



# Infezioni emergenti: il ruolo dei movimenti di popolazione

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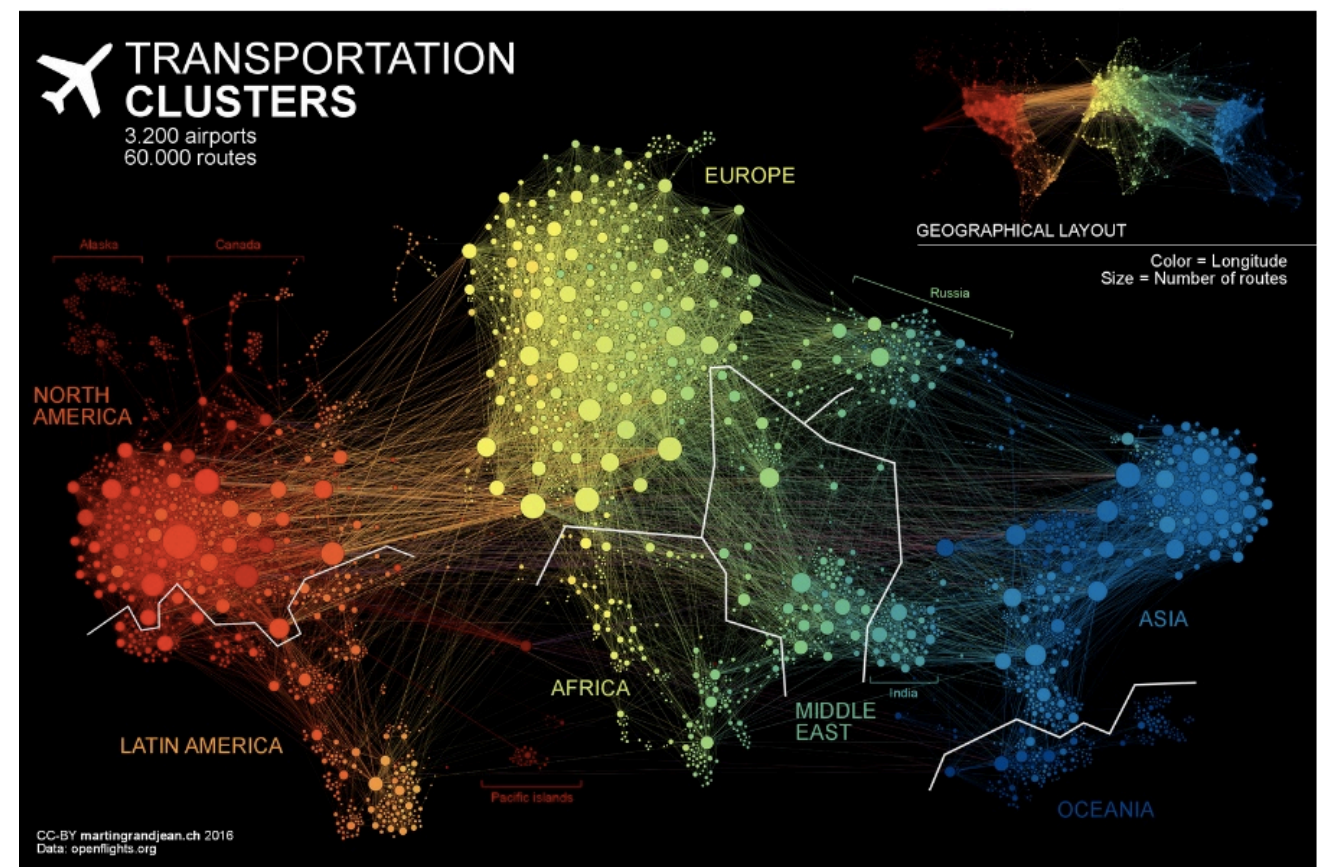
20'

potenziali conflitti di interesse da dichiarare per questa relazione: nessuno

potenziali problemi con migrazioni e migranti:  
nessuno



viaggiatori e viaggiare  
nel mondo e in Europa:  
aerei, treni, auto



Atlantic, Baltic-Adriatic, Mediterranean, North Sea-Baltic, North Sea-Mediterranean, Orient-East  
Mediterranean, Rhine-Alpine, Rhine-Danube, Scandinavian-Mediterranean

