



XX Congresso della Società GITMO

# RIUNIONE NAZIONALE GITMO

ROMA,  
ERGIFE PALACE HOTEL  
7-8 MAGGIO 2026

Evoluzione della epidemiologia delle  
sepsi da bacilli **GRAM** negativi nel  
trapianto allogenico di CSE, risultati  
degli studi **GITMO-AMCLI**

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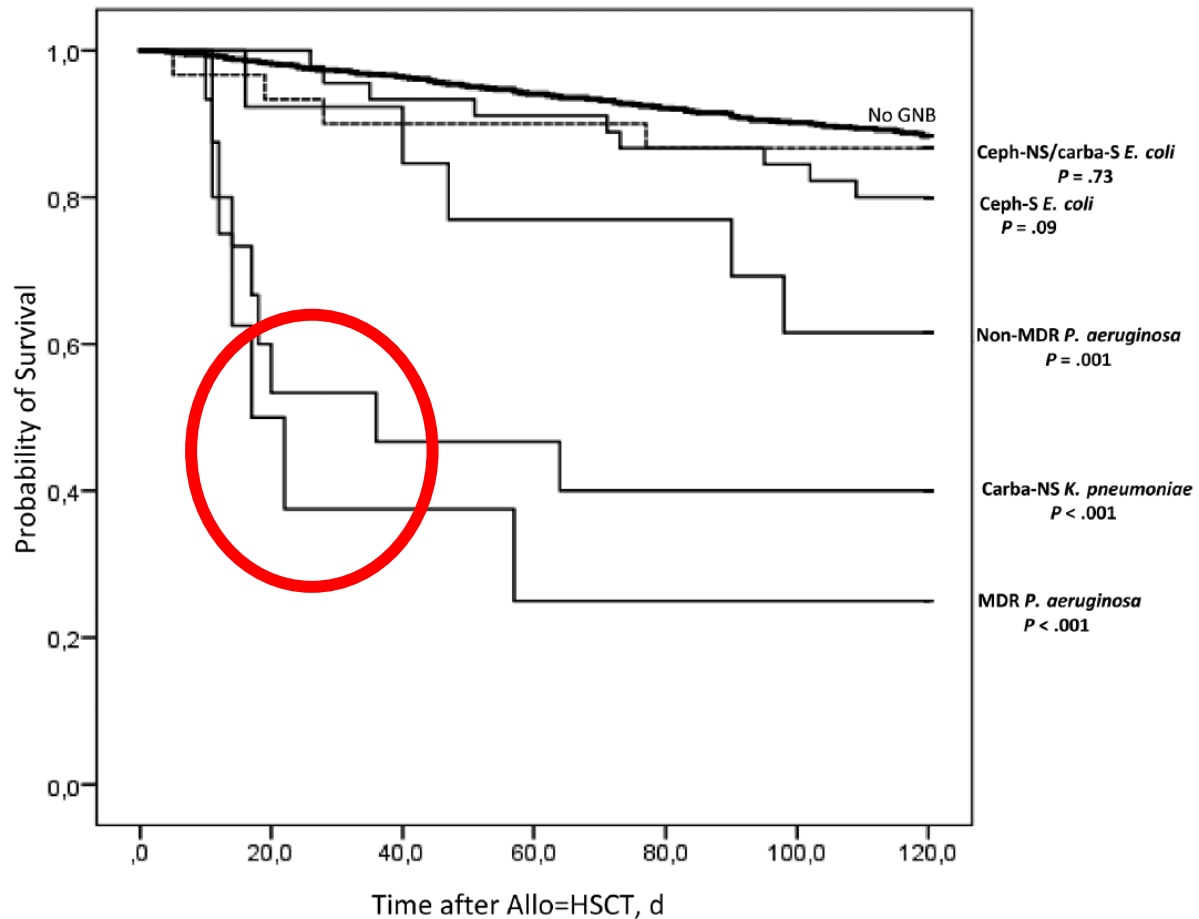
## Disclosures of Corrado Girmenia

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
Gilead					X		
MSD					X	X	
Astra Zeneca					X	X	
Takeda					X	X	
Biotest/Grifols					X	X	
GSK					X	X	
Lilly					X		
Pfizer					X		

# Incidence, Risk Factors and Outcome of Pre-engraftment Gram-Negative Bacteremia After Allogeneic and Autologous Hematopoietic Stem Cell Transplantation: An Italian Prospective Multicenter Survey

Corrado Girmenia,<sup>1</sup> Alice Bertaina,<sup>2</sup> Alfonso Piciocchi,<sup>3</sup> Katia Perruccio,<sup>4</sup> Alessandra Algarotti,<sup>5</sup> Alessandro Busca,<sup>6</sup> Chiara Cattaneo,<sup>7</sup> Anna Maria Raiola,<sup>8</sup> Stefano Guidi,<sup>9</sup> Anna Paola Iori,<sup>1</sup> Anna Candoni,<sup>10</sup> Giuseppe Irrera,<sup>11</sup> Giuseppe Milone,<sup>12</sup> Giampaolo Marcacci,<sup>13</sup> Rosanna Scimè,<sup>14</sup> Maurizio Musso,<sup>15</sup> Laura Cudillo,<sup>16</sup> Simona Sica,<sup>17</sup> Luca Castagna,<sup>18</sup> Paolo Corradini,<sup>19</sup> Francesco Marchesi,<sup>20</sup> Domenico Pastore,<sup>21</sup> Emilio Paolo Alessandrino,<sup>22</sup> Claudio Annaloro,<sup>23</sup> Fabio Ciceri,<sup>24</sup> Stella Santaronè,<sup>25</sup> Luca Nassi,<sup>26</sup> Claudio Farina,<sup>27</sup> Claudio Viscoli,<sup>28</sup> Gian Maria Rossolini,<sup>29,30</sup> Francesca Bonifazi,<sup>31</sup> and Alessandro Rambaldi,<sup>32</sup> for the Gruppo Italiano Trapianto di Midollo Osseo (GITMO) and Associazione Microbiologi Clinici Italiani (AMCLI).

2014  
1118 pts from 44 Centers



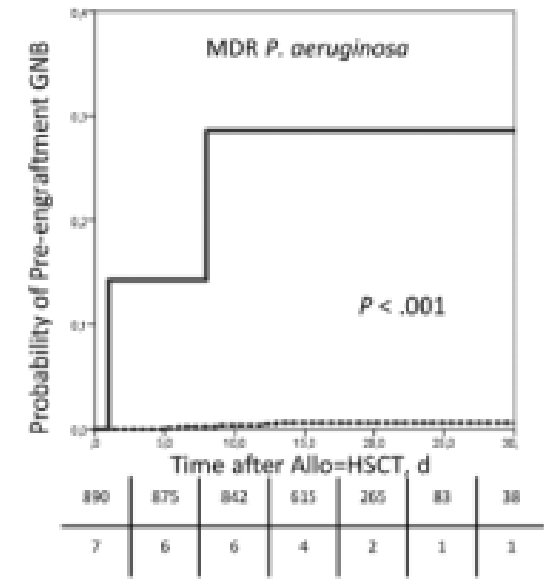
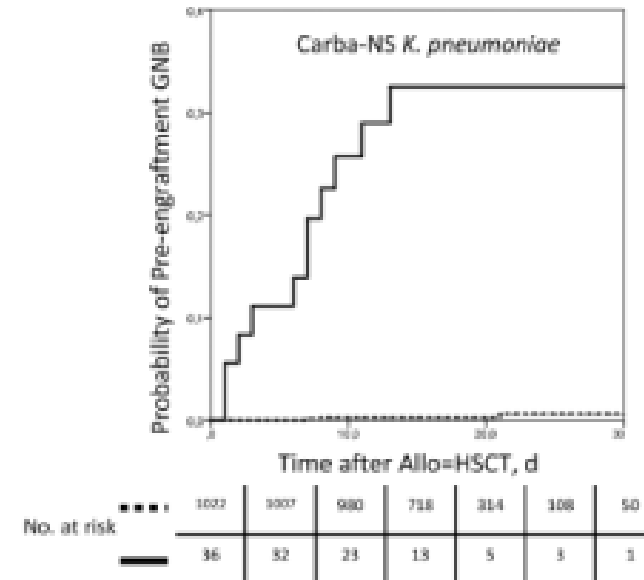
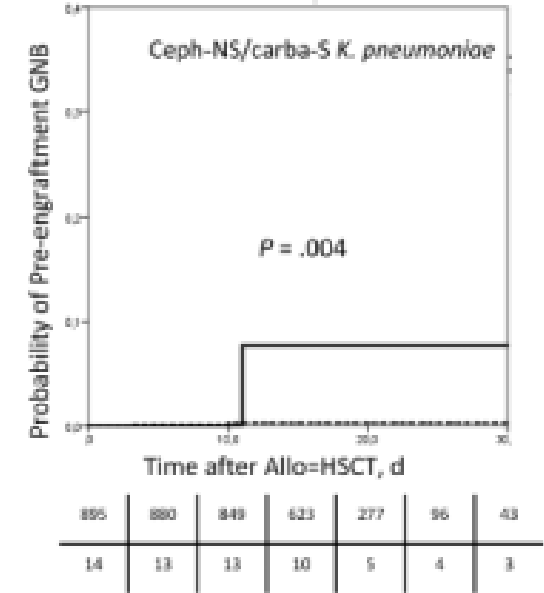
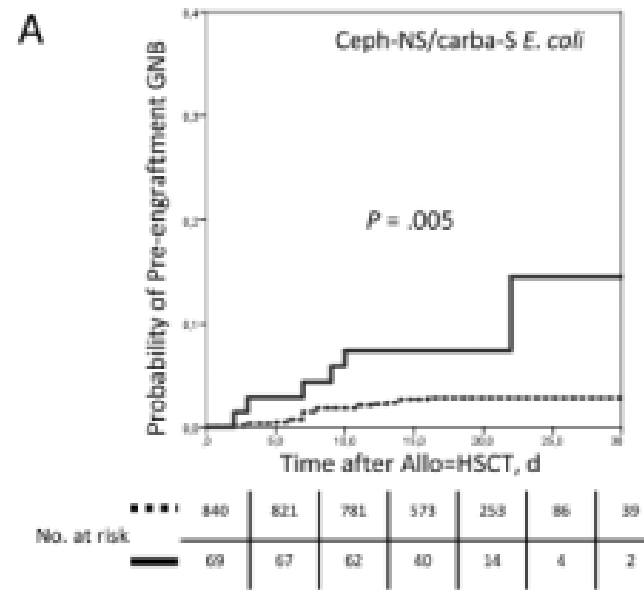
The mortality rate 30 days after the diagnosis of GNB was **17.9%** (25 of 140 patients), and in 96% of patients (24 of 25) the infection was considered the primary cause of death. Of 46 patients who died before engraftment, **the cause of death was a GNB in 18 (39.1%).**

