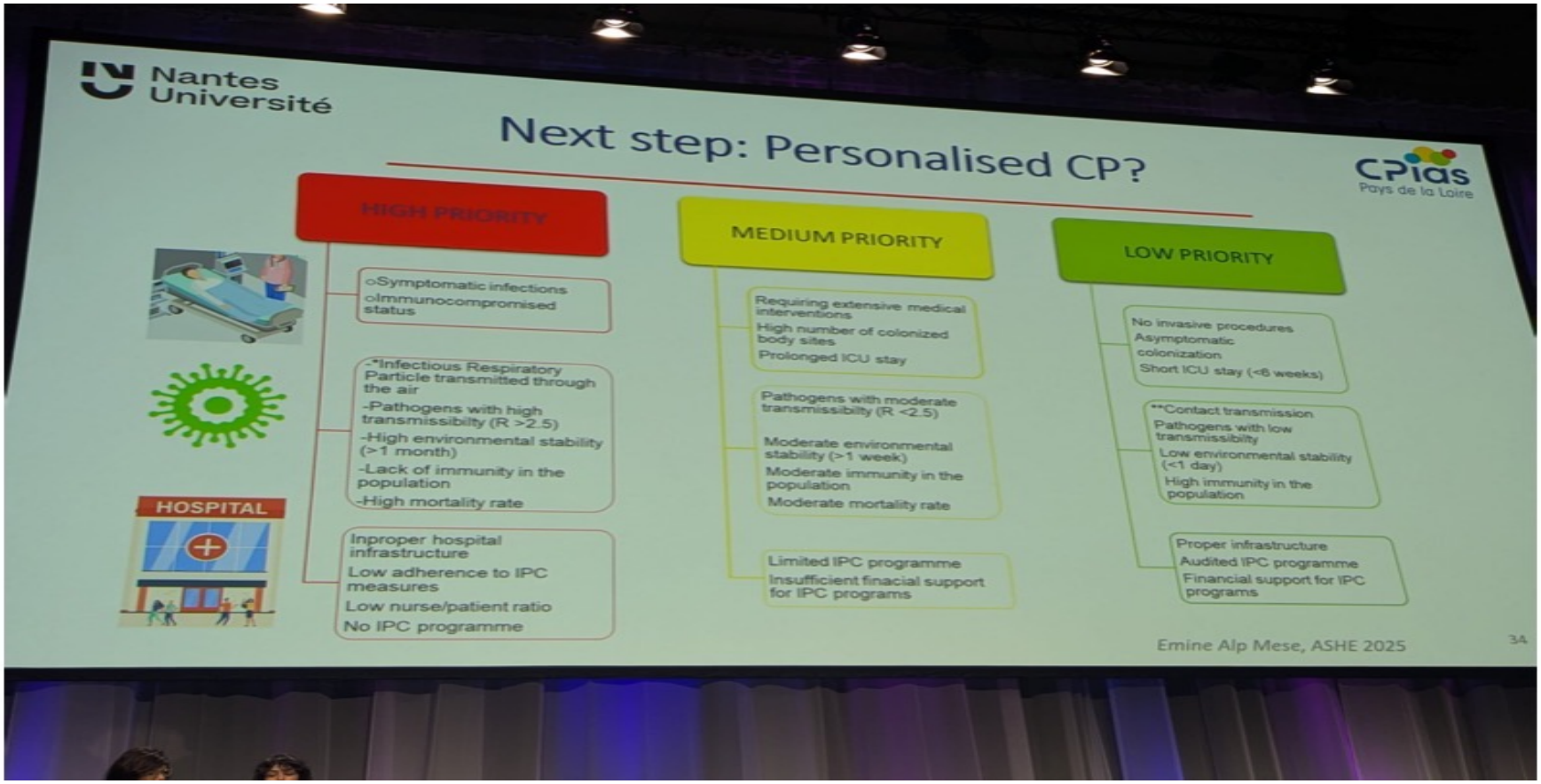


FIG 2 Kaplan–Meier curves of KPC-Kp infection-free survival between patients colonized at start of follow-up and those colonized during follow-up. (A) Considering the start of follow-up from the date of the first rectal swab. (B) Considering the start of follow-up from the date of the first positive KPC-Kp rectal swab. Patients censored before the end of the follow-up period were those who died before developing KPC-Kp infection (see Table 1).



Clinical Microbiology and Infection 28 (2022) 521–547

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journal homepage: www.clinicalmicrobiologyandinfection.com

Guidelines

European Society of Clinical Microbiology and Infectious Diseases (ESCMID) guidelines for the treatment of infections caused by multidrug-resistant Gram-negative bacilli (endorsed by European society of intensive care medicine)

Mical Paul [1,2,*], Elena Carrara [3,4], Pilar Retamar [4,5], Thomas Tängdén [6], Roni Bitterman [1,2], Robert A. Bonomo [7,8,9], Jan de Waele [10], George L. Daikos [11], Murat Akova [12], Stephan Harbarth [13], Celine Pulcini [14,15], José Garnacho-Montero [16], Katja Seme [17], Mario Tumbarello [18], Paul Christoffer Lindemann [19], Sumanth Gandra [20], Yunsong Yu [21,22,23], Matteo Bassetti [24,25], Johan W. Mouton [26], Evelina Tacconelli [3,27,28], Jesús Rodríguez-Baño [4,5]

Carbapenem-resistant Enterobacterales (CRE)

Recommendations on the choice of antibiotic treatment for CRE

For patients with severe infections due to CRE, we suggest meropenem-vaborbactam or ceftazidime-avibactam if active *in vitro*.	Conditional	Moderate/low
For patients with severe infections due to CRE carrying metallo-β-lactamases and/or resistant to all other antibiotics, including ceftazidime-avibactam and meropenem-vaborbactam, we conditionally recommend treatment with cefiderocol.	Conditional	Low
For patients with non-severe infections due to CRE, under the consideration of antibiotic stewardship, we consider the use of an old antibiotic, chosen from among the *in vitro* active on an individual basis and according to the source of infection, as good clinical practice. For patients with cUTI, we suggest aminoglycosides, including plazomicin, over tigecycline.	Good practice statement/conditional	Expert opinion/low
We suggest that tigecycline not be used for BSI and HAP/VAP; if necessary, in patients with pneumonia, clinicians may use high-dose tigecycline.	Conditional	Low
There is no evidence to recommend for or against the use of imipenem-relebactam and fosfomycin monotherapies for CRE at the time of writing.	No recommendation	