#### Truck Parking Supply

##### Parking Locations

● Certified Secure

##### TEN-T Road Network

— Corridor Sections

— Other Core Network

November 2018



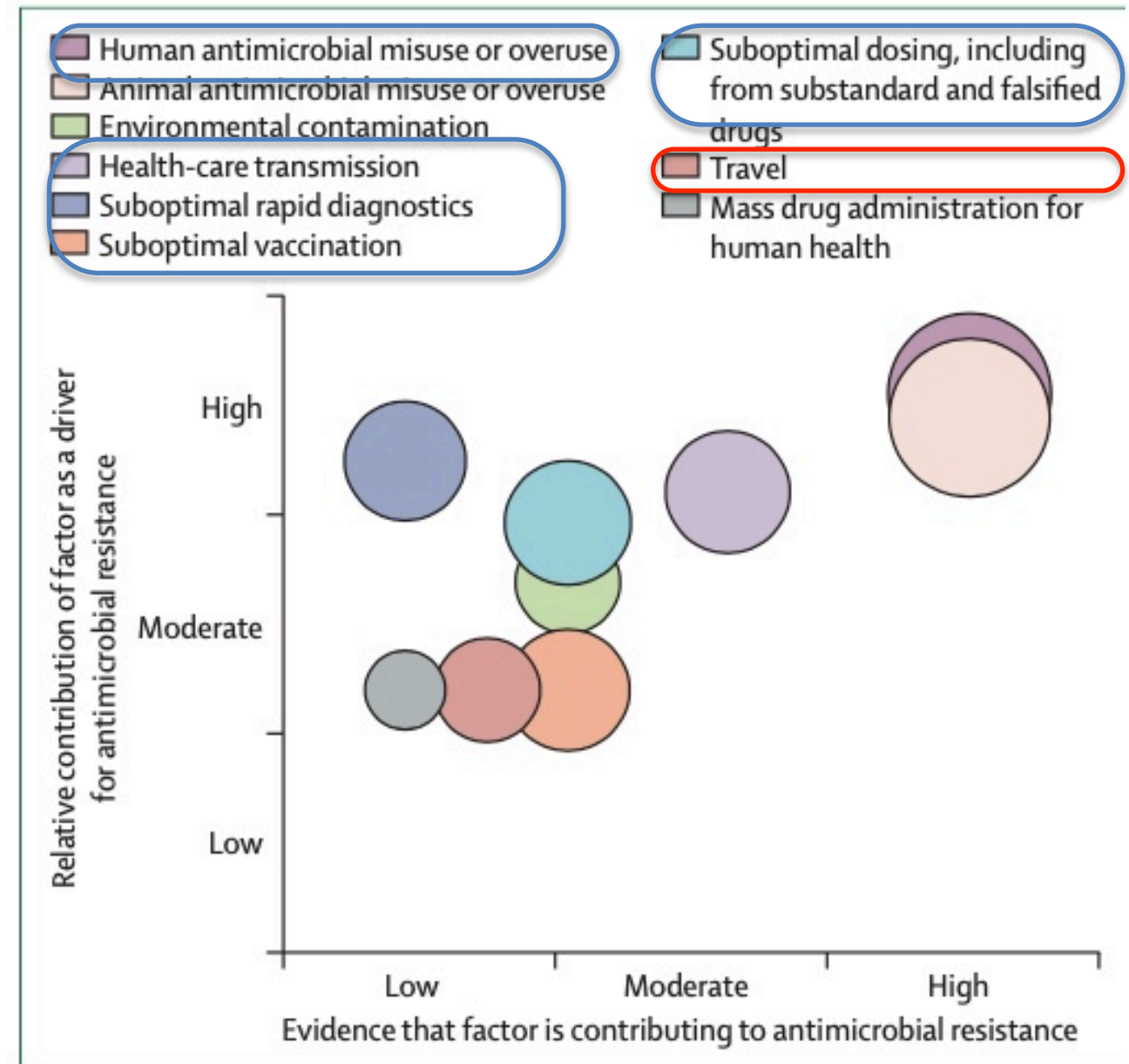


## Antimicrobials: access and sustainable effectiveness 2

### Understanding the mechanisms and drivers of antimicrobial resistance

*Lancet 2016; 387: 176–87*

In summary, the role of antimicrobial use in driving the emergence of resistance is likely to be specific to each drug and to each microorganism, as is the effect of changes in this use. This means that policies need to be mindful of this complexity in addressing selection pressure and that an integrated approach is adopted across both the community (including agriculture and the environment) and health-care structures.



**Figure 3: Role of modifiable drivers for antimicrobial resistance: a conceptual framework**

An infographic to show the considered potential contribution of each factor as a driver for antimicrobial resistance. Associated relative contribution, supporting evidence, and potential population affected (diameter of bubble) was created from a two round Delphi method of contributing authors. Factors were identified from review of the national and international antimicrobial resistance literature. The Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) approach was used to identify the quality of the evidence (the study with the highest GRADE estimate was cited) supporting each driver as being contributory to the rise in antimicrobial resistance (appendix).

