X REUNIÓN CIENTÍFICA
GEIO 2025

Etiología actual de las IPA ¿Nuevos escenarios?

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CIBERINFEC

The University of Queensalnd

GEIO
GRUPO DE ESTUDIO DE LA INFECCIÓN OSTEOARTICULAR
seimc

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Índice

- La etiología: estable y cambiante
- La resistencia antimicrobiana
  - multiresistencia
  - resistencia a cefazolina
- El proceso diagnóstico

Tratamiento empírico

Profilaxis quirúrgica

¿Todos los pacientes son iguales?

- Estafilococos
- Bacilos gramnegativos
- Enterococos
- Estreptococos

Distintas proporciones

- Cambios temporales
- Área geográfica

- Paciente
- Cirugía
- Infección

- Procedimientos diagnósticos

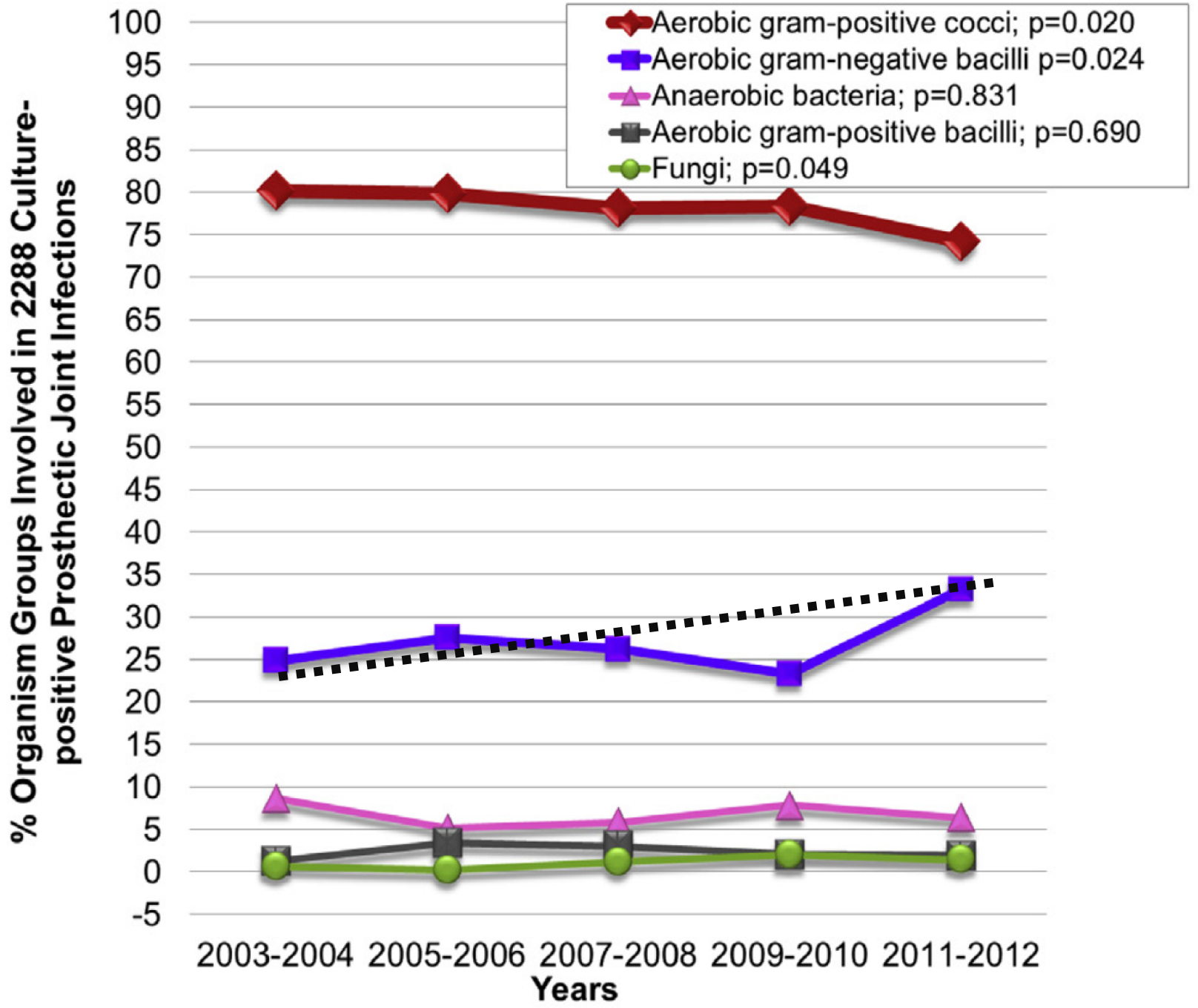
Distintas proporciones

- **Cambios temporales**
- **Área geográfica**

- Paciente
- Cirugía
- **Infección**

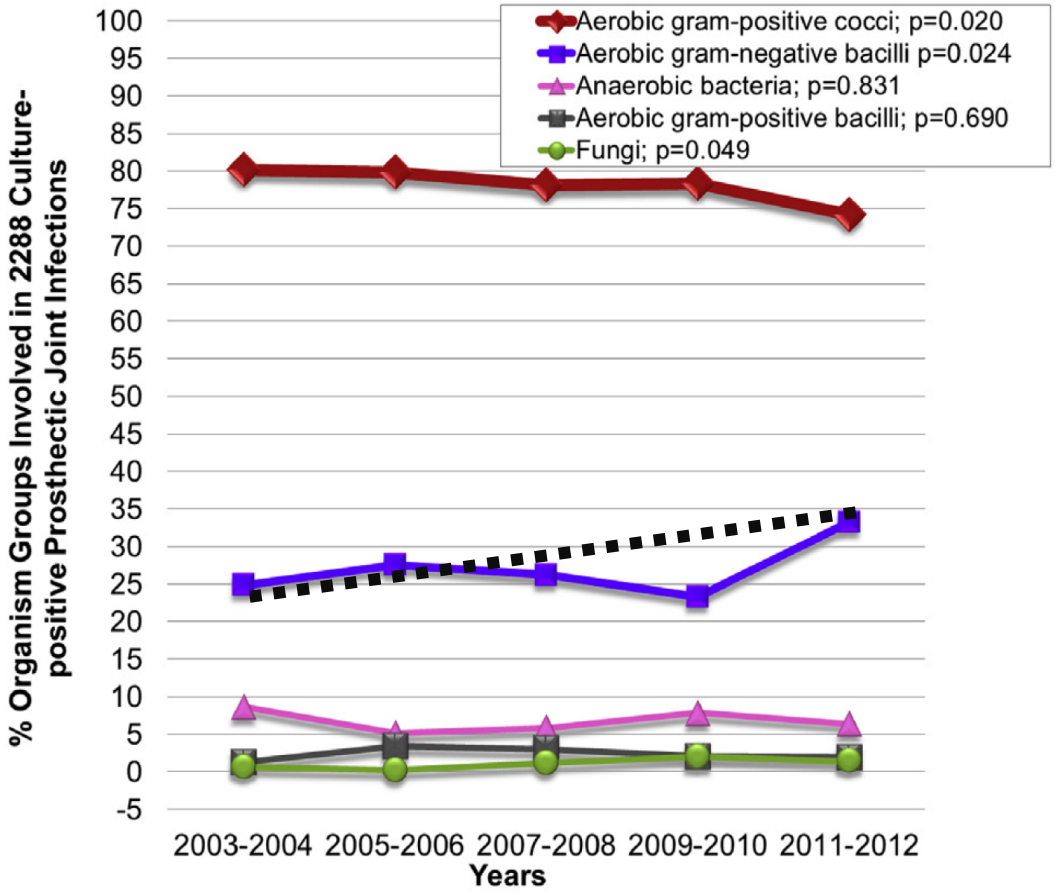
- **Procedimientos diagnósticos**

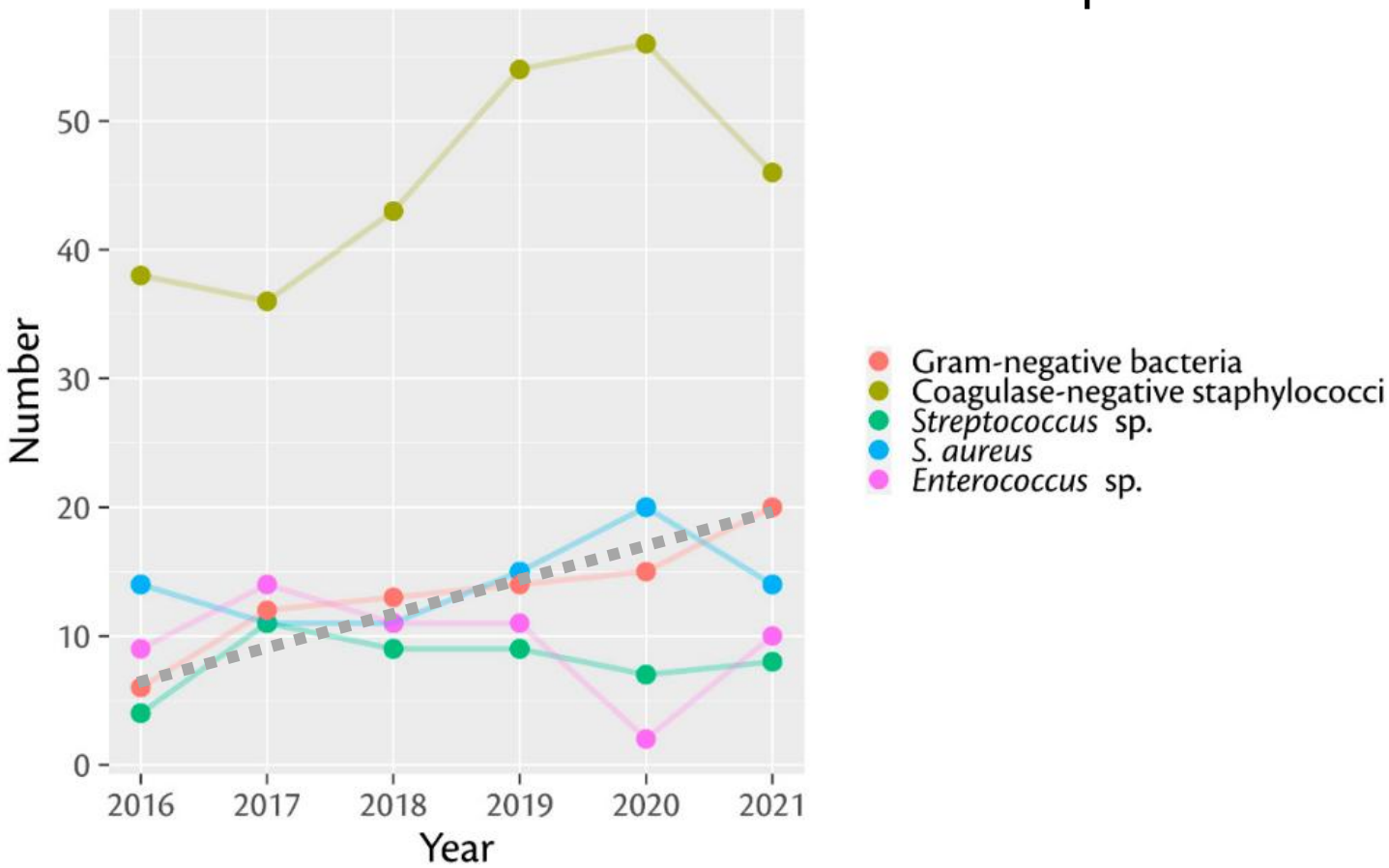
N. Benito et al. Time trends in the aetiology of prosthetic joint infections: a multicentre cohort study. Clin Microbiol Infect. 2016; 22: 732.e1e732.e8

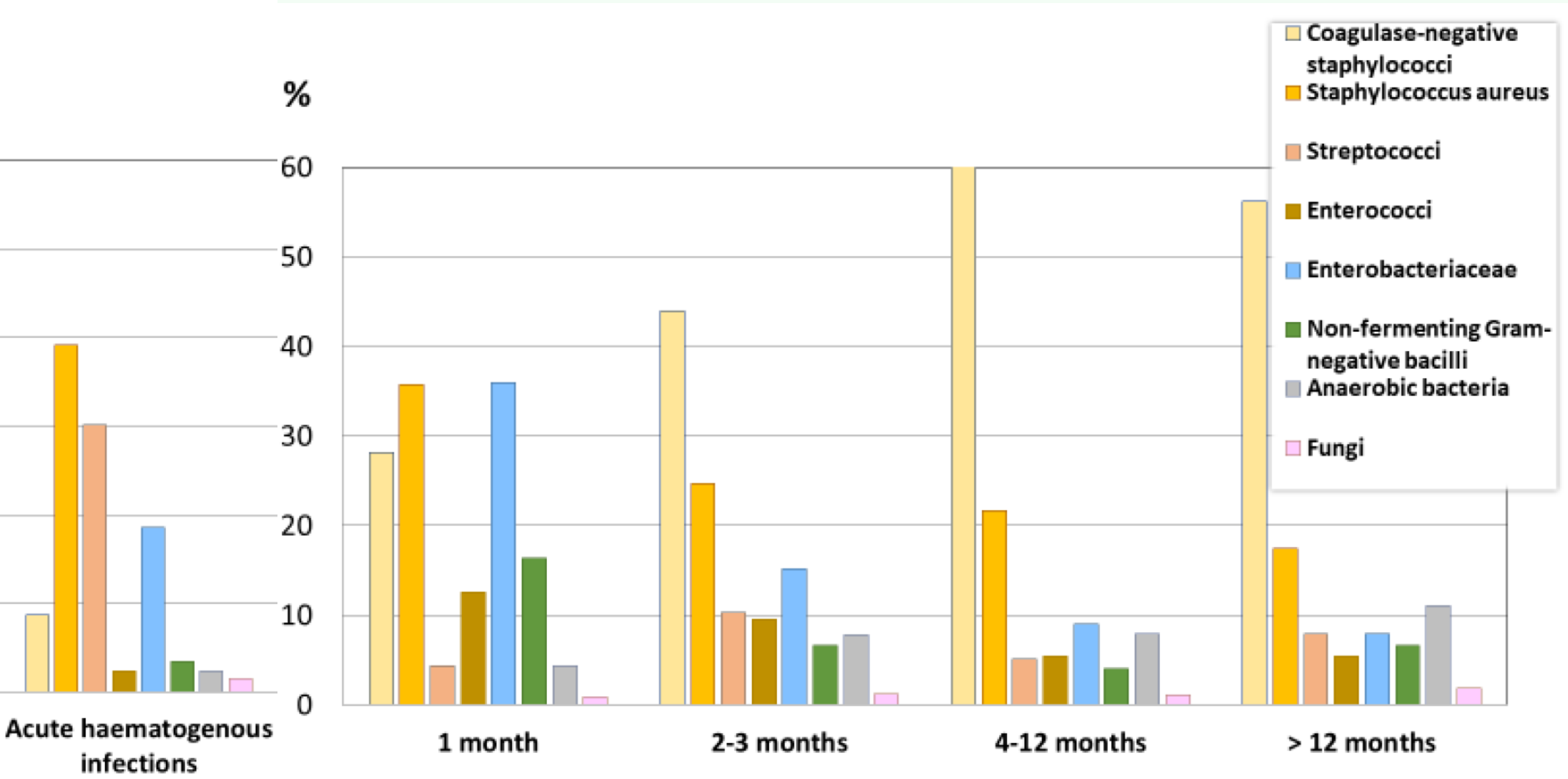


FS Fröschen et al. Microbiological Trends and Antibiotic Susceptibility Patterns in Patients with Periprosthetic Joint Infection of the Hip or Knee over 6 Years. Antibiotics 2022, 11, 1244.