Recommendations on combination therapy for CRE

For patients with CRE infections susceptible to and treated with ceftazidime-avibactam, meropenem-vaborbactam or cefiderocol, we do not recommend combination therapy.	Strong	Low
For patients with severe infections caused by CRE carrying metallo-β-lactamases and/or resistant to new antibiotic monotherapies, we suggest aztreonam and ceftazidime-avibactam combination therapy.	Conditional	Moderate
For patients with severe infections caused by CRE susceptible *in vitro* only to polymyxins, aminoglycosides, tigecycline or fosfomycin, or in the case of non-availability of new BLBLI, we suggest treatment with more than one drug active *in vitro*. No recommendation for or against specific combinations can be provided.	Conditional	Moderate
We suggest that clinicians avoid carbapenem-based combination therapy for CRE infections, unless the meropenem MIC is $\leq$ 8 mg/L, where high-dose extended-infusion meropenem may be used as part of combination therapy if the new BLBLI are not used.	Conditional	Low
In patients with non-severe infections or among patients with low-risk infections, under the consideration of antibiotic stewardship, we consider the use of monotherapy chosen from among the *in vitro* active old drugs, on an individual basis and according to the source of infection as good clinical practice	Good practice statement	Expert opinion

Carbapenem-resistant *Pseudomonas aeruginosa* (CRPA)

Table 2
Potential *in vitro* activity of antibiotics against target carbapenem-resistant Gram-negative bacteria and approved indications

	CRAB	ESBLs	CRPA non-MBL	CRE non-CP	CRE-KPC	CRE-OXA-48	CRE-MBL	Current clinical indications/approval
New antibiotics								
Ceftolozane-tazobactam	No	Yes	Yes	No	No	No	No	FDA and EMA approved for cUTI, cIAI, HAP and VAP
Ceftazidime-avibactam	No	Yes	Yes	+/−	Yes	Yes	No	FDA and EMA approved for cIAI and cUTI, HAP and VAP, and (in EMA only) for the treatment Gram-negative infections in patients with limited treatment options
Meropenem-vaborbactam	No	Yes	No	+/−	Yes	No	No	FDA approved for cUTI, EMA approved for cUTI, HAP and VAP, and for the treatment Gram-negative infections in patients with limited treatment options
Imipenem-cilastatin/ relebactam	No	Yes	Yes	+/−	Yes	No	No	FDA approved for cUTI and cIAI; EMA approved for HAP and VAP and for BSI with a suspected respiratory source, and for the treatment Gram-negative infections in patients with limited treatment options
Plazomicin	No	Yes	+/−	Yes	Yes	Yes	+/−	FDA approval cUTI, EMA application withdrawn
Eravacycline	Yes	Yes	No	Yes	Yes	Yes	Yes	FDA and EMA approved for cIAI
Cefiderocol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	FDA cUTI, HAP and VAP; EMA for the treatment of infections due to aerobic Gram-negative organisms in adults with limited treatment options

Infect Dis Ther (2021) 10:1989–2034
https://doi.org/10.1007/s40121-021-00507-6

REVIEW

Ceftazidime-Avibactam for the Treatment of Serious Gram-Negative Infections with Limited Treatment Options: A Systematic Literature Review

Alex Soriano · Yehuda Carmeli · Ali S. Omrani · Luke S. P. Moore · Margaret Tawadrous · Paurus Irani

Conclusion: This review provides qualitative evidence of successful use of ceftazidime-avibactam for the treatment of hospitalised patients with CRE and MDR *P. aeruginosa* infections with limited treatment options.

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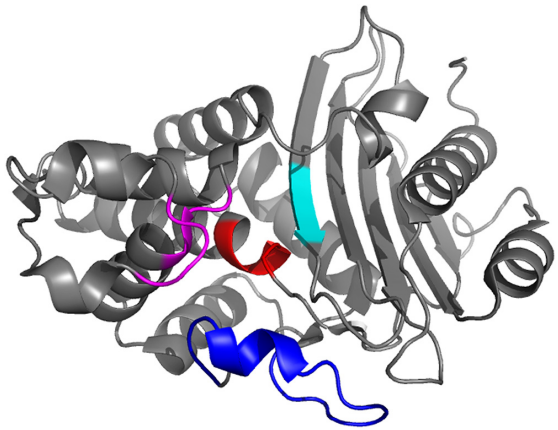
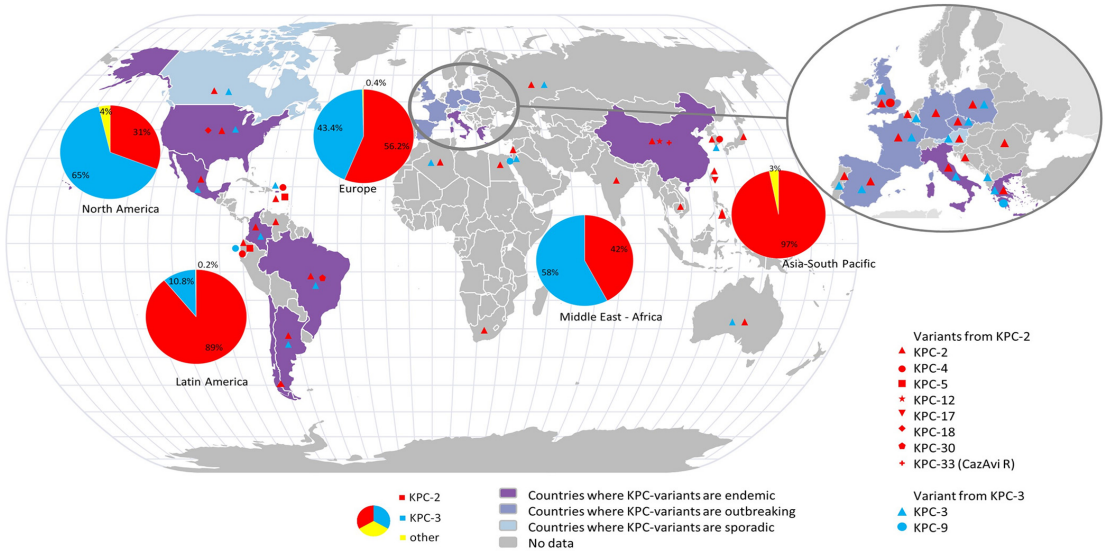
MINIREVIEW

Klebsiella pneumoniae Carbapenemase Variants Resistant to Ceftazidime-Avibactam: an Evolutionary Overview

Claire Amaris Hobson,[a] Gautier Pierrat,[a] Olivier Tenaillon,[a] Stéphane Bonacorsi,[a,b] Béatrice Bercot,[a,c] Ella Jaouen,[a] Hervé Jacquier,[a,c] André Birgy[a,b]