# Incidence, Risk Factors and Outcome of Pre-engraftment Gram-Negative Bacteremia After Allogeneic and Autologous Hematopoietic Stem Cell Transplantation: An Italian Prospective Multicenter Survey

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 Microbiologi Clinici Italiani (AMCLI).

## MDR/XDR GNB colonization and risk of pre-engraftment bacteremia

A



# MDR/XDR GNB colonization and risk of pre-engraftment bacteremia

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**Table 5. Correlation Between Rectal Colonization by Resistant Gram-Negative Bacteria and Pre-Engraftment Gram Negative Bacteremia Caused by a Pathogen With the Same Susceptibility Phenotype**

Microorganism	Allo-HSCT		Auto-HSCT	
	Colonized/Evaluable Patients, No. (%)	Pre-engraftment GNB Colonized/Not Colonized, % (P Value)	Colonized/Evaluable Patients, No. (%)	Pre-engraftment GNB Colonized/Not colonized, % (P Value)
Ceph-R/carba-S <i>Escherichia Coli</i>	69/909 (7.6)	8.7/1.3 (.001)	89/1307 (6.8)	9.0/4.3 (.06)
Ceph-R/carba-S <i>Klebsiella pneumoniae</i>	14/909 (1.5)	7.1/0.4 (.07)	21/1307 (1.6)	19.0/0.3 (<.001)
Carba-R <i>K. pneumoniae</i>	36/1058 (3.4)	27.8/0.4 (<.001)	21/1432 (1.5)	19.0/0.007 (<.001)
MDR <i>Pseudomonas aeruginosa</i>	7/897 (0.8)	28.6/0.6 (.001)	2/1307 (0.15)	50/0.007 (.003)

Abbreviations: Allo-HSCT and auto-HSCT, allogeneic and autologous hematopoietic stem cell transplantation; carba-R, resistant to carbapenems; carba-S, sensitive to carbapenems; ceph-R, resistant to the third-generation cephalosporin ceftazidime; GNB, gram-negative bacteremia; MDR, multidrug-resistant.

# Colonization by MDR GNB in severe neutropenia

- It generally occurs in high-risk patients with a history of previous hospitalizations and intensive treatment of the underlying malignancy
- It is a major predictor of severe bacteremia by the same MDR pathogen
- Early highly active antimicrobial therapy is crucial for the outcome

**Management of carbapenem resistant *klebsiella pneumoniae* infections in stem cell transplant recipients: an italian multidisciplinary consensus statement**

by Corrado Girmenia, Claudio Viscoli, Alfonso Piciocchi, Laura Cudillo, Stefano Botti, Antonio Errico, Loredana Sarmati, Fabio Ciceri, Franco Locatelli, Maddalena Giannella, Matteo Bassetti, Carlo Tascini, Letizia Lombardini, Ignazio Majolino, Claudio Farina, Francesco Luzzaro, Gian Maria Rossolini, and Alessandro Rambaldi

## GITMO, AMCLI, SIMIT, CNT

Susceptibility pattern of the colonizing isolate

At least two active agents

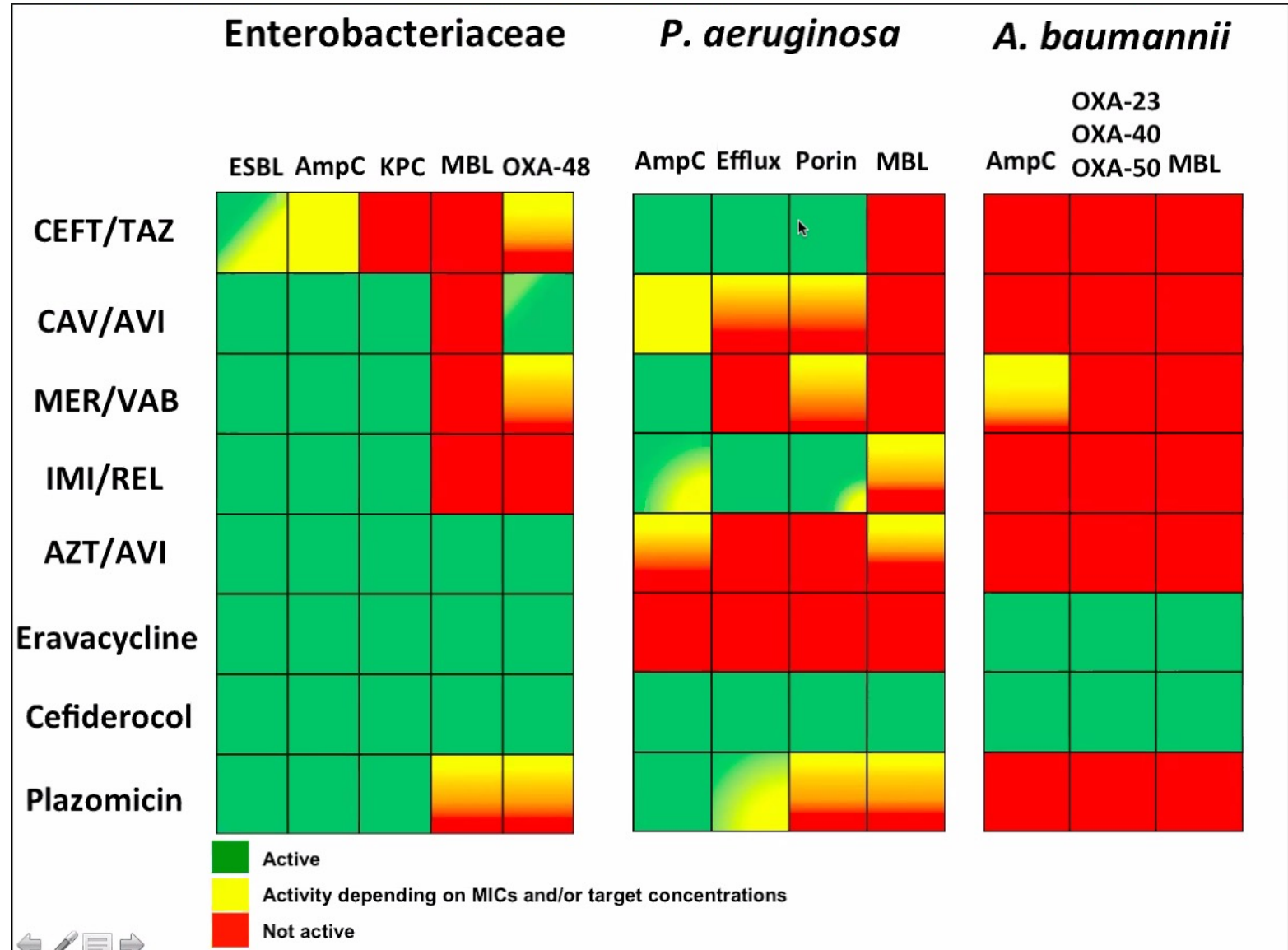
Standard empiric antibiotic therapy discouraged in patients with colonization by MDR bacteria

- CRKp carriers, at onset of febrile neutropenia or other signs of possible infection.
  - CTAT based on the susceptibility pattern of the colonizing isolate with the inclusion of at least two active agents, if possible, is strongly recommended (**AII**).
  - The use of standard empiric antibiotic therapy, not including CRKp-active drugs, is discouraged (**AII**).
  - In SCT centers with an ongoing outbreak of CRKp, the choice of empiric CTAT may be considered also in febrile patients who are not colonized, or with an unknown colonization status. (**BII**). Prompt withdrawal of CTAT with downgrading to more traditional drugs is recommended if cultures come back negative for CRKp, also taking into consideration the clinical findings (**AII**).