493 patients

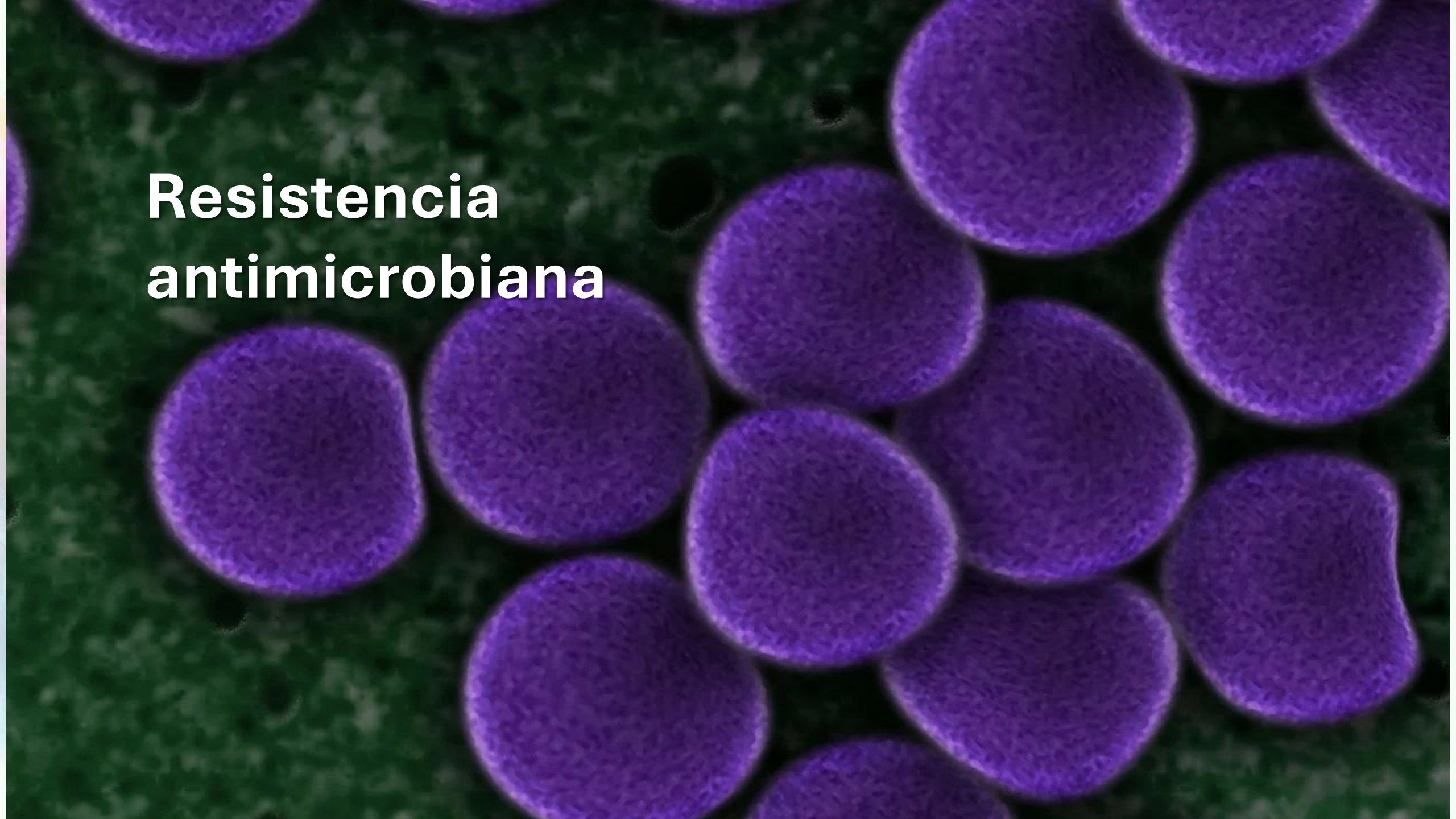






Benito N et al. J. Clin. Med. 2019, 8, 673; doi:10.3390/jcm8050673

Resistencia antimicrobiana

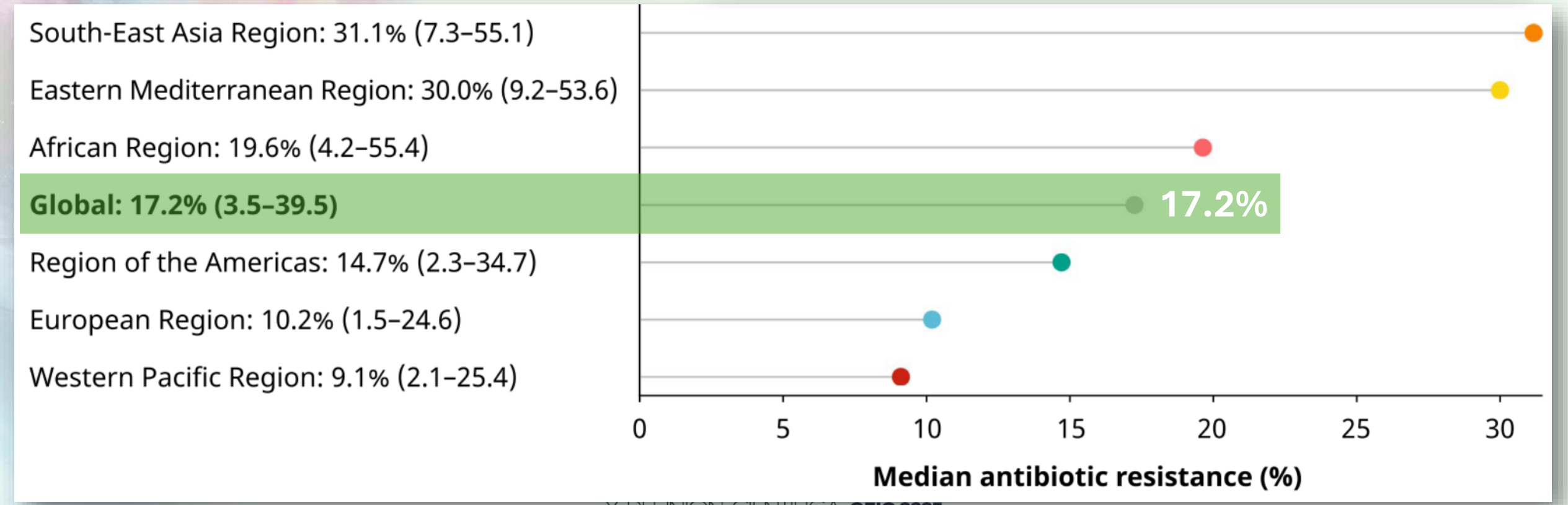


Global antibiotic resistance surveillance report 2025

WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS)

World Health Organization

Increasing antibiotic resistance trends in Gram-negative bacterial pathogens pose a growing threat.