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Real-world experience with meropenem/vaborbactam for the treatment of infections caused by ESBL-producing Enterobacterales and carbapenem-resistant *Klebsiella pneumoniae*

Original Article | Open access | Published: 20 February 2024
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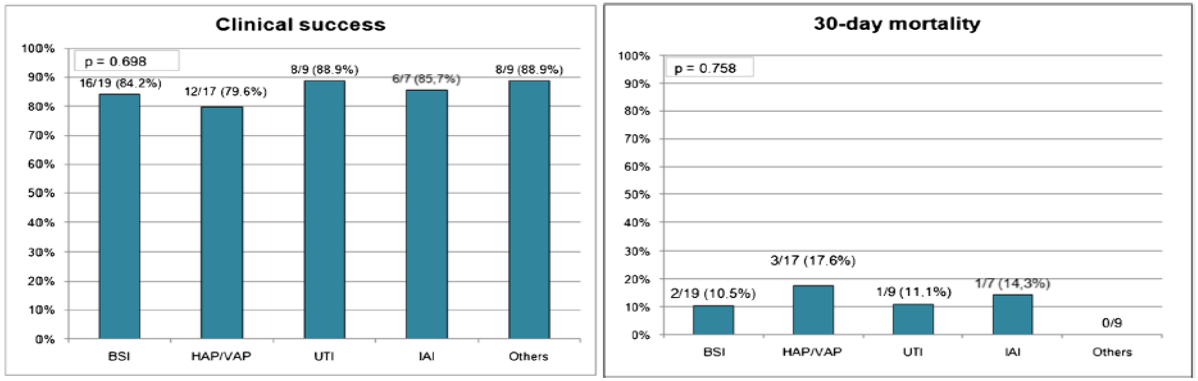

Fig. 2 Outcome of patients with KPC-Kp infections treated with M/V according to type of infection.

Table 3 Clinical features and outcome of patients with infections by KPC-producing *Klebsiella pneumonaie* infections (*n*=61)

	KPC-Kp *N*=61 (%)
Age, median (IQRs)	68 (58–78)
COVID-19	2 (3.3%)
Male sex	32 (52.5%)
ICU	21 (34.4%)
Comorbidities	
Diabetes mellitus	16 (26.2%)
Cardiovascular disease	16 (26.2%)
COPD	18 (29.5%)
Chronic renal disease	19 (31.1%)
Solid organ transplant	7 (11.5%)
Solid cancer	20 (32.8%)
Type of infection	
Bloodstream infections	19 (68.9%)
Hospital acquired pneumonia	17 (27.9%)
Urinary tract infections	10 (16.4%)
Intra abdominal infections	7 (11.5%)
Others	9 (14.8%)
Low-respiratory tract as source of infection*	20 (32.8%)
Charlson Comorbidity Index, median (IQRs)	5 (3–8)
SOFA score, median (IQRs)	3 (2–6)
Septic shock	8 (13.1%)
Source control**, *n*=39	25/39 (64%)
CVVH	3 (4.9%)
Administration of M/V within 48 h from infection onset	41 (67.2%)
Thirty-day mortality	7 (11.5%)
Clinical success	50 (81.9%)

Attività su KPC 2 di IMI/REL e CZA

Ceftazidime-avibactam è stato approvato dalla FDA per il trattamento delle infezioni causate da Enterobacterales portatrici di bla KPC-2. Tuttavia, sono emerse varianti di KPC-2 con sostituzioni di aminoacidi in posizione 179 che conferiscono resistenza a ceftazidime-avibactam.

In questo studio si è valutata l'attività di IMI, IMI-REL, CAZ e CAZ-AVI rispetto a un gruppo di 19 KPC-2 con varianti D179 . (D179N e D179Y)

Risultati: tutti i ceppi erano sensibili a imipenem-relebactam, ma resistenti a ceftazidime (19/19) e ceftazidime avibactam (18/19).

Imipenem-relebactam ha superato la resistenza delle varianti D179, suggerendo che questa combinazione è attiva contro gli isolati clinici che producono queste varianti di KPC-2

Pappa-Wallace KM. et al. Antibiotics 2023 May 11;12(5):892

antibiotics MDPI

Brief Report

The Effectiveness of Imipenem–Relebactam against Ceftazidime-Avibactam Resistant Variants of the KPC-2 β-Lactamase

Krisztina M. Papp-Wallace [1,2,3,4,*], Melissa D. Barnes [1,2], Magdalena A. Taracila [1,2], Christopher R. Bethel [1],

Strain	IMI	IMI-REL	CAZ	CAZ-AVI
E. coli DH10B pBC SK(+) bla_{KPC-2} D179I	0.5	0.25	256	16
E. coli DH10B pBC SK(+) bla_{KPC-2} D179S	0.5	0.5	256	32
E. coli DH10B pBR322 bla_{KPC-2}	8	0.5	64	1
E. coli DH10B pBR322 bla_{KPC-2} D179A	0.5	0.5	512	32
E. coli DH10B pBR322 bla_{KPC-2} D179R	0.5	0.5	16	16
E. coli DH10B pBR322 bla_{KPC-2} D179N	4	0.5	512	16
E. coli DH10B pBR322 bla_{KPC-2} D179C	1	0.5	256	32
E. coli DH10B pBR322 bla_{KPC-2} D179Q	0.5	0.5	128	32
E. coli DH10B pBR322 bla_{KPC-2} D179G	1	0.5	512	32
E. coli DH10B pBR322 bla_{KPC-2} D179H	0.5	0.5	256	32
E. coli DH10B pBR322 bla_{KPC-2} D179L	0.5	0.5	512	64
E. coli DH10B pBR322 bla_{KPC-2} D179K	0.5	0.5	32	16
E. coli DH10B pBR322 bla_{KPC-2} D179M	0.5	0.5	512	64
E. coli DH10B pBR322 bla_{KPC-2} D179F	0.5	0.5	512	64
E. coli DH10B pBR322 bla_{KPC-2} D179P	0.5	0.5	256	64
E. coli DH10B pBR322 bla_{KPC-2} D179T	0.5	0.5	256	64
E. coli DH10B pBR322 bla_{KPC-2} D179W	0.5	0.5	>512	32
E. coli DH10B pBR322 bla_{KPC-2} D179Y	0.5	0.5	512	64
E. coli DH10B pBR322 bla_{KPC-2} D179V	0.5	0.5	512	64

Abbreviations: imipenem (IMI), relebactam (REL), ceftazidime (CAZ), and avibactam (AVI). Relebactam and avibactam were maintained at 4 μg/mL. The Clinical Laboratory Standards Institute's (CLSI) breakpoints (S, susceptible (green); I, intermediate; R, resistant (red)) for the tested compounds are as follows: imipenem: S ≤ 1; I = 2; R ≥ 4; imipenem–relebactam: S ≤ 1/4; I = 2/4; R ≥ 4/4; ceftazidime: S ≤ 4; I = 8; R ≥ 16; and ceftazidime-avibactam: S ≤ 8/4; R ≥ 16/4. The majority (16/19) of the D179 variants were generated using the pBR322-*catI*-bla_{KPC-2} plasmid; however, due to technical issues, the remainder, D179E, -I, and -S variants were constructed from the pBC SK(+) bla_{KPC-2} plasmid. The basal expression level of bla_{KPC-2} was previously shown to be higher from the pBR322-*catI*-bla_{KPC-2} plasmid than from the pBC SK(+) bla_{KPC-2} plasmid; thus, those strains have higher overall MICs [48].