Consider active empiric therapy also in noncolonized patients during an ongoing outbreak

# Antibiotic armamentarium against Gram negative bacteria

Piperacillin-tazobactam  
 Ceftazidime  
 Cefepime  
 Meropenem  
 Colistin  
 Fosfomicin  
 Tygecicline  
 Aminoglycosides



# Changing epidemiology of Gram negative microorganisms in allo-HSCT

- Incidence
- Susceptibility patterns
  - Risk factors
  - Outcome

# Epidemiology of Gram-neg bacterial infections in allo-HSCT: the lesson from GITMO studies

Clinical Infectious Diseases

MAJOR ARTICLE



CID 2017:65 (1 December)

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Open Forum Infectious Diseases

MAJOR ARTICLE

Infectious Diseases Society of America

HIV Medicine Association

OXFORD

2025 Apr 18;12(5):ofaf233.

The Changing Impact of Human Cytomegalovirus Serology and Infection on Patient Outcome After Allogeneic Hematopoietic Stem Cell Transplantation: An Italian Prospective Multicenter Survey in the Era of Letermovir Prophylaxis

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2021-2022  
1310 pts from 42 Centers

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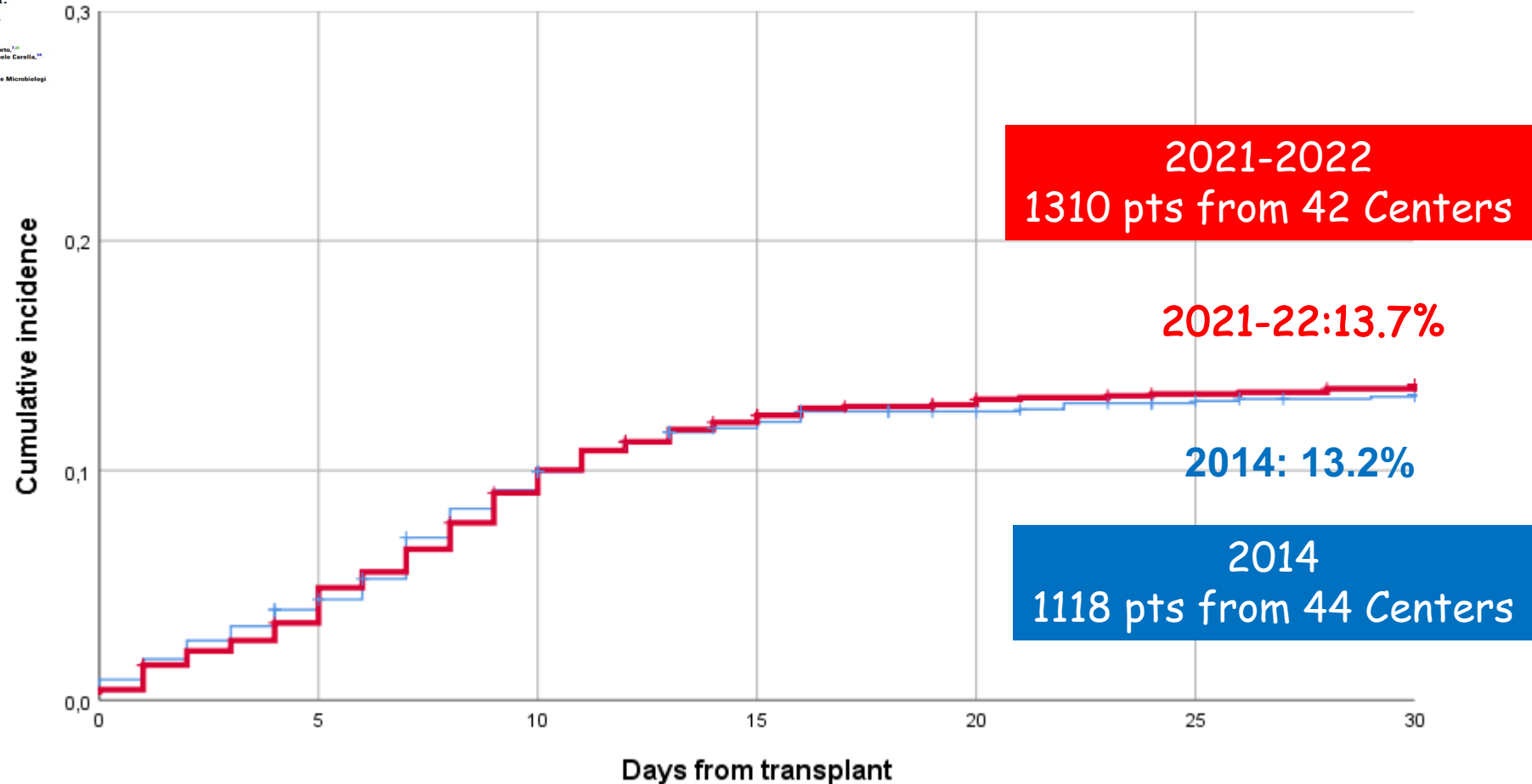
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# Gram-neg bacteremia during the engraftment period in allo-HSCT: comparison of two GITMO-AMCLI prospective studies

## Cumulative incidence of GNB



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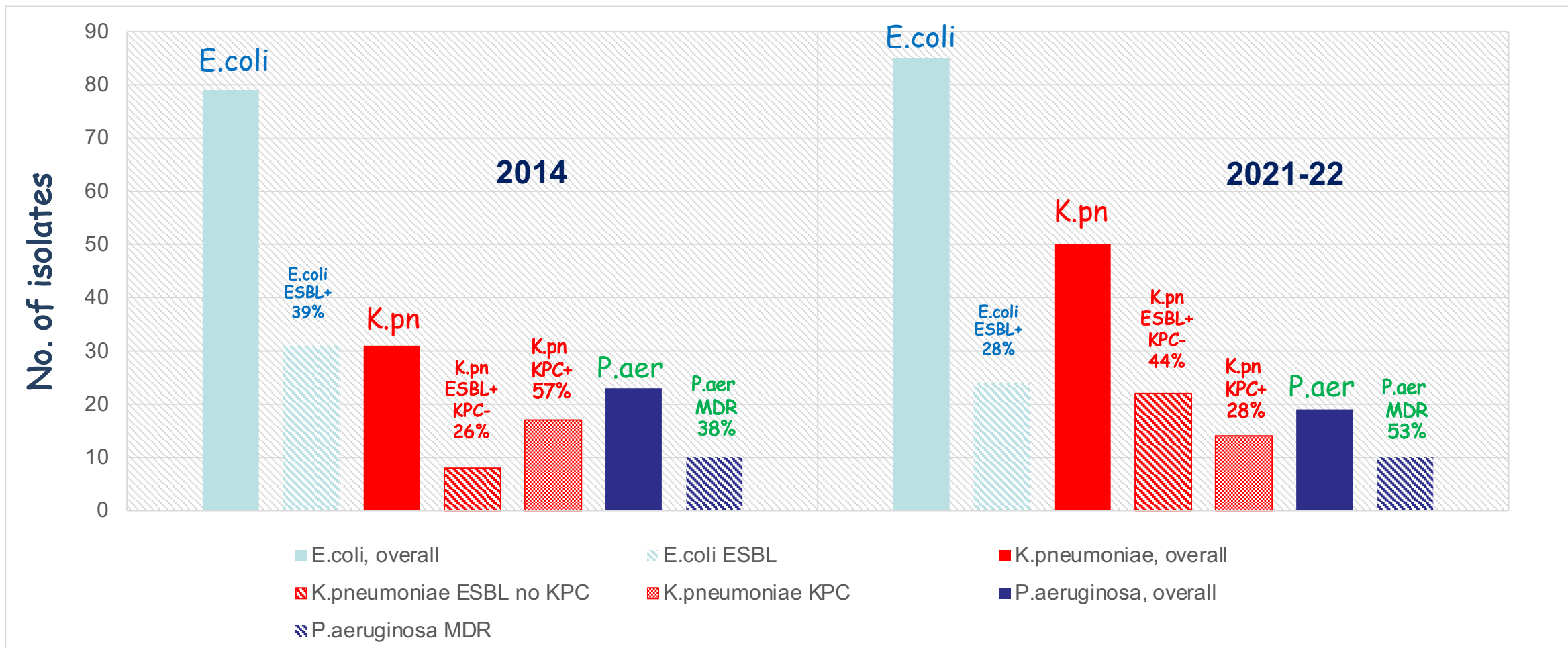
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Gram-negative isolates and resistance patterns: 157 isolates in 2014, 179 isolates in 2021-22