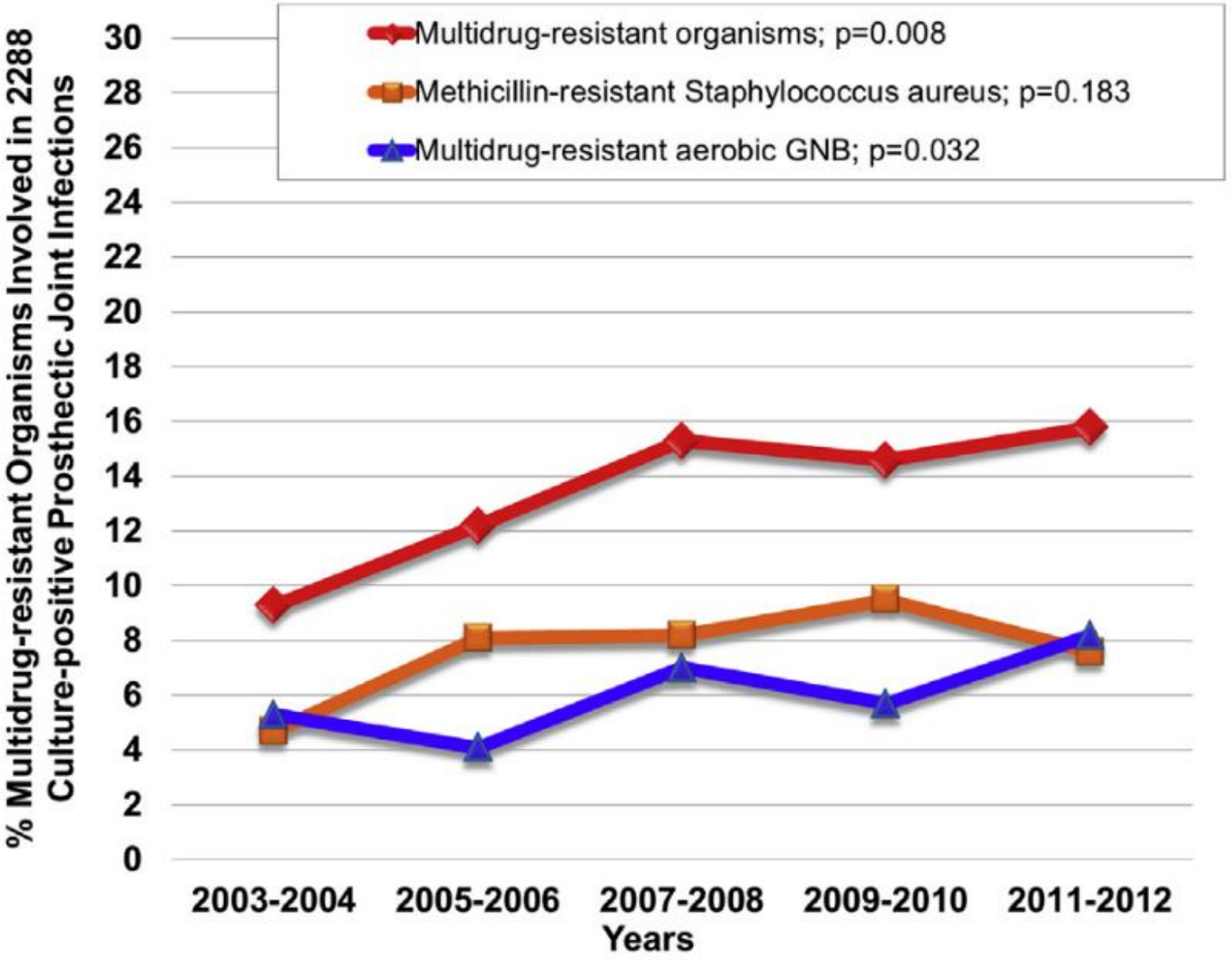


Time trends in the aetiology of prosthetic joint infections: a multicentre cohort study☆

Clinical Microbiology and Infection 22 (2016) 732.e1–732.e8

14% MDRO

- **MRSA: 8%**
- **MDR Gram-negative bacilli: 6%**

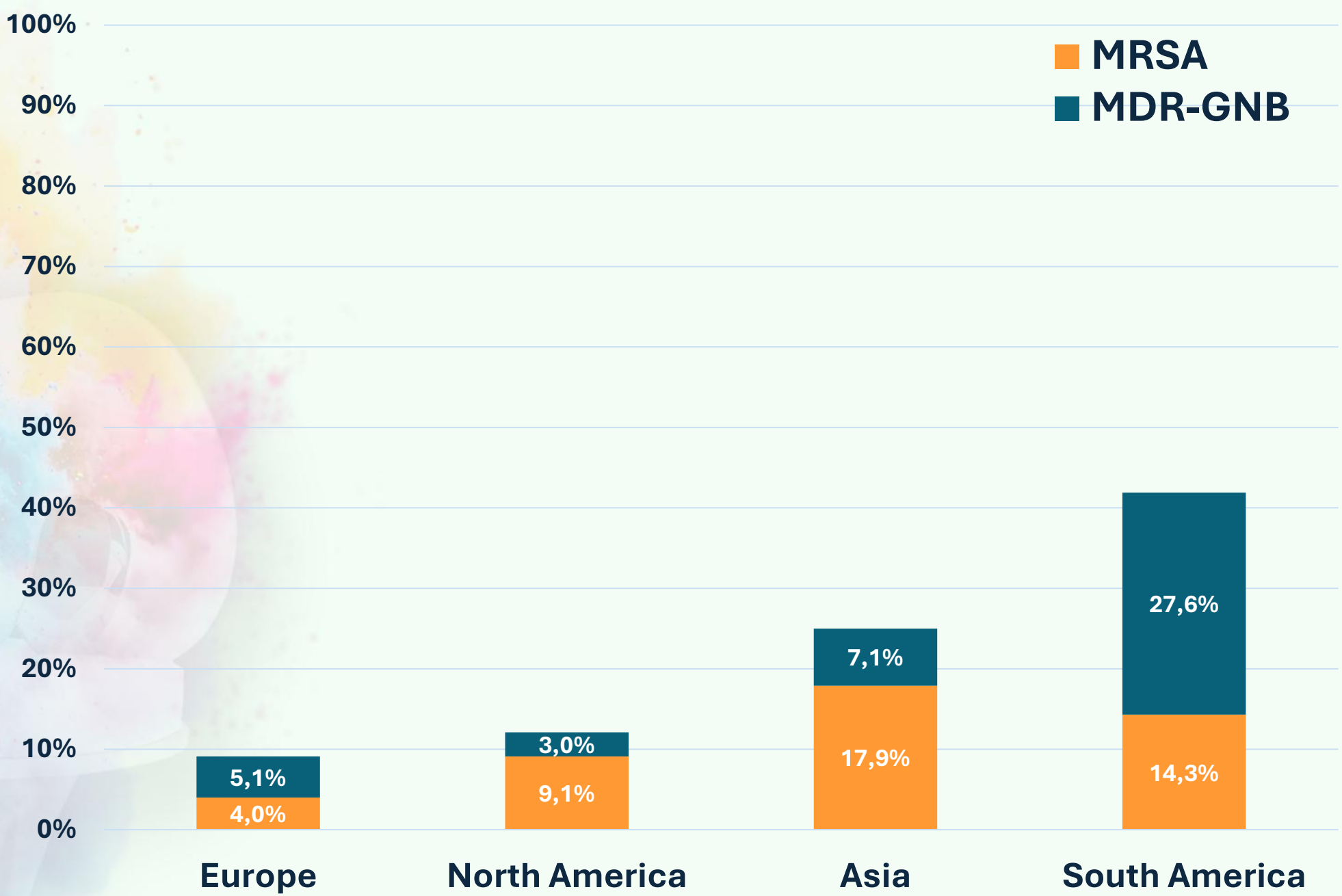

Multidrug-resistant organisms; p=0.008
Methicillin-resistant Staphylococcus aureus; p=0.183
Multidrug-resistant aerobic GNB; p=0.032
% Multidrug-resistant Organisms Involved in 2288 Culture-positive Prosthectic Joint Infections
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
2003-2004
2005-2006
2007-2008
2009-2010
2011-2012
Years

CAPJI-RETRO

PJI in 2021: 723
56 centres
16 countries
4 continents: North America (2 sites), South America (9 sites), Europe (39 sites) and Asia (5 sites)