SIAARTI
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Surviving sepsis campaign: linee guida internazionali per la gestione della sepsi e dello shock settico 2021

Con endorsement

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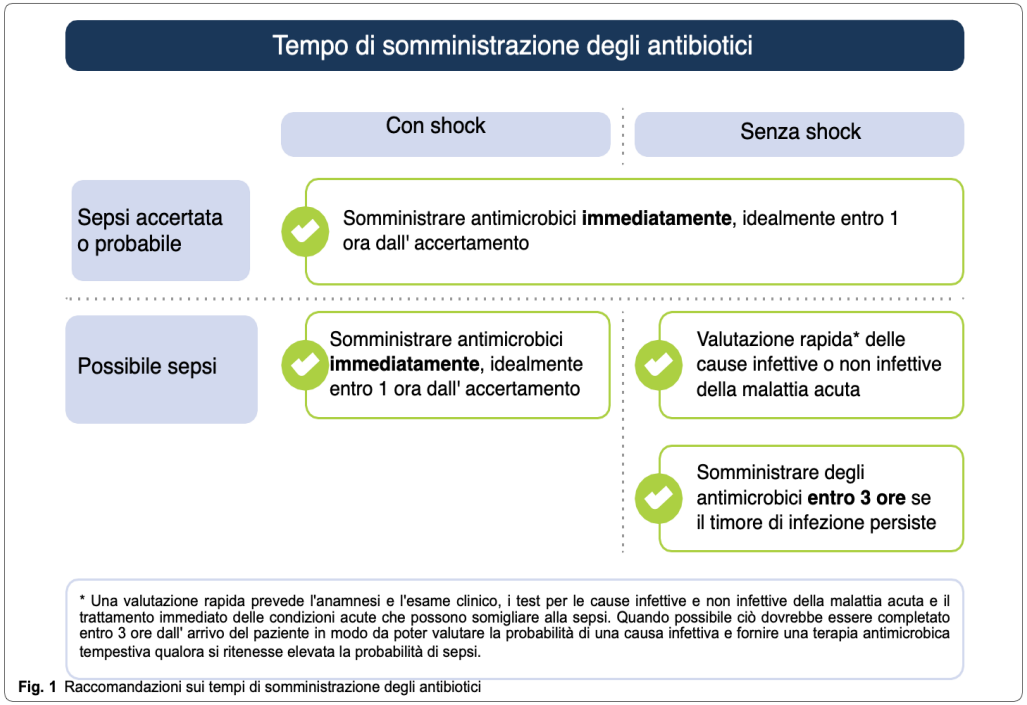


Fig. 1 Raccomandazioni sui tempi di somministrazione degli antibiotici

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Antibiotic Treatment for 7 versus 14 Days in Patients with Bloodstream Infections

The BALANCE Investigators, for the Canadian Critical Care Trials Group, the Association of Medical Microbiology and Infectious Disease Canada Clinical Research Network, the Australian and New Zealand Intensive Care Society Clinical Trials Group, and the Australasian Society for Infectious Diseases Clinical Research Network

Table 1. Characteristics of the Patients, Infections, and Pathogens at Baseline (Primary Intention-to-Treat Analysis).*

Characteristic	Overall (N=3608)	7-Day Group (N=1814)	14-Day Group (N=1794)
Male sex — no. (%)	1922 (53.3)	974 (53.7)	948 (52.8)
Median age (IQR) — yr	70 (59–80)	70 (58–80)	70 (59–80)
Median SOFA score on day 0 (IQR)†	4 (2–8)	4 (2–8)	5 (2–8)
Enrolled in ICU — no. (%)	1986 (55.0)	997 (55.0)	989 (55.1)
Enrolled in hospital ward — no. (%)	1622 (45.0)	817 (45.0)	805 (44.9)
Receiving mechanical ventilation — no. (%)	766 (21.2)	374 (20.6)	392 (21.9)
Coexisting conditions — no. (%)			
Diabetes mellitus	1148 (31.8)	596 (32.9)	552 (30.8)
Solid-organ cancer	782 (21.7)	400 (22.1)	382 (21.3)
Obesity	655 (18.2)	331 (18.2)	324 (18.1)
Arrhythmia	540 (15.0)	264 (14.6)	276 (15.4)
Glucocorticoid use or immunosuppression‡	440 (12.2)	230 (12.7)	210 (11.7)
Chronic obstructive pulmonary disease	393 (10.9)	198 (10.9)	195 (10.9)
Renal insufficiency	425 (11.8)	217 (12.0)	208 (11.6)
Coronary artery disease	393 (10.9)	193 (10.6)	200 (11.1)
Congestive heart failure	386 (10.7)	205 (11.3)	181 (10.1)
Liver disease	227 (6.3)	117 (6.4)	110 (6.1)
Peripheral vascular disease	223 (6.2)	107 (5.9)	116 (6.5)
Dialysis dependency	127 (3.5)	60 (3.3)	67 (3.7)
Leukemia or lymphoma	101 (2.8)	49 (2.7)	52 (2.9)
Median Clinical Frailty Scale score (IQR)§	4 (3–5)	4 (3–5)	4 (3–5)
Any use of procedures to control the source of infection — no. (%)¶	1621 (44.9)	795 (43.8)	826 (46.1)
Source of acquisition of bacteremia — no. (%)			
Community	2722 (75.4)	1380 (76.1)	1342 (74.8)
Hospital ward	483 (13.4)	231 (12.7)	252 (14.0)
ICU	403 (11.2)	203 (11.2)	200 (11.1)
Source of bacteremia — no. (%)			
Urinary tract	1523 (42.2)	757 (41.7)	766 (42.7)
Intraabdominal or hepatobiliary	679 (18.8)	337 (18.6)	342 (19.1)
Lung	469 (13.0)	229 (12.6)	240 (13.4)
Vascular catheter	229 (6.3)	116 (6.4)	113 (6.3)
Skin, soft tissue, or both	187 (5.2)	104 (5.7)	83 (4.6)
Other	67 (1.9)	37 (2.0)	30 (1.7)
Undefined or unknown	454 (12.6)	234 (12.9)	220 (12.3)
Most commonly isolated pathogens in blood cultures — no. (%)‖			
Escherichia coli	1582 (43.8)	805 (44.4)	777 (43.3)
Klebsiella species	552 (15.3)	273 (15.0)	279 (15.6)
Enterococcus species	250 (6.9)	119 (6.6)	131 (7.3)
Coagulase-negative staphylococci	174 (4.8)	81 (4.5)	93 (5.2)
Pseudomonas species	170 (4.7)	80 (4.4)	90 (5.0)
Streptococcus pneumoniae	164 (4.5)	86 (4.7)	78 (4.3)
Enterobacter species	157 (4.4)	80 (4.4)	77 (4.3)
Proteus species	133 (3.7)	58 (3.2)	75 (4.2)
Serratia species	86 (2.4)	38 (2.1)	48 (2.7)
S. pyogenes	74 (2.1)	39 (2.1)	35 (2.0)
S. agalactiae	75 (2.1)	40 (2.2)	35 (2.0)
Number and type of organisms — no. (%)			
Monomicrobial, gram-negative	2562 (71.0)	1299 (71.6)	1263 (70.4)
Monomicrobial, gram-positive	625 (17.3)	323 (17.8)	302 (16.8)
Polymicrobial	421 (11.7)	192 (10.6)	229 (12.8)