KP-KPC in 2014: 17 isolates from 15 of 44 centers (34%)

KP-KPC in 2021-22: 14 isolates from 8 of 42 centers (19%)

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# Risk factors of GNB at 30 days from transplant in SIGNB and CYTOALLO GITMO-AMCLI studies. Multivariate analysis

	SIGNB Multivariate Fine-Gray Regression			CYTOALLO Multivariate Fine-Gray Regression		
	HR	95% CI	p-value	HR	95% CI	p-value
Sex Female						
Age	1.02	1.01, 1.03	0.002			
Underlying disease						
Acute leukemia	—	—		—	—	
Other diseases	0.50	0.33, 0.77	0.001	0.55	0.40, 0.76	<0.001
Phase of underlying disease						
CR/Chronic disease	—	—		—	—	
No CR/Active	1.57	1.05, 2.36	0.029			
Donor type						
MRD	—	—		—	—	
MMRD	4.60	2.02, 10.5	<0.001	0.80	0.28, 2.29	0.7
Haplo	3.20	1.80, 5.70	<0.001	1.01	0.62, 1.64	>0.9
MUD	2.07	1.07, 3.98	0.030	1.95	1.27, 2.98	0.002
MMUD	3.91	1.99, 7.69	<0.001	1.34	0.82, 2.21	0.2
Stem cell source						
Peripheral blood	—	—				
Bone marrow	1.71	1.19, 2.44	0.003			
Cord blood	2.63	1.04, 6.62	0.041			
Antibacterial prophylaxis				0.49	0.36, 0.67	<0.001

CID 2017:65 (1 December)

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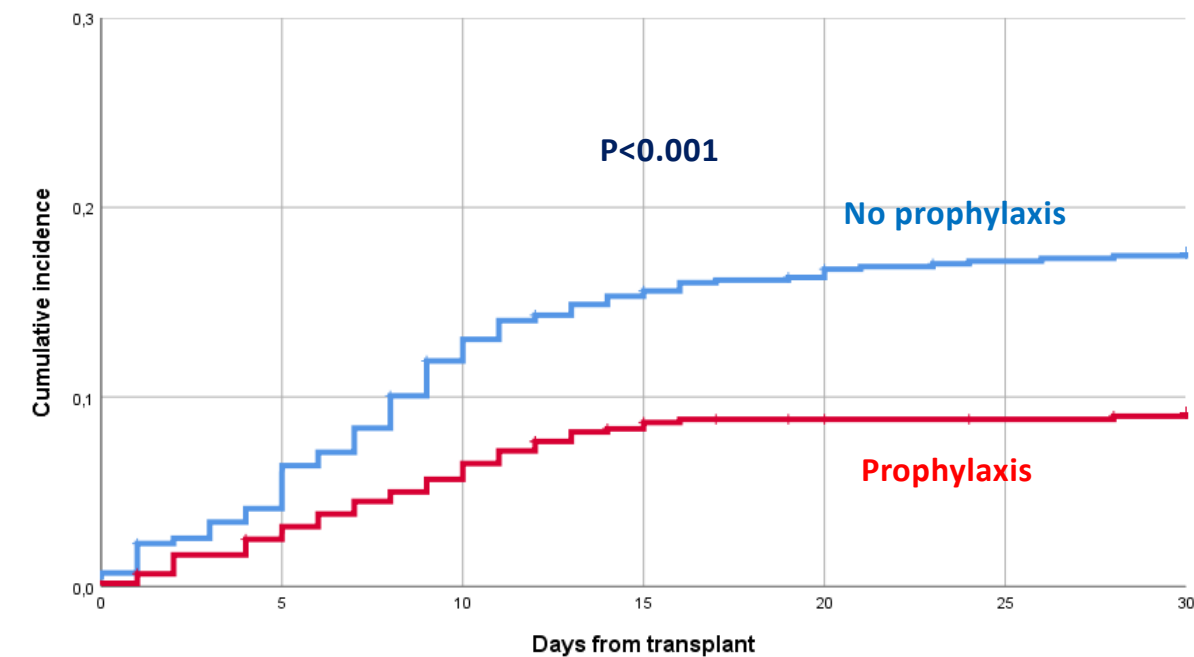
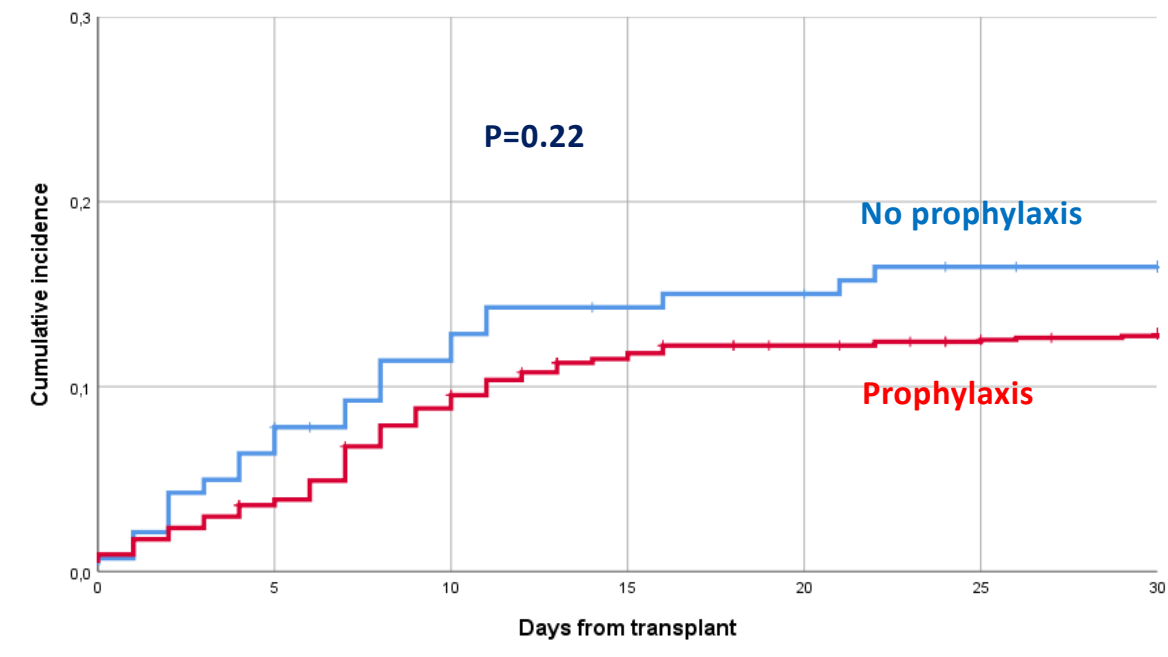
Corrado Gimenis,<sup>1</sup> Alice Bertina,<sup>1</sup> Alfonso Picciocchi,<sup>1</sup> Katia Perruccio,<sup>1</sup> Alessandro Algerotti,<sup>1</sup> Alessandro Busca,<sup>1</sup> Chiara Cattaneo,<sup>1</sup> Anna Maria Balala,<sup>1</sup> Stefano Guidi,<sup>1</sup> Anna Paola Iori,<sup>1</sup> Anna Candoni,<sup>1</sup> Giuseppe Irrera,<sup>1</sup> Giuseppe Milano,<sup>1</sup> Giampaolo Marcacci,<sup>1</sup> Rosanna Scimà,<sup>1</sup> Maurizio Musco,<sup>1</sup> Laura Cutillo,<sup>1</sup> Simona Sica,<sup>1</sup> Luca Castagna,<sup>1</sup> Paolo Corradini,<sup>1</sup> Francesco Marchesi,<sup>1</sup> Demetrio Pastore,<sup>1</sup> Emilio Paolo Alessandrini,<sup>1</sup> Claudio Amadori,<sup>1</sup> Fabio Cicci,<sup>1</sup> Stella Santoro,<sup>1</sup> Luca Nesi,<sup>1</sup> Claudio Furia,<sup>1</sup> Claudio Viscio,<sup>1</sup> Gian Maria Rossolini,<sup>1</sup> Francesca Bonifazi,<sup>1</sup> and Alessandro Rambaldi,<sup>1,2</sup> for the Gruppo Italiano Trapianto di Midollo Osseo (GITMO) and Associazione Microbiologi Clinici Italiani (AMCLI)

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# Effect of antibacterial prophylaxis on Gram-neg bacteremia during the engraftment period in allo-HSCT: results of two GITMO-AMCLI studies

SIGNB Study 2014

CYTOALLO Study 2021-22



Study 2014: no prophylaxis 141/1118 pts (12.6%)