# Health(care) / Medical tourism

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- regionale, intra-nazionale
- internazionale
  - un fenomeno crescente
  - offerte di “salute” da gruppi simil “tour operator”
- politiche aggressive da parte di alcune nazioni

IN 2021  
**ABOUT 500 THOUSAND  
FOREIGN PATIENTS  
SOUGHT REMEDY IN TURKEY**



**Ams+terdam**  
Health Tourism Expo  
**20-21 May 2022**  
Postillion Hotel & Convention Centre  
Amsterdam, Holland



# giusto per valutare l'esempio appena fatto

**Table I.** Hospital location of patients with *Enterobacteriaceae*.

Department	CRE (n= 62)	CSE (n= 88)	Total (n= 150)
Pediatric intensive care unit, n (%)	14 (22.6)	17 (19.3)	31 (20.7)
Neonatal intensive care unit, n (%)	14 (22.6)	48 (54.5)	62 (41.3)
Pediatric hematology and oncology, n (%)	15 (24.2)	17 (19.3)	32 (21.3)
Pediatric cardiovascular surgery, n (%)	7 (11.3)	2 (2.3)	
Burn unit, n (%)	2 (3.2)	0 (0)	
Pediatric surgery, n (%)	1 (1.6)	1 (1.1)	
Other pediatric wards, n (%)	9 (14.5)	3 (3.4)	

The Turkish Journal of Pediatrics 2020; 62: 778-786  
https://doi.org/10.24953/turkjpeds.2020.05.009

Original Article

**Carbapenem and colistin resistance in children with *Enterobacteriaceae* infections**

CRE: carbapenem-resistant *Enterobacteriaceae*, CSE: carbapenem-sensitive *Enterobacteriaceae*

## Current epidemiology of resistance among Gram-negative bacilli in paediatric patients in Turkey

Journal of Global Antimicrobial Resistance 11 (2017) 140–144

Percent susceptibility of Gram-negative bacteria causing invasive infection.