Table 2. Primary and Secondary Outcomes.

Outcome	7-Day Group (N=1814)	14-Day Group (N=1794)	Difference (95% CI)*
			percentage points
Primary outcome, death from any cause by 90 days — no./total no. (%)			
Primary analysis, intention-to-treat population	261/1802 (14.5)	286/1779 (16.1)	−1.6 (−4.0 to 0.8)
Secondary analysis, per-protocol population	178/1370 (13.0)	222/1483 (15.0)	−2.0 (−4.5 to 0.6)
Modified intention-to-treat analysis, survival ≥7 days	247/1788 (13.8)	272/1765 (15.4)	−1.6 (−3.9 to 0.7)
Secondary outcomes			
Death in hospital — no. (%)†	168 (9.3)	184 (10.3)	−1.0 (−2.9 to 0.9)
Death in ICU — no./total no. (%)‡	91/1014 (9.0)	97/1008 (9.6)	−0.6 (−3.2 to 1.9)
Median no. of days in hospital (IQR)	10 (6–21)	11 (6–22)	−1 (−1.5 to −0.5)
Median no. of hospital-free days by day 28 (IQR)	17 (0–21)	15 (0–21)	2 (0.8 to 3.2)
Median no. of days in ICU (IQR)§	5 (3–11)	5 (3–11)	0 (−0.4 to 0.4)
Median no. of days of vasopressor use (IQR) ¶	3 (2–5)	3 (2–4)	0
Median no. of days of mechanical ventilation (IQR)‖	6 (3–14)	5 (2–12)	1 (−0.6 to 2.6)
Relapse of bacteremia — no. (%)	47 (2.6)	39 (2.2)	0.4 (−0.6 to 1.4)
Median no. of antibiotic-free days by day 28 (IQR)**	19 (11–21)	14 (11–14)	5 (4.6 to 5.4)
Antimicrobial-related adverse outcomes — no. (%)			
Allergy	14 (0.8)	19 (1.1)	−0.3 (−0.9 to 0.3)
Anaphylaxis	1 (0.1)	1 (0.1)	0 (−0.2 to 0.2)
Acute kidney injury	15 (0.8)	17 (0.9)	−0.1 (−0.7 to 0.5)
Acute hepatitis	2 (0.1)	4 (0.2)	−0.1 (−0.4 to 0.2)
Clostridioides difficile infection — no. (%)	31 (1.7)	35 (2.0)	−0.2 (−1.1 to 0.6)
Secondary infection or colonization with antibiotic-resistant organisms — no. (%)	173 (9.5)	152 (8.5)	1.1 (−0.8 to 2.9)
Secondary infection or colonization with antibiotic-resistant organisms in sterile culture — no. (%)	20 (1.1)	24 (1.3)	−0.2 (−1 to 0.5)

* Differences are expressed as absolute risk differences or, for variables shown as medians, as median differences. A 95.7% confidence interval is shown for the primary analysis (accounting for alpha spending in interim analyses), and 95% confidence intervals are shown for the per-protocol analysis, the modified intention-to-treat analysis, and the secondary outcomes. The widths of the confidence intervals for secondary outcomes have not been adjusted for multiplicity. The 95% confidence intervals for the median differences were estimated with the use of quantile regression.

† One patient in the 7-day group is still in the hospital.

‡ Deaths in the ICU include patients who were enrolled in the ICU or were admitted to the ICU after the diagnosis of a bloodstream infection.

§ The length of stay in the ICU was evaluated in patients who were enrolled in the ICU or were admitted to the ICU after the diagnosis of a bloodstream infection.

¶ Included are data for the patients who received vasopressors at any time after enrollment (722 patients in the 7-day group and 743 patients in the 14-day group).

‖ Included are the data for patients who received mechanical ventilation (469 patients in the 7-day group and 488 patients in the 14-day group).

** Data regarding antibiotic-free days are missing for 2 patients in the 14-day group.

EPIDEMIOLOGIA LOCALE

- Numero sepsi e dati microbiologici
- Dati di resistenza infezioni delle vie urinarie
- Sorveglianza dei batteri multi-resistenti nei tamponi rettali
- Clostridium difficile