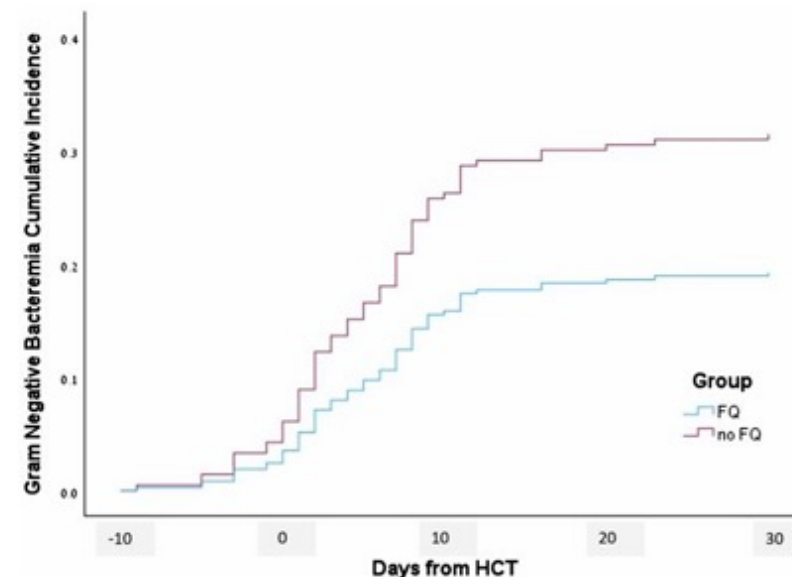
Study 2021-22: no prophylaxis 707/1310 pts (54%)

**Impact of discontinuing routine fluoroquinolone prophylaxis in neutropenic allogeneic haematopoietic stem cell transplant recipients: an observational study**

Anat Stern<sup>1,2\*</sup>, Israel Henig<sup>3†</sup>, Maya Cohen<sup>2</sup>, Ivan Gur<sup>4</sup>, Oryan Henig<sup>5,6</sup>, Tsila Zuckerman<sup>2,3</sup> and Mical Paul<sup>1,2</sup>

<sup>1</sup>Infectious Diseases Institute, Rambam Health Care Campus, Haifa, Israel; <sup>2</sup>Bruce Rappaport School of Medicine, Technion Israel Institute of Technology, Haifa, Israel; <sup>3</sup>Department of Hematology, Rambam Health Care Campus, Haifa, Israel; <sup>4</sup>Internal Medicine Department, Rambam Health Care Campus, Haifa, Israel; <sup>5</sup>Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; <sup>6</sup>Infection Prevention and Control Unit, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

No significant difference was found in the 30-day mortality (9.2% versus 14.5%,  $P = 0.2669$ ) or the 90-day mortality (18.5% versus 23.4%,  $P = 0.4173$ ) between the FQ and no FQ groups



**Table 2.** Univariable and multivariable logistic regression for GN BSI (N=254)

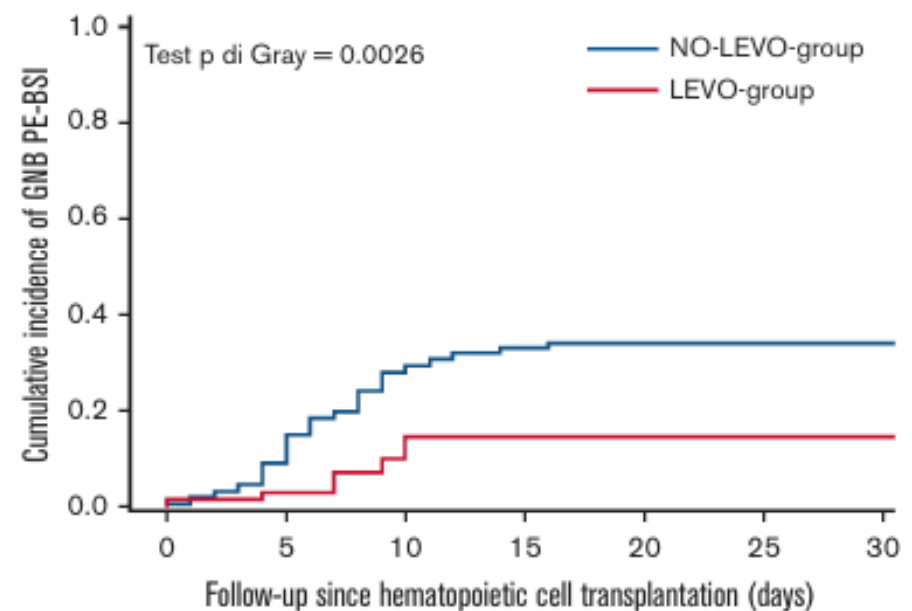
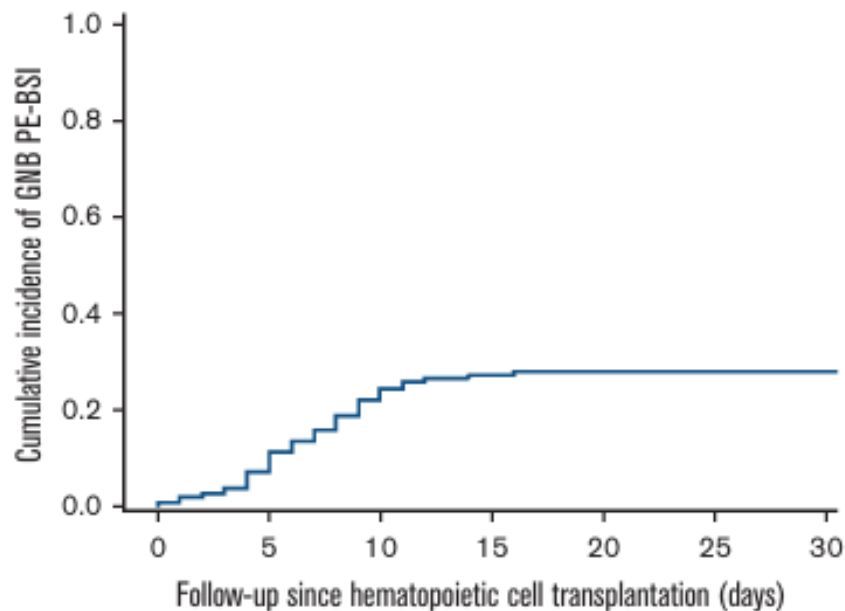
Characteristics	Univariable analysis			Multivariable analysis		
	HR	95% CI	P value	HR	95% CI	P value
Age, years	1.02	(1, 1.04)	<b>0.053</b>	1.02	(0.99, 1.03)	0.086
Sex (female sex as reference)	0.83	(0.51, 1.37)	0.469			
HLA match (Unmatched as reference)	1.72	(0.79, 3.77)	0.175			
Underlying disease (Acute leukaemia versus others)	0.80	(0.43, 1.49)	0.476			
ATG administration	1.64	(0.99, 2.70)	<b>0.051</b>	0.10	(0.93, 2.54)	0.096
Cyclophosphamide administration	0.74	(0.39, 1.41)	0.359			
FQ prophylaxis group (no FQ as reference)	0.57	(0.35, 0.93)	<b>0.026</b>	0.57	(0.34, 0.93)	<b>0.025</b>

Our study adds to the body of evidence raising concern that discontinuation of FQ prophylaxis may be associated with increased risk for BSI even in the setting of high rates of FQ resistance.

## Levofloxacin prophylaxis vs no prophylaxis in patients with neutropenia within an endemic country for carbapenem-resistant GNB

Daniela Clerici,<sup>1</sup> Laura Galli,<sup>2</sup> Raffaella Greco,<sup>1</sup> Anna P. Lugli,<sup>3</sup> Federico Erbella,<sup>1,3</sup> Marco Ripa,<sup>2,3</sup> Chiara Tassan Din,<sup>2</sup> Rosamaria Nitti,<sup>1,3</sup> Fabio Giglio,<sup>1</sup> Sara Mastaglio,<sup>1</sup> Francesca Lorentino,<sup>1</sup> Elisabetta Xue,<sup>1</sup> Francesca Farina,<sup>1</sup> Carmine Liberatore,<sup>1</sup> Andrea Poli,<sup>2</sup> Silvia Carletti,<sup>4</sup> Maria T. Lupo Stanghellini,<sup>1</sup> Matteo G. Carrabba,<sup>1</sup> Andrea A. Assanelli,<sup>1</sup> Annalisa Ruggeri,<sup>1</sup> Massimo Bernardi,<sup>1</sup> Consuelo Corti,<sup>1</sup> Jacopo Peccatori,<sup>1</sup> Nicasio Mancini,<sup>3,4</sup> Paolo Scarpellini,<sup>2</sup> Fabio Ciceri,<sup>1,3</sup> Antonella Castagna,<sup>2,3,\*</sup> and Chiara Ottolini<sup>2,\*</sup>

We evaluated the day+30 post transplant cumulative incidence function (CIF) of gram-negative Bacteria pre-engraftment bloodstream infections (PE-BSIs) and any changes in antimicrobial resistance, FN, and infection-related mortality (IRM).