Organism/clinical specimen	No. of isolates	Penicillins			Cephalosporins				Carbapenems				Aminoglycosides		Others		
		AMP	SAM	TZP	CZO	FEP	CAZ	CRO	ETP	IPM	MEM	CAR	AMK	GEN	CIP	SXT	COL
<i>Escherichia coli</i>																	
Blood	60	0	0	66.7	43.5	43.8	50.9	48.3	87.9	91.3	93.1	91.5	83	71.2	53.4	30.6	96.7
CSF	7	0	0	71.4	20	0	33.3	0	100	100	100	100	57.1	42.9	71.4	0	100
<i>Enterobacter spp.</i>																	
Blood	30	R	R	80	R	77.8	70	64.7	80	75	82.8	80	67.9	83.3	76.7	75	100
CSF	3	R	R	100	R	100	100	100	100	100	100	100	100	33.3	100	100	100
<i>Acinetobacter spp.</i>																	
Blood	35	0	39.1	52.2	NA	38.5	53.1	100	NA	47.1	47.1	48.6	62.5	48.6	60.6	80.6	80
CSF	7	0	50	20	NA	16.7	28.6	NA	NA	28.6	28.6	28.6	42.9	28.6	28.6	66.7	100
<i>Klebsiella spp.</i>																	
Blood	114	R	14.8	42.1	17.5	32.7	35.6	28.8	63.4	70.1	71.9	66.7	57.5	55	63.7	49	94.7
CSF	5	R	NA	20	NA	20	0	0	80	75	80	80	50	60	80	75	100
<i>Pseudomonas spp.</i>																	
Blood	35	R	R	54.3	R	60.9	61.8	R	R	65.7	62.9	60	81.3	74.3	71.9	R	97.1
CSF	6	R	R	60	R	100	83.3	R	R	60	80	83.3	100	66.7	50	R	100

AMP, ampicillin; SAM, ampicillin/sulbactam; TZP, piperacillin/tazobactam; CZO, cefazolin; FEP, cefepime; CAZ, ceftazidime; CRO, ceftriaxone; ETP, ertapenem; IPM, imipenem; MEM, meropenem; CAR, carbapenems; AMK, amikacin; GEN, gentamicin; CIP, ciprofloxacin; SXT, trimethoprim/sulfamethoxazole; COL, colistin; CSF, cerebrospinal fluid; R, intrinsic resistance; NA, not applicable.