SEPSI OSPEDALE SAN PAOLO SAVONA

TABELLA DESCRITTIVA CAMPIONE SEPSI

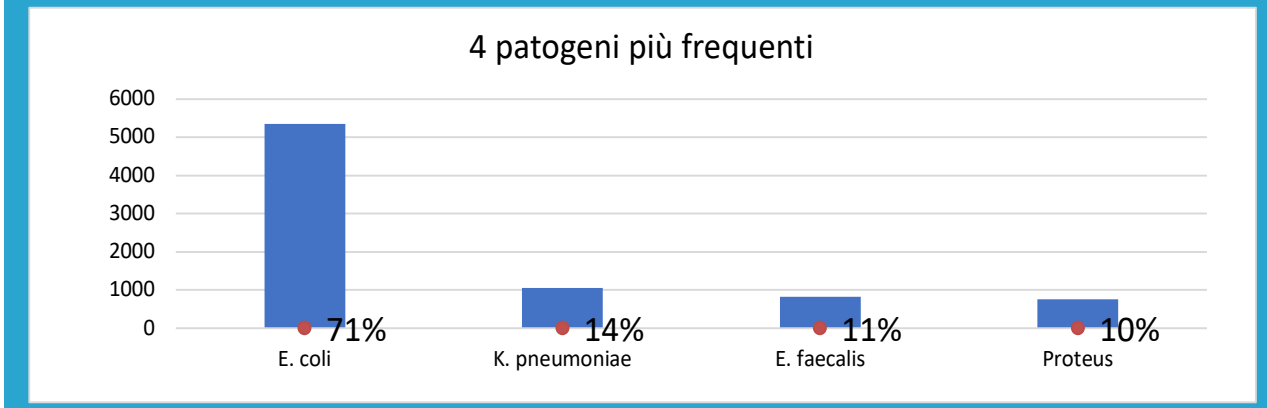
CARATTERISTICHE GENERALI DEL CAMPIONE (n=203)	
ETA' MEDIA (MEDIA ± DEV. STD.)	78.2±12.6
SESSO	MASCHI 113 (56%; N=203) FEMMINE 90 (44%; N=203)
MORTALITA'	N=42 (21%; N=203)
RE-RICOVERI TOTALI **RE-RICOVERI PER SEPSI** **MORTALITA' NEL RE-RICOVERO DEI PAZIENTI SETTICI**	N=35 (17%; N=203) N=12 (34%; N=35) N=6 (50%; N=12)
DEGENZA MEDIA (MEDIA ± DEV. STD.)	23,5 ± 25,73 giorni (N=203)
LUNGODEGENZE (definite come degenze maggiori di 8 giorni, valore rappresentante la media nazionale)	N=176 (87%; N=203)

SEPSI OSPEDALE SAN PAOLO SAVONA

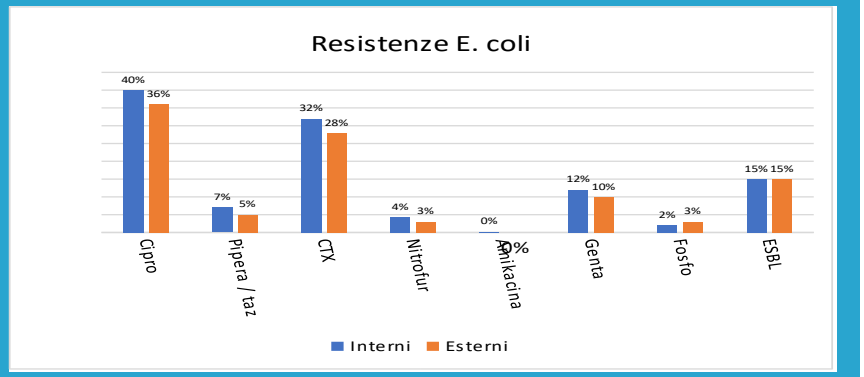
CARATTERISTICHE INFETTIVOLOGICHE E MICROBIOLOGICHE				
SOFA SCORE (MEDIA ± DEV. STD.)	3,9±0,71			
SPETTRO DEI PATOGENI	GRAM +	113	ESCHERICHIA spp	78
	GRAM -	143	STAFILOCOCCO spp	63
	VIRUS	3	ENTEROCOCCO spp	25
	FUNGHI	10	NON NOTO	18
	PROTOZOI	1	STREPTOCOCCO spp	13
	PARASSITI	1	KLEBSIELLA spp	13
	TOT specie identificate	171 specie	ENTEROBACTER spp	6
			CANDIDA spp	5
			ACINETOBACTER spp	5
			CLOSTRIDIUM spp	4
			PROTEUS spp	3
			PSEUDOMONAS spp	3
			SARS-COV-2	3
			CORYNEBACTERIUM spp	3
			LIMOSILACTOBACILLUS spp	2
			BACTEROIDES spp	2
			PANTOEA spp	2
			STENOTROPHOMONAS spp	1
			MORAXELLA spp	1
			MORGANELLA spp	1
			LEISHMANIA spp	1