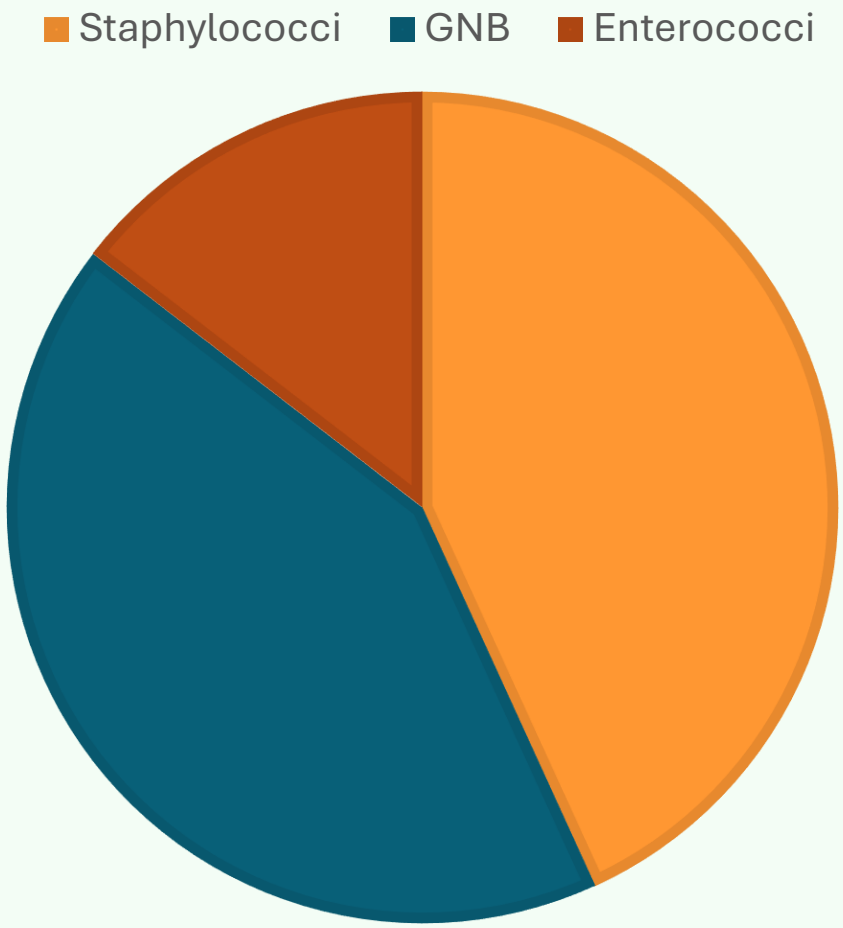
17.4 % MDRO

- **MRSA: 7%**
- **MDR Gram-negative bacilli: 9%**

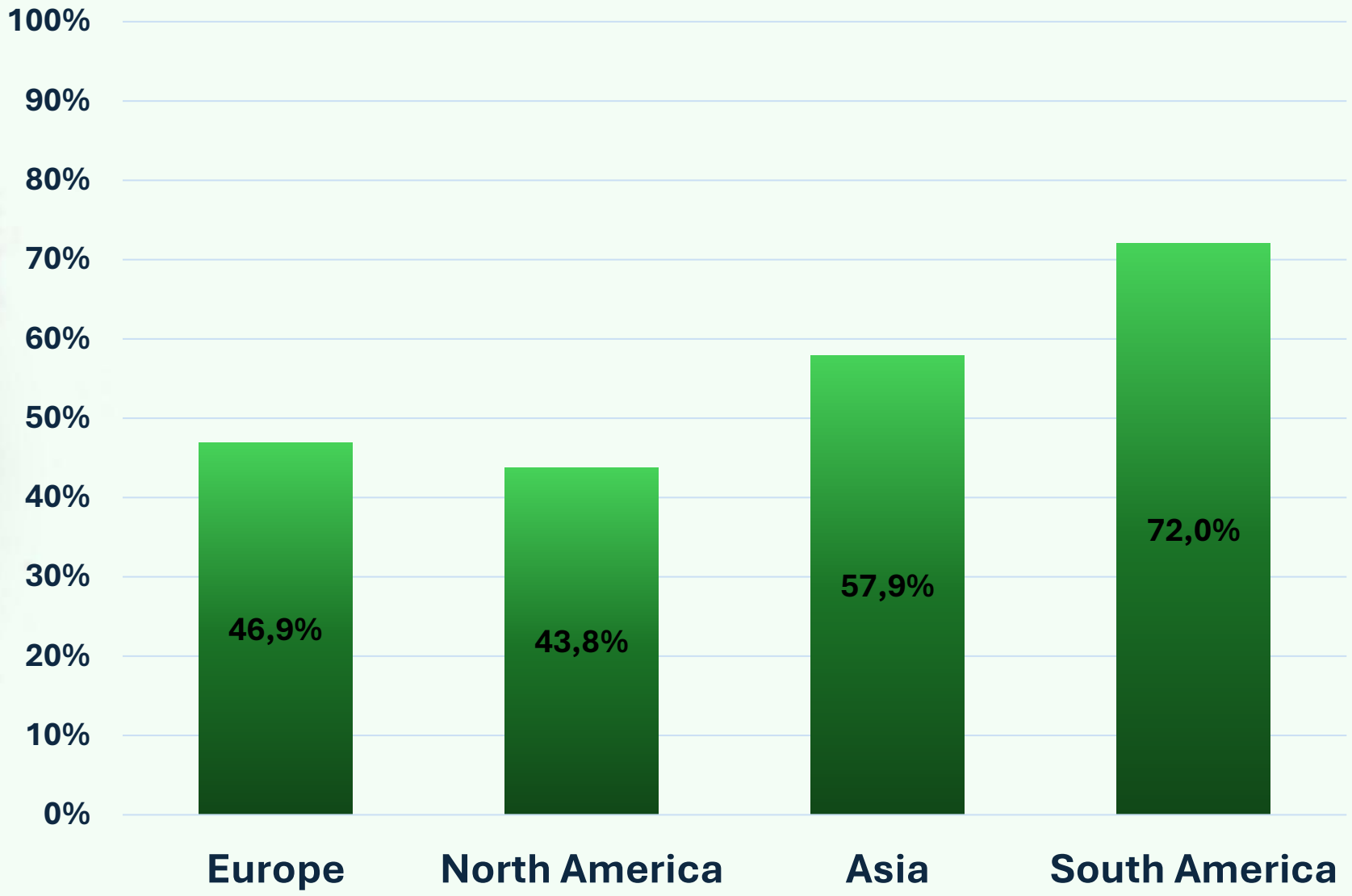

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MRSA
MDR-GNB
5,1%
4,0%
3,0%
9,1%
7,1%
17,9%
27,6%
14,3%
Europe
North America
Asia
South America

Cefazolin non-susceptibility 52.3

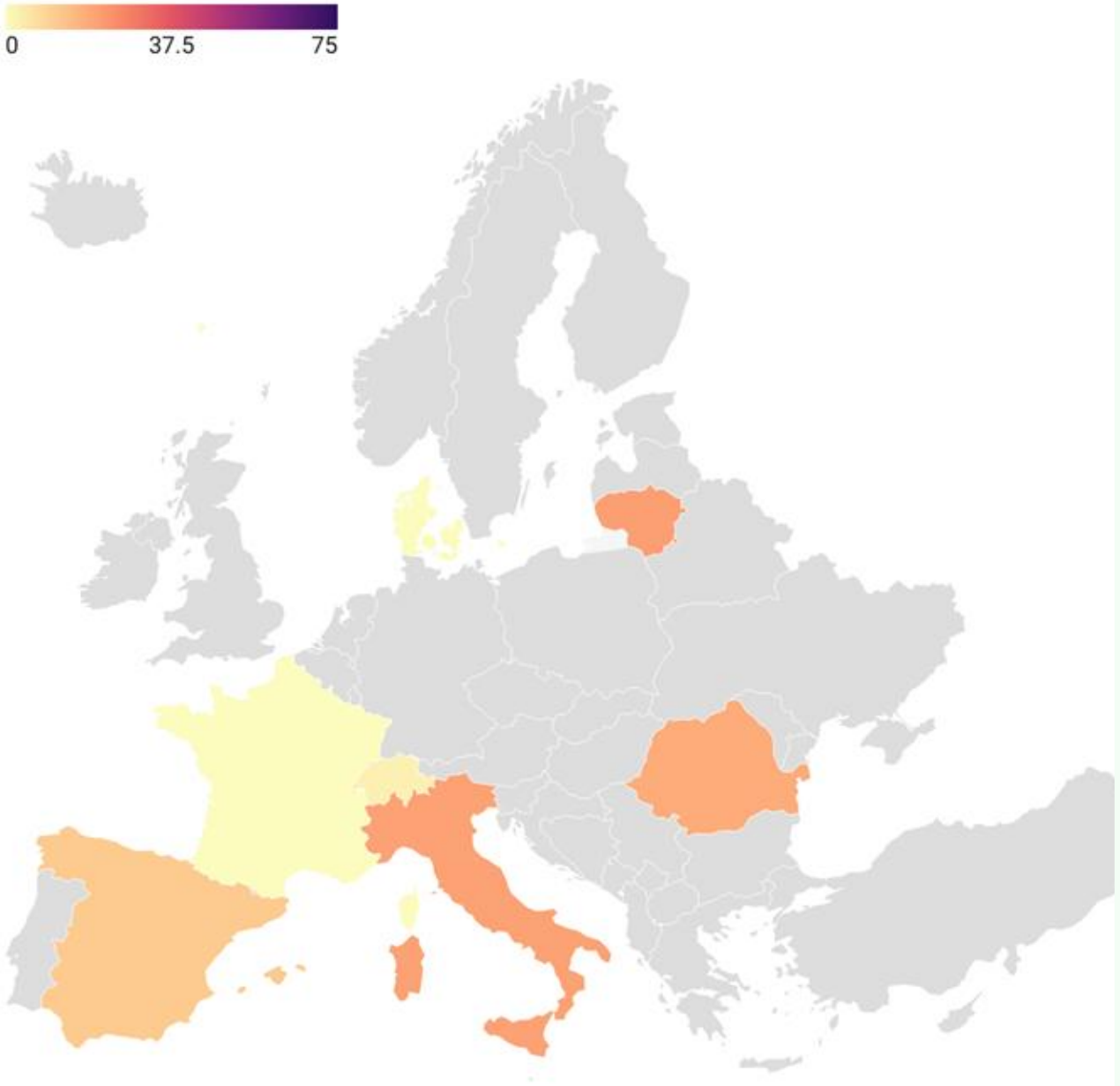
- Methicillin-resistant CoNS 17.9
- Cefazolin-resistant Enterobacterales: 14.5
- Non-fermenting Gram-negative bacilli: 9.1
- Enterococci: 8.4
- MRSA: 7.1