# Health(care) / Medical tourism

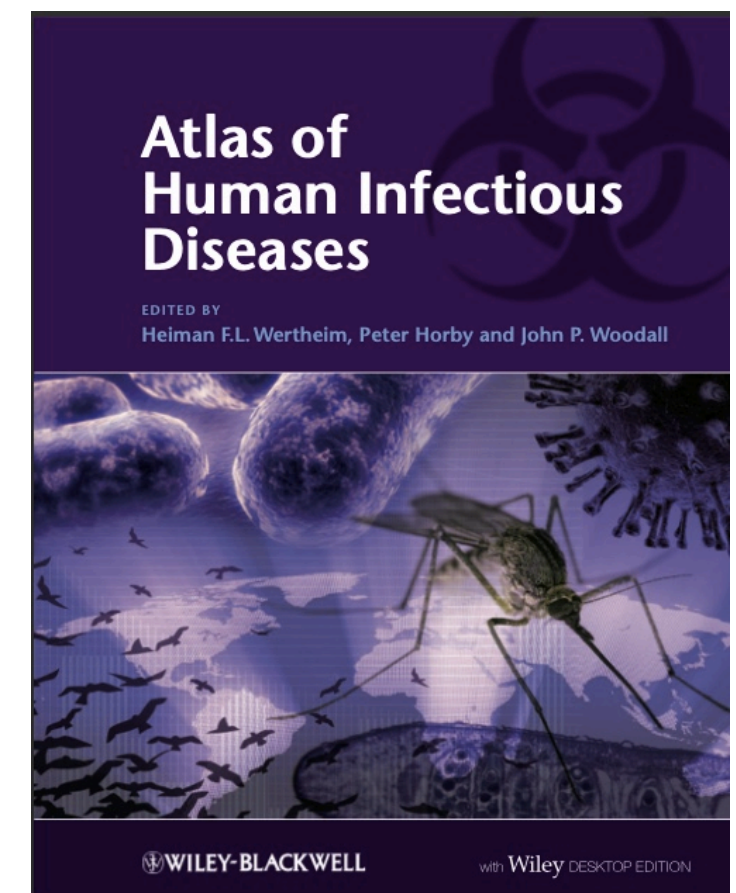
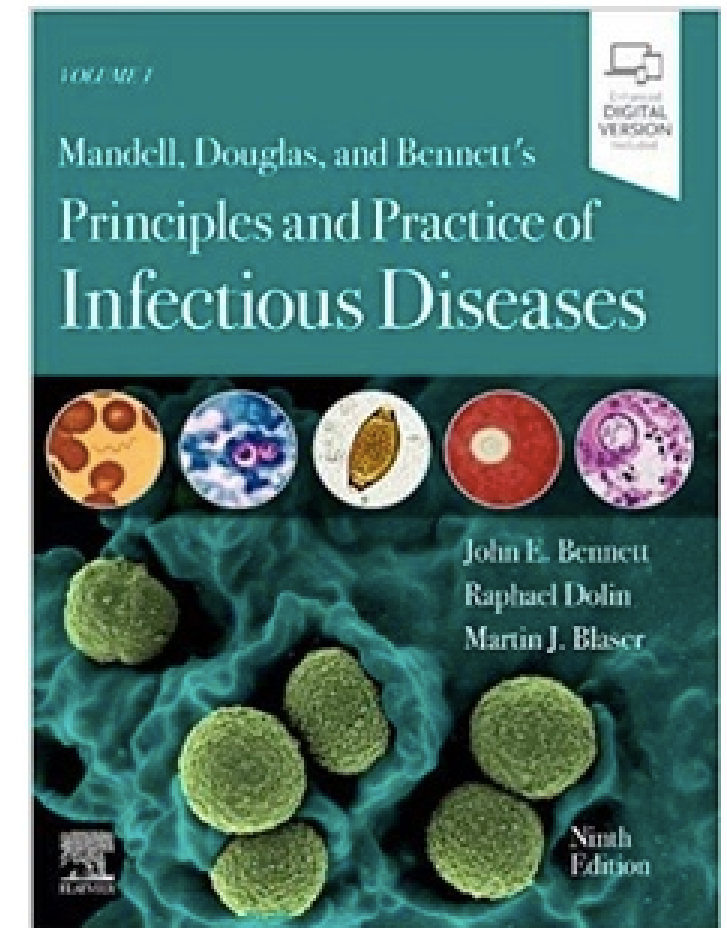
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- regionale, intra-nazionale
- internazionale
  - un fenomeno crescente
  - offerte di “salute” da gruppi simil “tour operator”
- politiche aggressive da parte di alcune nazioni
- ci possiamo quindi fidare da un punto di vista dell’uso degli antibiotici e del controllo delle infezioni (resistenti)?
  - non mi fido di me stesso, figuriamoci degli altri
    - perciò screening e isolamento fino a prova contraria e ripetendo i test (positivizzazione tardiva, trasmissione intra ospedaliera)



# infezioni e geografia...

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**European Centre for Disease Prevention and Control**

An agency of the European Union



Infectious disease topics ^

Data v

Analysis and guidance v

Training and tools v

About ECDC v

Infectious disease topics >

A-Z disease list

Related public health topics

EU case definitions

Featured links

Antimicrobial resistance (AMR)

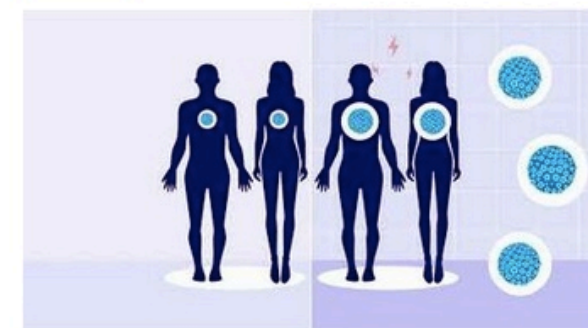
Avian influenza

COVID-19

Immunisation and vaccines

Mpox (Monkeypox)