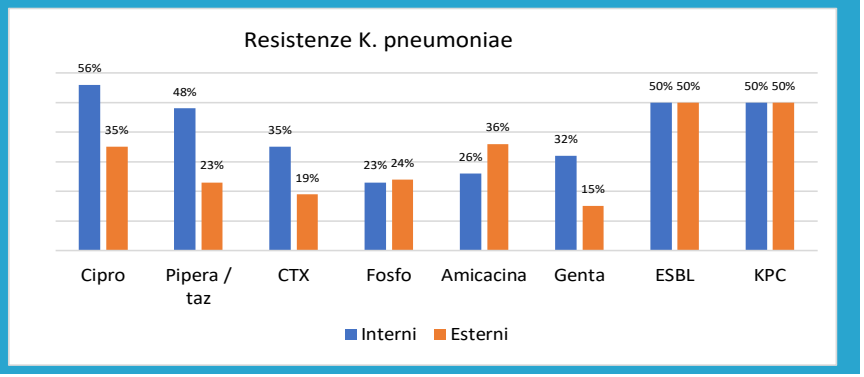
5.4 DATI DI EPIDEMIOLOGIA LOCALE

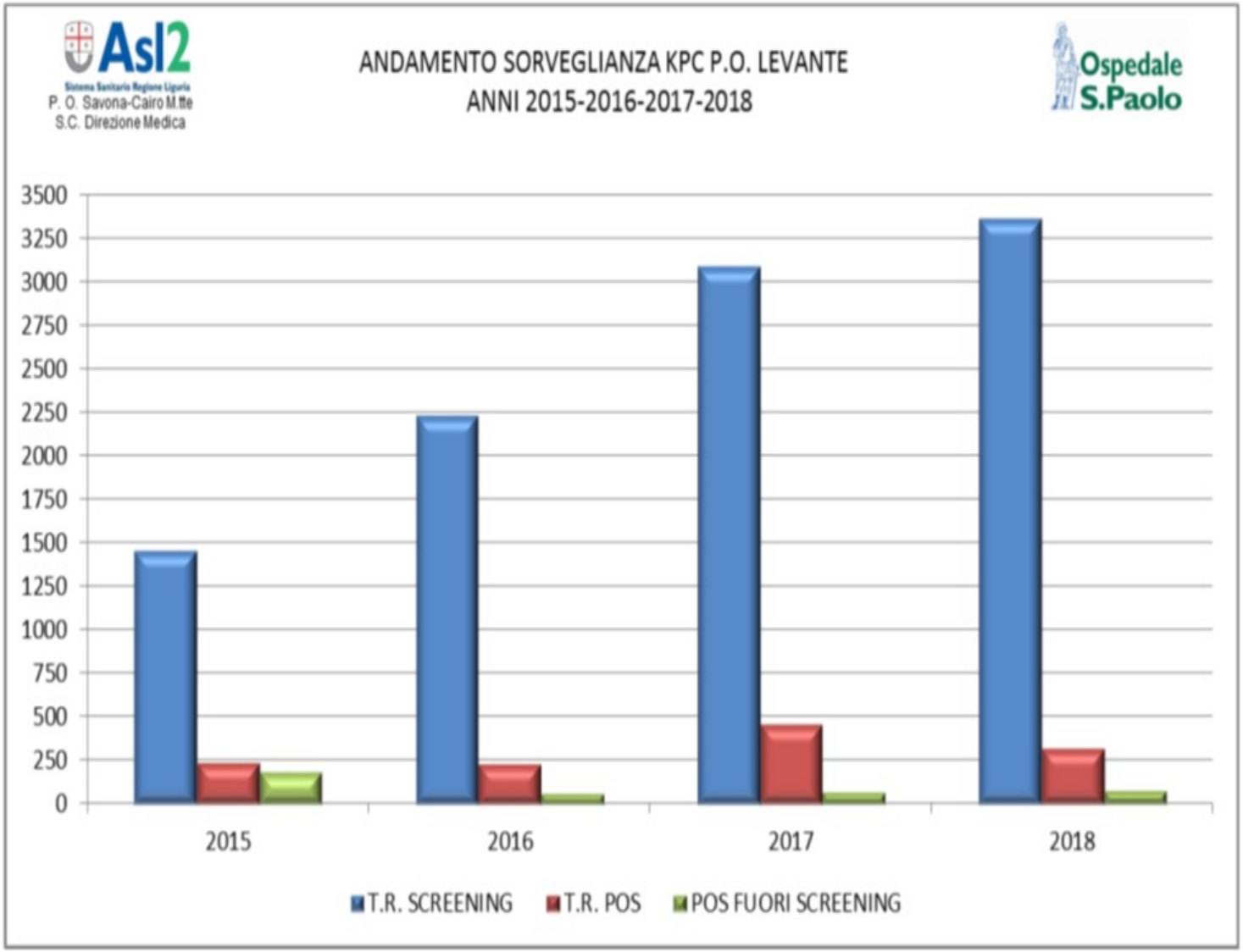
Da gennaio ad ottobre 2018 presso la S.S.D. Microbiologia dell'ASL2 Savonese sono stati analizzati 22500 campioni di urinocoltura (16000 esterne e 6500 interne), 7500 sono risultate positive considerando valori > 500.000 UFC/ml → 5600 interne e 1900 esterne.



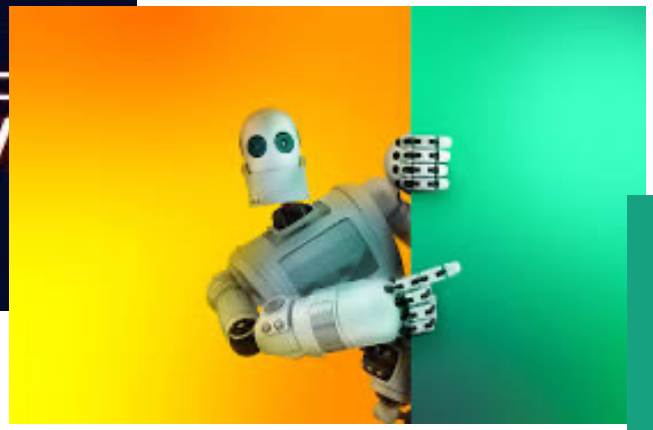
Antibiotico-resistenza







Da oggi....?