Cefazolin non-susceptibility



European distribution of MDRO-PJIs (%)



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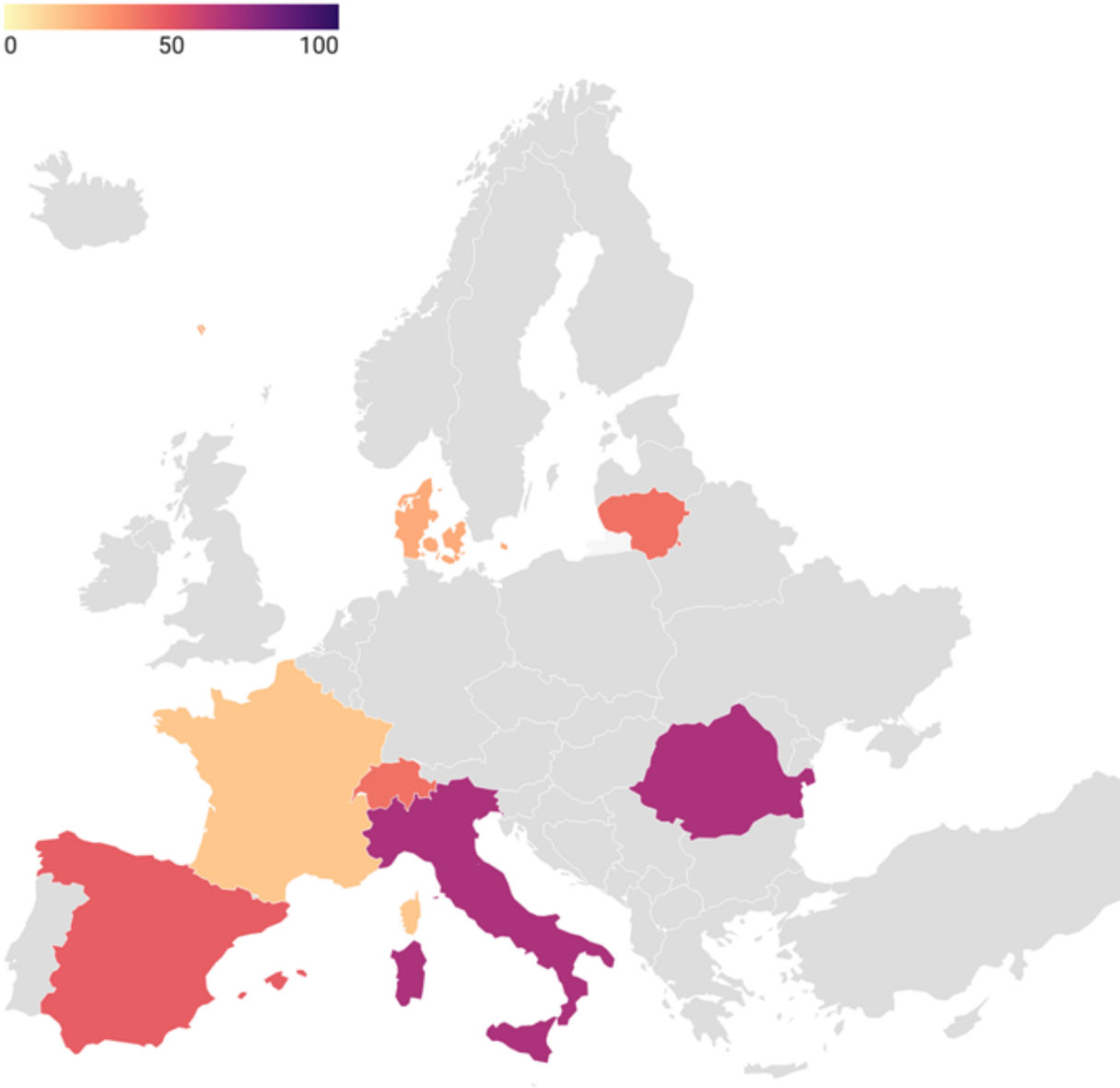
European distribution of cefazolin-resistance among culture-positive perioperative PJIs (%)



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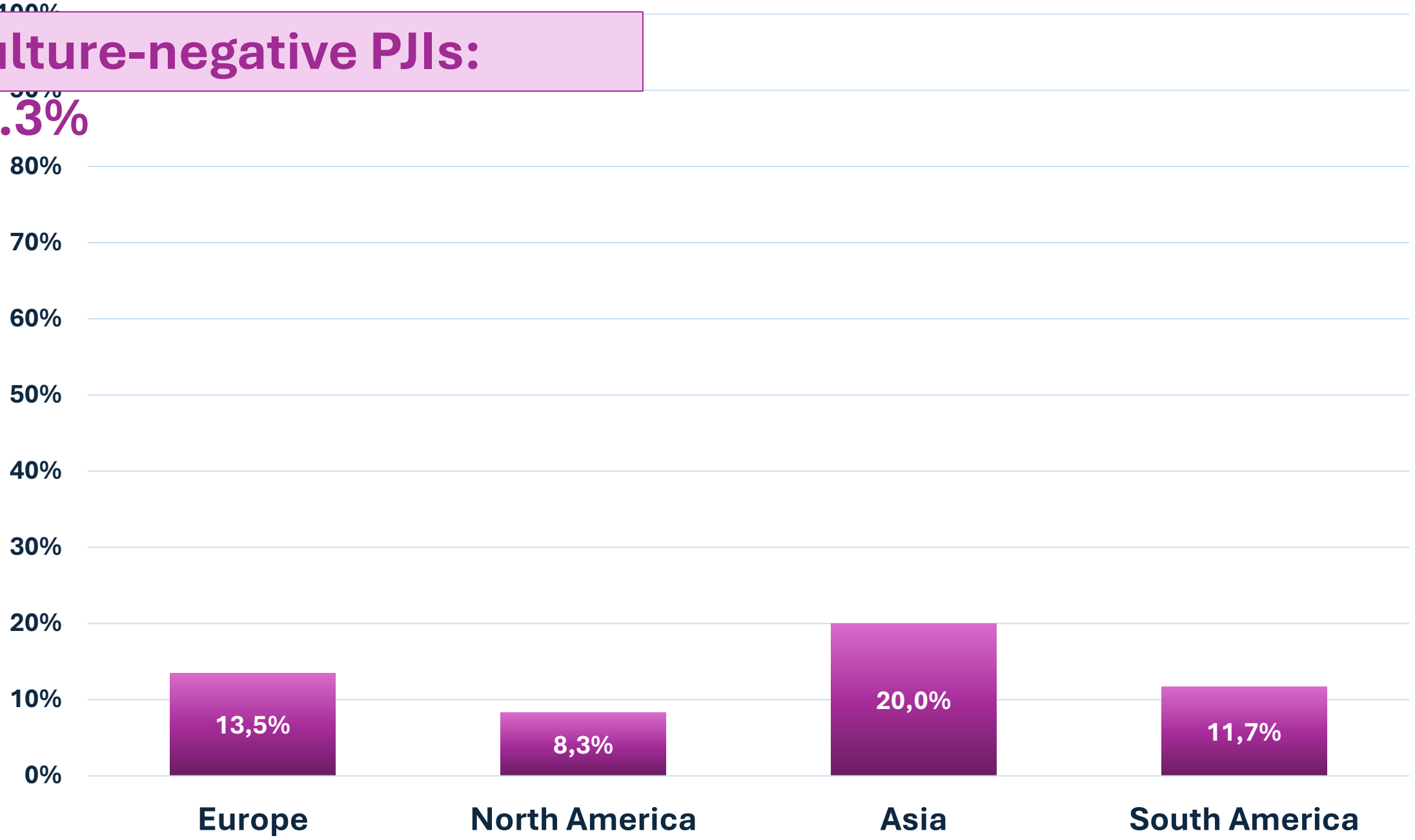
Culture-negative PJIs:

13.3%



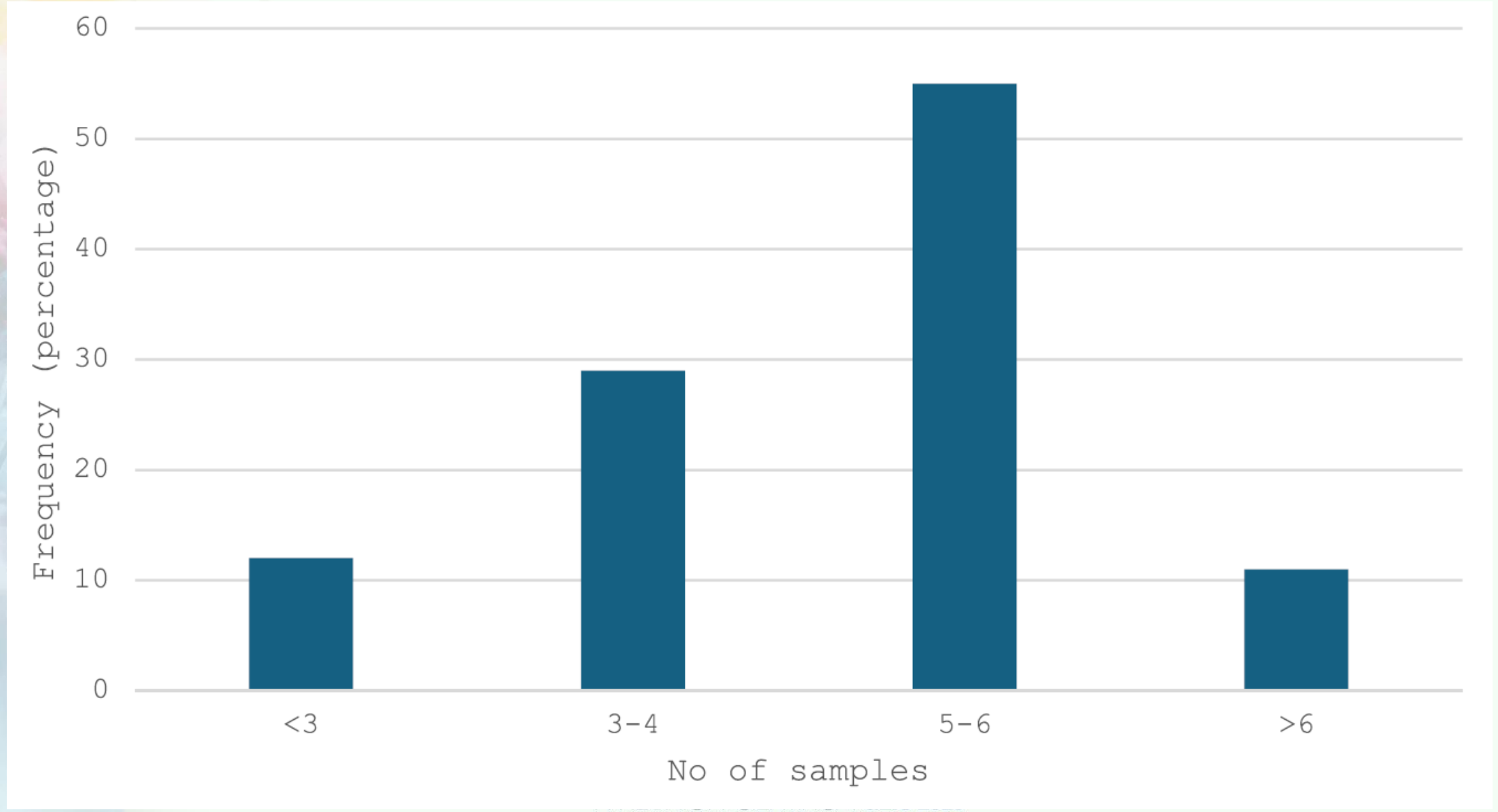
A global survey of diagnostic practices in prosthetic joint infections

Shradha Subedi [a,b,*], Patrick NA Harris [a,c], Paul Chapman [d,e], Antonia F Chen [f], Joshua S Davis [g], Po-Yu Liu [h,i], Leonard C Marais [j], Mauro J Salles [k], Jason A Roberts [a,e,l,m], Jesus Rodriguez-Bano [n,q], Marjan Wouthuyzen-Bakker [o], David L Paterson [a,p], Natividad Benito [a,q,r,**]

Diagnostic Microbiology & Infectious Disease 113 (2025)

107 hospitals
24 countries
6 continents

- **Número de muestras**
- **Duración de incubación**
- **EUCAST / CLSI**
- **Diagnóstico molecular**


60
50
40
30
20
10
0
Frequency (percentage)
<3
3-4
5-6
>6
No of samples

Characteristics	Europe $N =$ 55	Asia $N =$ 24	Oceania $N =$ 10	North America $N =$ 3	South America $N =$ 7	Africa $N = 8$	p value	Overall
Average number of samples: n (%)								
<3	0	10 (41.7)	1 (10)	0	1 (14.3)	0	<0.001	12
Culture duration								
</=5 days (%)	12 (22.2)	16 (76.2)	8 (80)	1 (33.3)	3 (42.9)	3 (37.5)	<0.001	43 (41.7)
EUCAST	52 (94.5)	1 (4.2)	9 (90)	1 (33.3)	1 (14.3)	5 (62.5)	<0.001	69 (64.5)
CLSI	0	22 (91.7)	1 (10)	2 (66.7)	1 (14.3)	2 (25)	<0.001	28 (26.2)
Molecular diagnostics: n (%)								
PCR	30 (54.5)	7 (29.2)	2 (20)	2 (66.7)	1 (14.3)	4 (50)	0.061	46 (43)
Sequencing (16 s rDNA or metagenomics)	23 (41.8)	5 (20.8)	10 (100)	1 (33.3)	1 (14.3)	4 (50)	<0.001	44 (41.1)

Mensajes

Elevado porcentaje de IPA causadas por MMR (17.4%): ↑ BGN MR

Alta tasa de resistencia a cefazolina (>50%):

- ECN – R meticilina
- Enterobacterales

Diversidad geográfica

Variabilidad de prácticas diagnósticas

Futuro

- Identificar factores de riesgo de resistencia
- Individualizar profilaxis y tratamiento empírico
- Estandarizar y harmonizar diagnóstico


¡Gracia
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at

CAPJI-RETRO

PJI in 2021: 723
56 centres across 16 countries on four continents
regions participating: North America (2 sites), South America (9 sites), Europe (39 sites) and Asia (5 sites)