Cumulative incidence of pre-engraftment BSI (first episode) due to Gram-negative pathogens in allogeneic stem cell transplantation (95%CI)				
Follow-up (days)	Overall	Follow-up (days)	LEVO-group	NO-LEVO-group
7	16.1 (11.5 – 21.3)	7	7.2 (2.6 – 14.9)	20.2 (14.1 – 27.0)
14	27.4 (21.5 – 33.6)	14	14.7 (7.5 – 24.2)	33.5 (25.8 – 41.3)
21	28.0 (22.0 – 34.2)	21	14.7 (7.5 – 24.2)	34.4 (26.6 – 42.3)
30	28.0 (22.0 – 34.2)	30	14.7 (7.5 – 24.2)	34.4 (26.6 – 42.3)

## Levofloxacin prophylaxis vs no prophylaxis in patients with neutropenia within an endemic country for carbapenem-resistant GNB

Daniela Ciceri,<sup>1</sup> Laura Galli,<sup>2</sup> Raffaella Greco,<sup>1</sup> Anna P. Lugi,<sup>3</sup> Federico Erbella,<sup>1,3</sup> Marco Ripa,<sup>2,3</sup> Chiara Tassan Din,<sup>2</sup> Rosamaria Nitti,<sup>1,3</sup> Fabio Giglio,<sup>1</sup> Sara Mastaglio,<sup>1</sup> Francesca Lorentino,<sup>1</sup> Elisabetta Xue,<sup>1</sup> Francesca Fairini,<sup>1</sup> Carmine Liberatore,<sup>1</sup> Andrea Poli,<sup>2</sup> Silvia Carletti,<sup>4</sup> Maria T. Lupo Stanghellini,<sup>1</sup> Matteo G. Carrabba,<sup>1</sup> Andrea A. Assarelli,<sup>1</sup> Annalisa Ruggeri,<sup>1</sup> Massimo Bernardi,<sup>1</sup> Consuelo Corti,<sup>1</sup> Jacopo Peccatori,<sup>1</sup> Nicasio Mancini,<sup>1,4</sup> Paolo Scarpellini,<sup>2</sup> Fabio Ciceri,<sup>1,3</sup> Antonella Castagna,<sup>2,3\*</sup> and Chiara Ottolini<sup>2\*</sup>

**Table 6. Univariate and multivariate Fine-Gray models to assess risk factors for GNB PE-BSIs in allo-HSCT recipients**

Characteristic	Risk categories	Univariate analysis		Multivariate analysis (n = 218, 55 GNB PE-BSI, 5 competing events)	
		Unadjusted HR of GNB PE-BSI (95% CI)	P value	AHR of GNB PE-BSI (95% CI)	P value
Age at allo-HSCT	Per 5-y older	1.08 (0.98-1.18)	.107	1.11 (1.00-1.24)	.061
Use of prophylaxis	Yes vs no	0.37 (0.18-0.74)	.005	0.40 (0.19-0.83)	<b>.013</b>
ANC $\leq$ 500 for $\geq$ 7 d before allo-HSCT	Yes vs no	2.67 (1.33-5.36)	.006	2.52 (1.27-4.98)	<b>.008</b>
Acute leukemia	Yes vs no	1.44 (0.75-2.76)	.275	Not included	-
MDR-GNB rectal carrier within 30 d before allo-HSCT	Yes vs no	1.39 (0.41-4.71)	.599	Not included	-
Conditioning regimen	RTC vs MAC	1.07 (0.63-1.83)	.793	0.70 (0.38-1.28)	.251
GVHD prophylaxis	PT-Cy/ATG or ATG-based regimens vs PT-Cy/sirolimus-based regimens	1.03 (0.34-3.07)	.963	Not included	-
	Other regimens vs PT-Cy/sirolimus-based regimens	0.61 (0.20-1.93)	.404		
Type of donor	Haploidentical vs MRD	0.78 (0.38-1.61)	.497	0.91 (0.41-2.03)	.817
	CB vs MRD	1.26 (0.37-4.30)	.139	1.63 (0.46-5.74)	.447
	MUD vs MRD	0.85 (0.43-1.68)	.645	0.81 (0.39-1.71)	.587
Disease phase at allo-HSCT	>CR1 vs CR1	0.41 (0.16-1.04)	.059	Not included	-
	AD/PR vs CR1	1.36 (0.77-2.38)	.287		
	Upfront vs CR1	1.13 (0.37-3.44)	.824		
GNB BSI within 90 d before allo-HSCT	Yes vs no	2.35 (1.25-4.43)	.008	2.15 (1.15-4.02)	<b>.016</b>

Bold values represent P values that reach statistical significance ( $P < 0.05$ ). AD, advanced disease; ATG, antithymocyte globulin; CB, cord blood; CR, complete remission; MAC, myeloablative conditioning; MRD, match-related donor; MUD, match-unrelated donor; PR, partial response; PT-Cy, posttransplant cyclophosphamide; RTC, reduced toxicity conditioning.

**FQ-P discontinuation increased gram-negative bacteria PE-BSI but did not impact IRM, importantly, it concurred to significantly decrease antimicrobial resistance in gram-negative bacteria.**

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# Effect of antibacterial prophylaxis on Gram-neg bacteremia during the engraftment period in allo-HSCT: results of two GITMO-AMCLI studies

## Efficacy of ATB prophylaxis according to GNB susceptibility pattern (2428 patients)

GNB susceptibility pattern, n	No ATB prophylaxis, n (%)	ATB Prophylaxis, n (%)	p
Enterobacteria no ESBL, 146	75/848 (8.8)	71/1580 (4.5)	<0.0001
Enterobacteria ESBL ,83	33/848 (3.9)	50/1580 (3.2)	0.35
Enterobacteria KPC, 30	10/848 (1.2)	20/1580 (1.3)	1
P.aeruginosa no MDR, 23	11/848 (1.3)	12/1580 (0.8)	0.2
P.aeruginosa MDR, 18	8/848 (0.8)	12/1580 (0.8)	1
Other, 25	10/848 (1.2)	15/1580 (0.9)	0.7
Total, 327	147/848 (17.3)	180/1580 (11.4)	0.0001

**ATB prophylaxis during the engraftment after allo-HSCT:**

- Significantly prevents GNB by not MDR strains
- Does not increase the risk GNB by MDR strains

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# OS at 120 days from allo-HSCT in SIGNB and CYTOALLO GITMO-AMCLI studies. Multivariate analysis

	SIGNB Multivariate COX PH Regression			CYTOALLO Multivariate COX PH Regression		
	HR	95% CI	p-value			
<b>Age</b>	<b>1.01</b>	<b>1.00, 1.02</b>	<b>0.030</b>			
<b>Underlying disease</b>						
<b>Acute leukemia</b>	—	—				
<b>Other diseases</b>	<b>0.44</b>	<b>0.29, 0.65</b>	<b>&lt;0.001</b>	<b>0.51</b>	<b>0.33, 0.81</b>	<b>0.004</b>
<b>Phase of underlying disease</b>						
<b>CR/Chronic disease</b>	—	—				
<b>No CR/Active</b>	<b>2.26</b>	<b>1.54, 3.31</b>	<b>&lt;0.001</b>	<b>2.04</b>	<b>1.27, 3.27</b>	<b>0.003</b>
<b>Previous HSCT</b>						
<b>No</b>	—	—				
<b>Autologous</b>	<b>1.72</b>	<b>1.13, 2.62</b>	<b>0.012</b>			
<b>Allogeneic</b>	<b>1.62</b>	<b>1.00, 2.62</b>	<b>0.049</b>			
<b>Engraftment</b>						
<b>≤ 20g</b>						
<b>&gt; 20g</b>	<b>1.50</b>	<b>1.15, 2.21</b>	<b>0.04</b>	<b>1.70</b>	<b>1.15, 2.51</b>	<b>0.008</b>
<b>Acute GVHD</b>						
<b>0-1</b>	—	—				
<b>2-4</b>	<b>2.16</b>	<b>1.21, 3.84</b>	<b>0.009</b>			
<b>GNB</b>	<b>2.57</b>	<b>1.77, 3.73</b>	<b>&lt;0.001</b>	<b>1.90</b>	<b>1.18, 3.05</b>	<b>0.008</b>
<b>Invasive fungal infection</b>	<b>4.16</b>	<b>2.02, 8.57</b>	<b>&lt;0.001</b>	<b>3.12</b>	<b>1.61, 6.05</b>	<b>&lt;0.001</b>

# Gram-neg bacteremia during the engraftment period in allo-HSCT: comparison of two GITMO-AMCLI prospective studies

Clinical Infectious Diseases  
MAJOR ARTICLE



CID 2017:65 (1 December)

Incidence, Risk Factors and Outcome of Pre-engraftment Gram-Negative Bacteremia After Allogeneic and Autologous Hematopoietic Stem Cell Transplantation: An Italian Prospective Multicenter Survey

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## Probability of survival at 4 months from transplant according to GNB