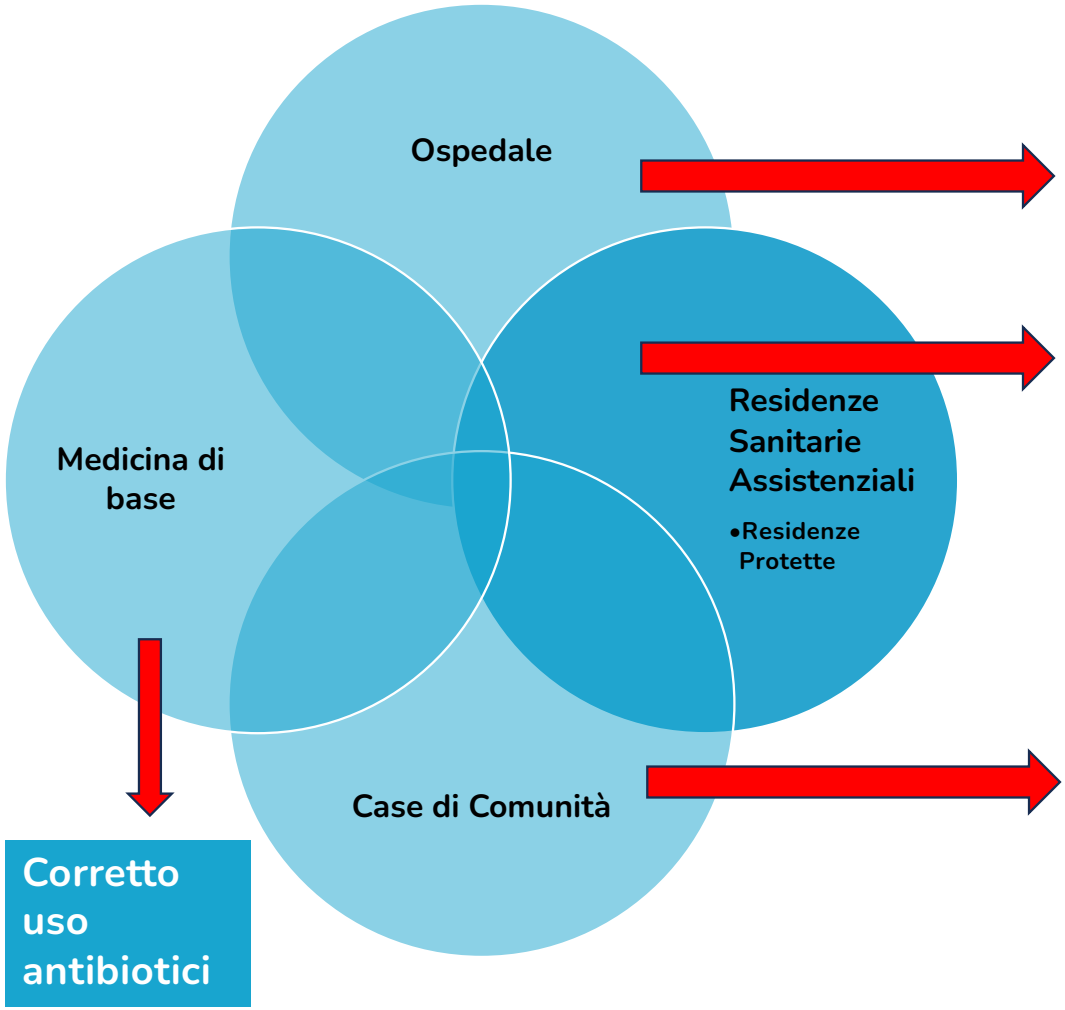


REQUISITI FONDAMENTALI DI ANTIBIOTIC STEWARDSHIP

- Antibiotic stewardship team
  - Un infettivologo (almeno)
  - Farmacista con competenze infettivologiche
  - Microbiologo
  - Direttore sanitaria/rischio clinico
  - Informatico
  - Governo clinico

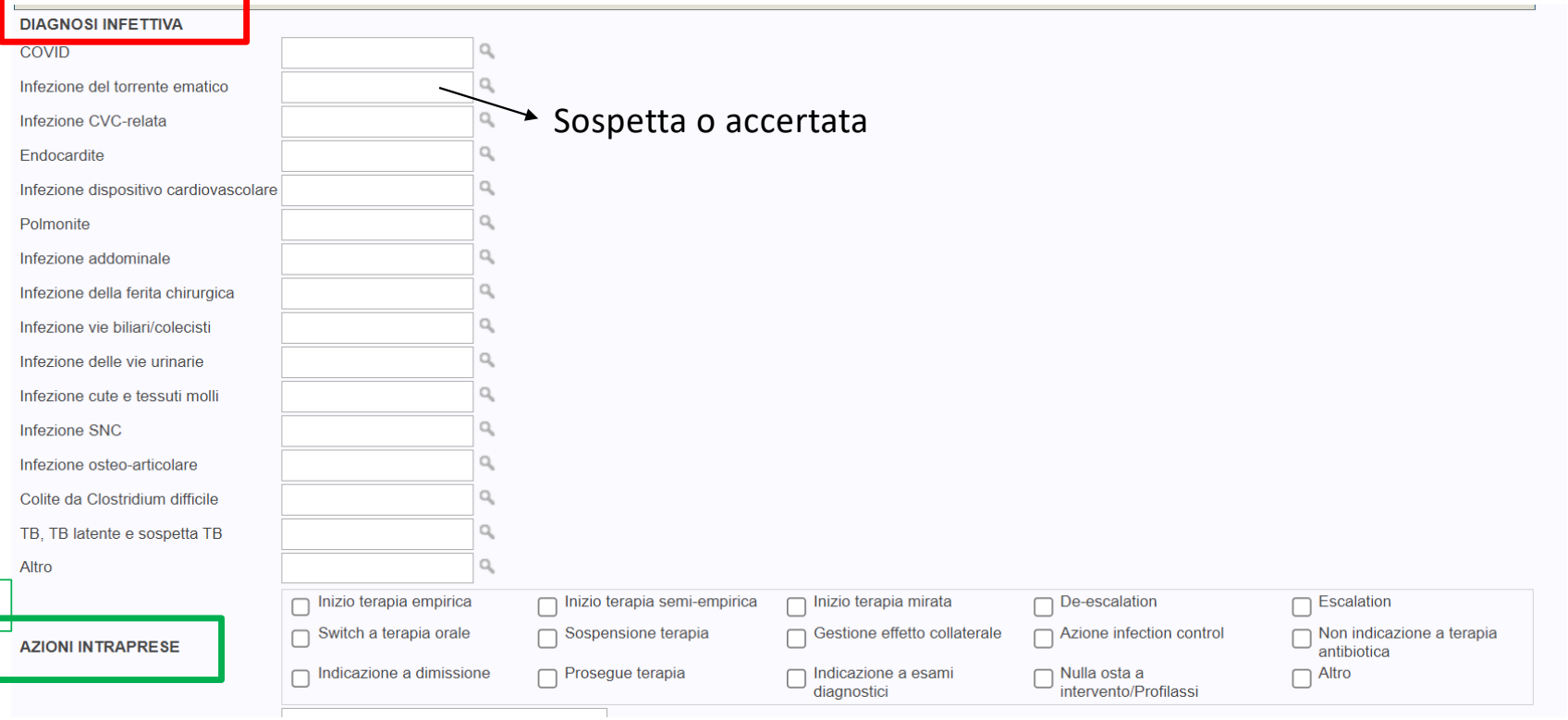
- Report microbiologico a cadenza fissa su batteri «sentinella»

- Report a cadenza fissa sul consumo degli antibiotici
  - Stratificato per reparti
  - Valutato sul territorio



- Numero sepsi e dati microbiologici
- Dati di resistenza infezioni delle vie urinarie
- Sorveglianza dei batteri multi-resistenti nei tamponi rettali
- Clostridium difficile

SITO DI INFEZIONE



Azioni di Antibiotic Stewardship

- ✓ Applicazione della TDM nella pratica
- ✓ Ospedalizzazione diurna
  - ✓ Terapie antibiotiche nelle dodici ore
  - ✓ Aumento disponibilità posti letto di degenza ordinaria
  - ✓ Risparmio costi degenza

Il mondo sta esaurendo gli antibiotici.[1]

Nell'ambito della corsa globale contro la resistenza antimicrobica (AMR) e le relative infezioni correlate all'assistenza (ICA), Cepheid fornisce soluzioni per rilevare in modo rapido e accurato gli agenti patogeni e i superbatteri. Tali soluzioni supportano l'avvio tempestivo dell'isolamento e l'identificazione del trattamento corretto prima che sia troppo tardi, consentendo di salvare PIÙ vite. **Unitevi a noi nella corsa.**

Il peso della minaccia AMR

5 milioni
DI DECESSI
associati alla resistenza antimicrobica nel 2019, a livello globale[2]

670 000
INFEZIONI
dovute ad AMR all'anno in EU/EEA[3]

€1,5
MILIARDI
I costi sanitari extra all'anno in EU/EEA[4]

Scaricate il pacchetto didattico sull'AMR.

Contattate i nostri esperti per implementare oggi il vostro programma di screening e gestione della resistenza antimicrobica.

Nome *

Cognome *

Professione *