West Nile virus infection

Latest

Video: A jab to fight Human papillomavirus (HPV) and save lives

**European Centre for Disease Prevention and Control**

An agency of the European Union

NEW! Improved search



Infectious disease topics v

Data v

Analysis and guidance ^

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About ECDC v

Analysis and guidance >

GUIDANCE for public health policy and practice

RISK ASSESSMENT of infectious disease threats

MONITORING and reporting data and trends

Featured links

Weekly threats reports (CDTR)

Annual Epidemiological Reports (AERs)

Disease surveillance reports

Latest

Weekly COVID-19 country overview

dove recuperare dati aggiornati?

se disponibili in base alla provenienza

# Carriage of Multidrug-Resistant Bacteria in Healthy People: Recognition of Several Risk Groups

*Antibiotics* **2021**,

10, 1163. <https://doi.org/10.3390/antibiotics10101163>

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- fattori di rischio per la presenza di batteri antibiotico-resistenti
  - provenienza da un'area a basso livello economico e con uso non controllato degli antibiotici, con anche elevato livello di resistenza
  - età pediatrica
  - precedente uso di
    - antibiotici
    - inibitori di pompa protonica
    - immunosoppressori (scarsi dati)



# Antibiotic Resistant Bloodstream Infections in Pediatric Patients Receiving Chemotherapy or Hematopoietic Stem Cell Transplant: Factors Associated with Development of Resistance, Intensive Care Admission and Mortality

Antibiotics  
2021, 10, 266. <https://doi.org/10.3390/antibiotics10030266>

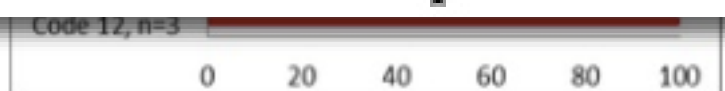
## 2. Materials and Methods

The study was a retrospective chart review conducted in centers located in Australia ( $n = 1$ ), Brazil ( $n = 1$ ), Canada ( $n = 1$ ), Chile ( $n = 1$ ), Germany ( $n = 3$ ), Italy ( $n = 4$ ), Russian Federation ( $n = 1$ ) and Switzerland ( $n = 3$ ).

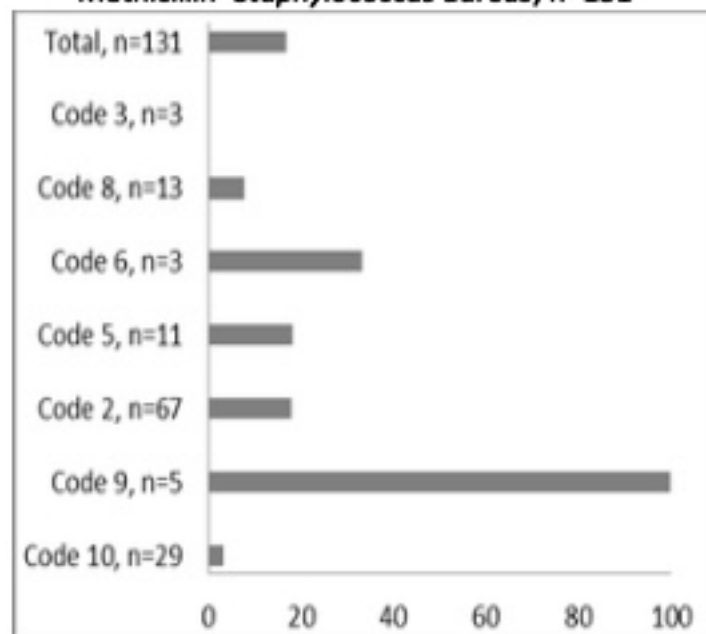
### *Enterococcus (faecalis+faecium), n=127*