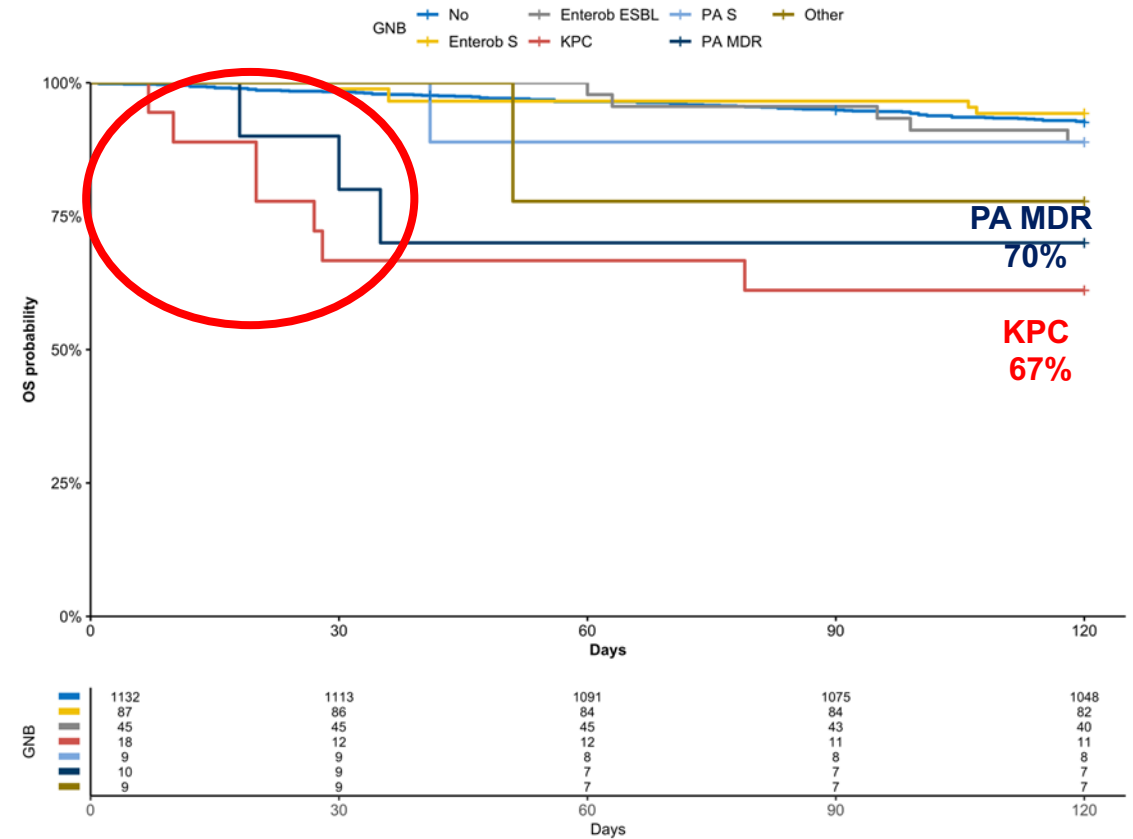
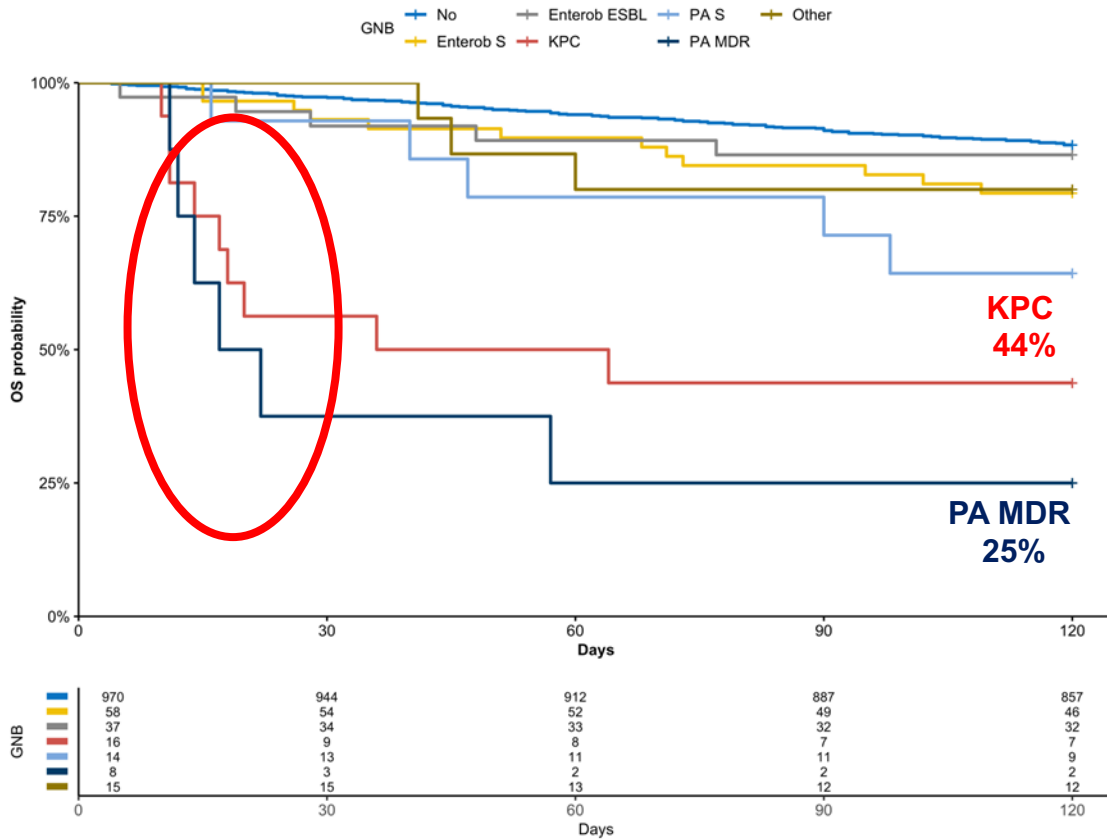
Open Forum Infectious Diseases  
MAJOR ARTICLE

Infectious Diseases Society of America  
HIV Medicine Association  
OXFORD

2025 Apr 18;12(5):ofaf233.

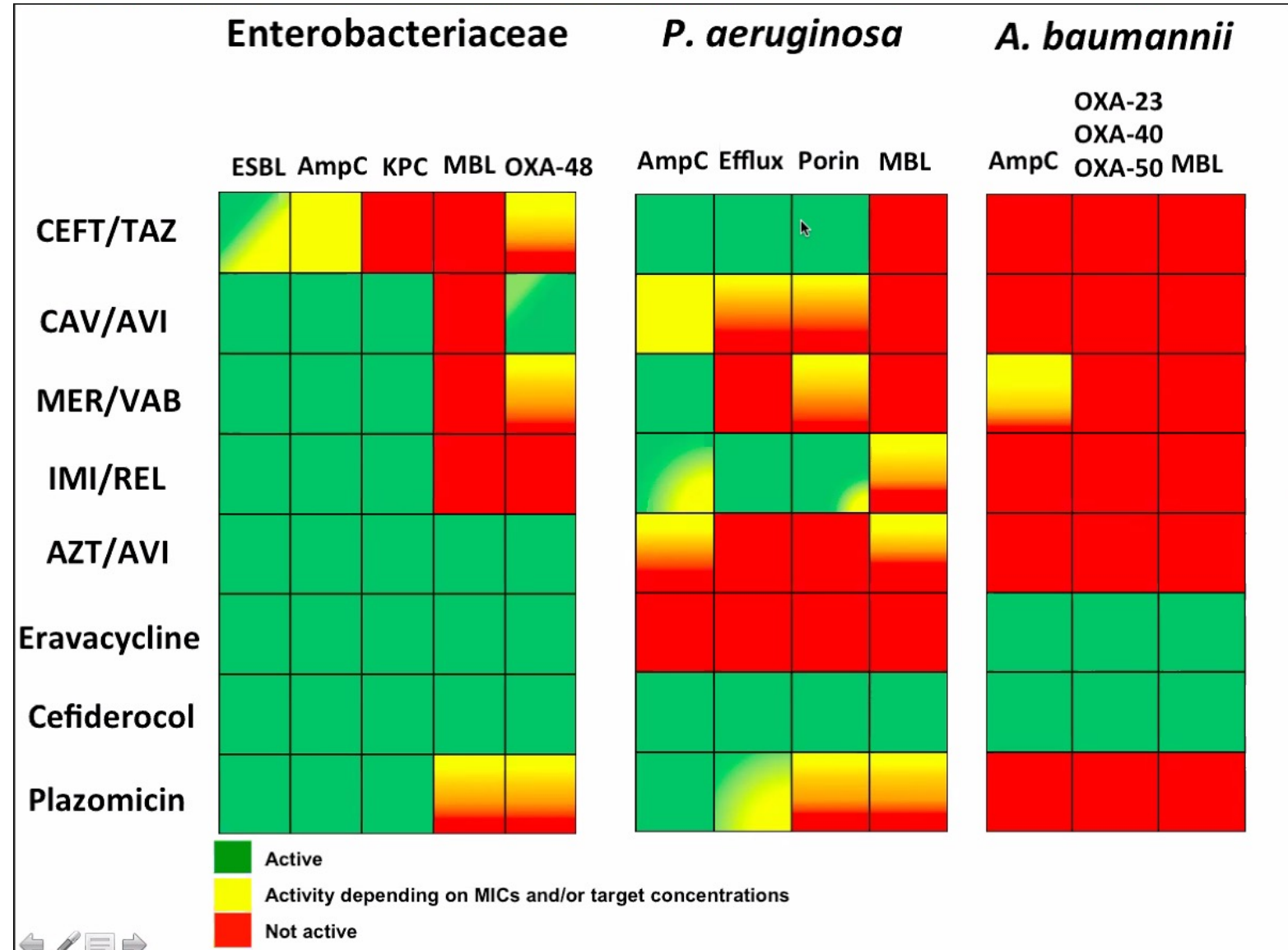
The Changing Impact of Human Cytomegalovirus Serology and Infection on Patient Outcome After Allogeneic Hematopoietic Stem Cell Transplantation: An Italian Prospective Multicenter Survey in the Era of Letermovir Prophylaxis