17.4 %MDRO

- **MRSA: 7%**
- **MDR GNB: 9%**

MULTIDRUG-RESISTANT MICROORGANISMS (MDROs)	107 (17.4)
• MRSA	41 (6.7)
• MDR-GNB	55 (9)
• ESBL Enterobacterales	19 (3.1)
• Carbapenemase Enterobacterales	5 (0.8)
• Other MDRO*	12 (2)

* Other MDRO include MDR *Enterococci* (4), *Staphylococcus aureus* no MRSA (9)

Cefazolin resistance among gram-negative bacilli isolated from prosthetic joint infections: a French observational study

Anne-Gaëlle Leroy [1, 2], Vincent Crenn [2, 3, 4], Paul Le Turnier [2, 5], Samuel Pineau [2, 5, 6], Olivier Grossi [2, 5, 6], Pascale Bémer [1, 2, *], on behalf of the Nantes Bone and Joint Infections Study Group

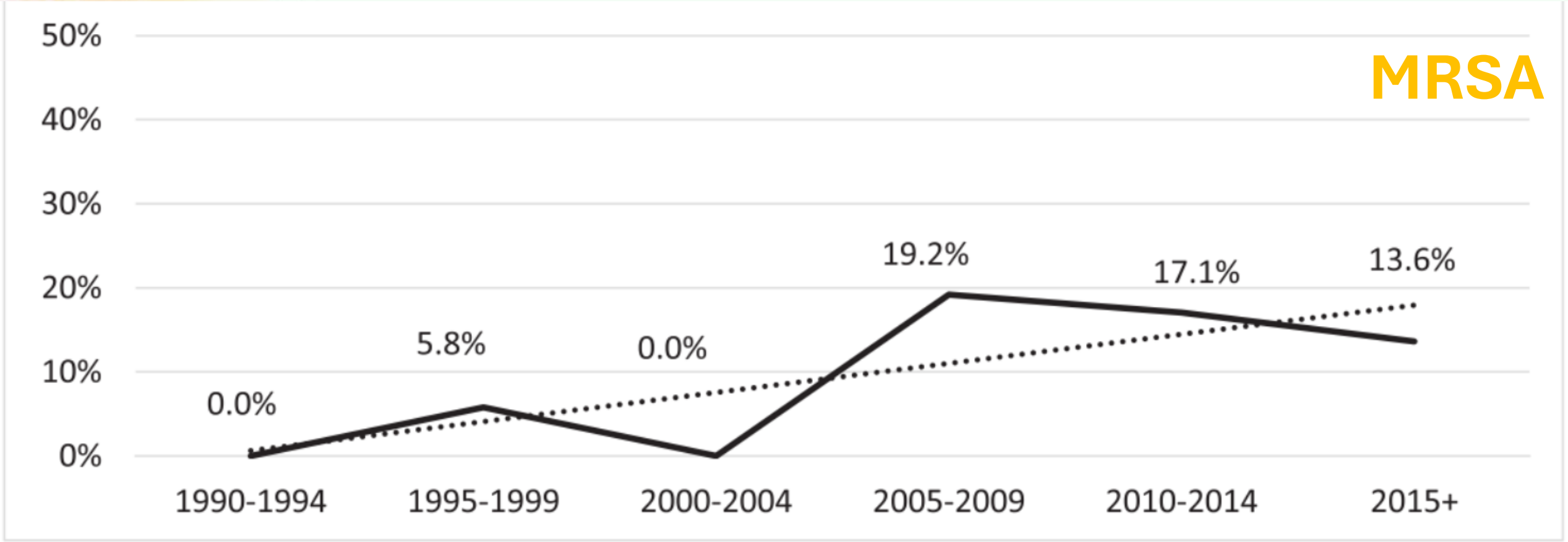
Clin Microbiol Infect. 2023 Feb 2;29(2):263–4.

CAPJI-RETRO

• **Enterobacterales naturally resistant to cefazolin**	**55.8%**	**45%**
• **Non-fermentative bacilli**	**34.4%**	**28.2%**
• **Enterobacterales with acquired resistance to cefazolin (ESBL or carbapenemase)**	**3.2%**	**16.8%**

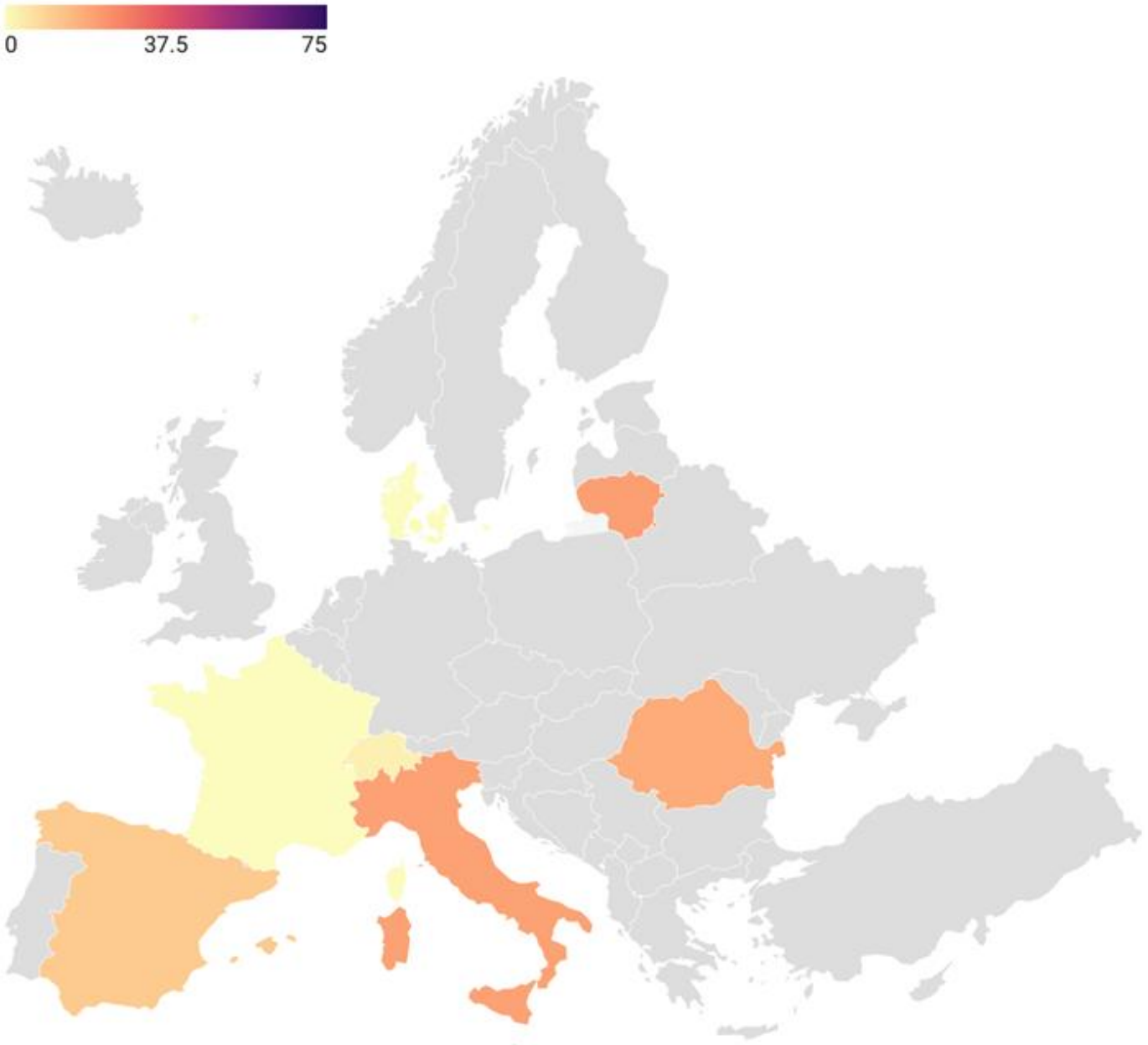
- 3 referral centres USA
- knee or hip PJI
- 1990 to 2020 (30 y)
- 731 PJI

All infections →chronic infections (> 6 weeks after primary surgery) → plan to perform a two-stage exchange.



M.R. Hays et al. J Arthroplasty 2023; 38: S326eS330

European distribution of MDRO-PJIs (%)



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