Corrado Giemina,<sup>1</sup> Patrizia Chiusolo,<sup>2</sup> Giovanni Marzili,<sup>3</sup> Alfonso Picciocchi,<sup>4</sup> Maria Caterina Mica,<sup>5</sup> Raffaella Greco,<sup>6</sup> Gaetano Porto,<sup>7</sup> Federica Galvone,<sup>8</sup> Francesco Bonifazi,<sup>9</sup> Ilaria Colini,<sup>10</sup> Michele Malagola,<sup>11</sup> Stefania Bramanti,<sup>12</sup> Alessandro Busca,<sup>13</sup> Angelo Michele Casella,<sup>14</sup> Alessandra Carotti,<sup>15</sup> Anna Paola Iori,<sup>16</sup> Francesco Onda,<sup>17</sup> Roberto Bono,<sup>18</sup> Elisabetta Torozzi,<sup>19</sup> Adriano Vacca,<sup>20</sup> Amelia Rinaldi,<sup>21</sup> Irene Maria Gaytoni,<sup>22</sup> Alessandro Picardi,<sup>23</sup> Maura Farusi,<sup>24</sup> Tiziana Lazzarini,<sup>25</sup> Fausto Baldoni,<sup>26</sup> Pasquale Corici,<sup>27</sup> Luca Castagna,<sup>28</sup> Massimo Martino,<sup>29</sup> and Fabio Cicci,<sup>30</sup> for the Gruppo Italiano Trapianto di Midollo Osseo (GITMO) and Associazione Microbiologi Clinici Italiani (AMCLI).



# Antibiotic armamentarium against Gram negative bacteria

Piperacillin-tazobactam  
 Ceftazidime  
 Cefepime  
 Meropenem  
 Colistin  
 Fosfomicin  
 Tygeciline  
 Aminoglycosides

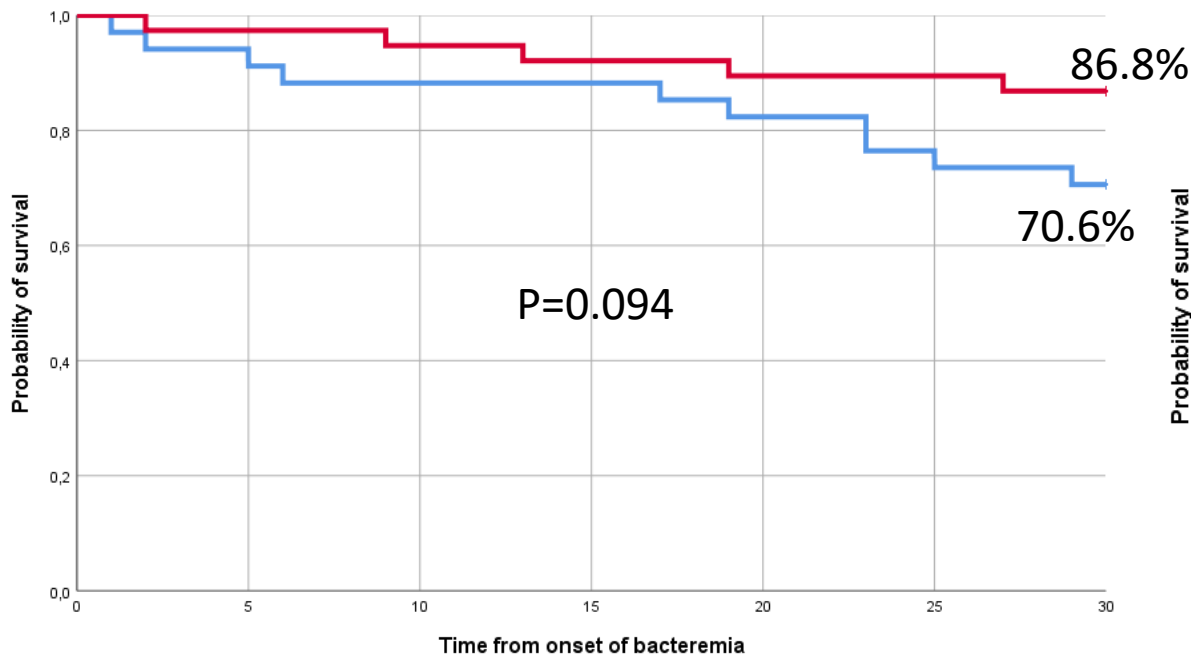


# Outcome of CRE/PA bacteremia: comparison of PENTALLO study and the CYTOALLO GITMO-AMCLI study

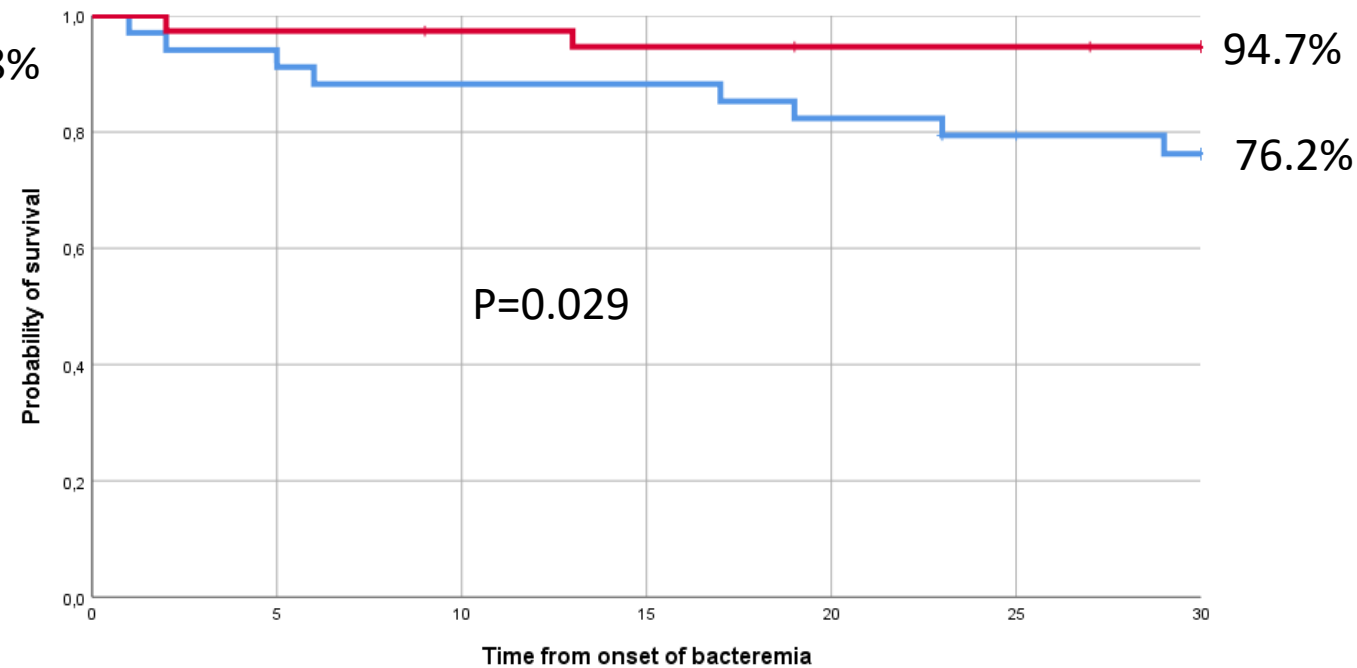
Best available antimicrobial therapy

Best available antimicrobial therapy plus IgM enriched immunoglobulins

All deaths



Only infection related deaths



Overall mortality at 30 days: 13.8% vs 29.4%

Infection-related mortality at 30 days: 5.3% vs 23.8%