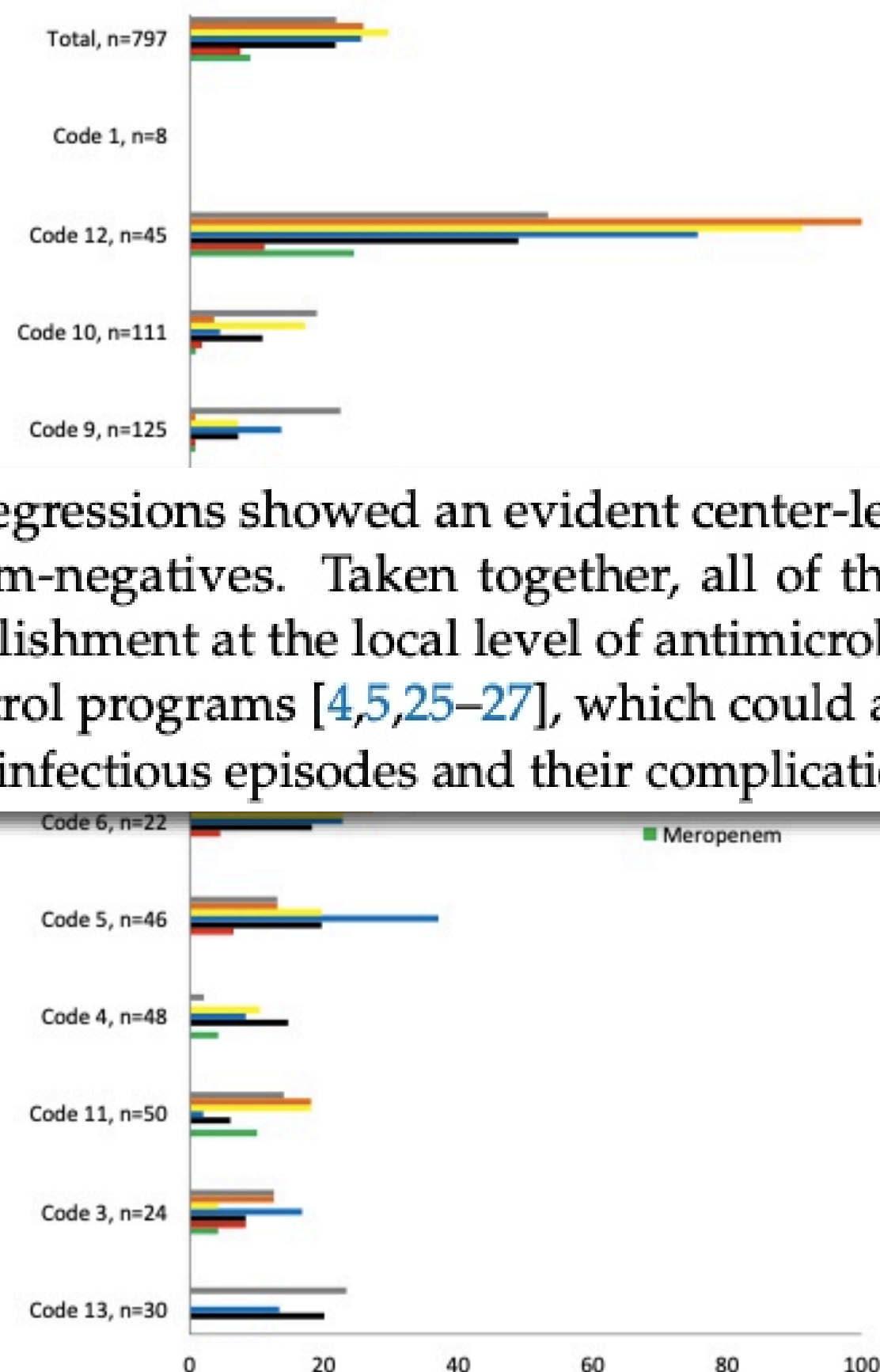
Multilevel mixed-effects logistic regressions showed an evident center-level variation on antibiotic resistance among Gram-negatives. Taken together, all of these observations emphasize the need for the establishment at the local level of antimicrobial stewardship and infection prevention and control programs [4,5,25–27], which could also have a favorable impact on the management of infectious episodes and their complications.



### *Methicillin -Staphylococcus aureus, n=131*

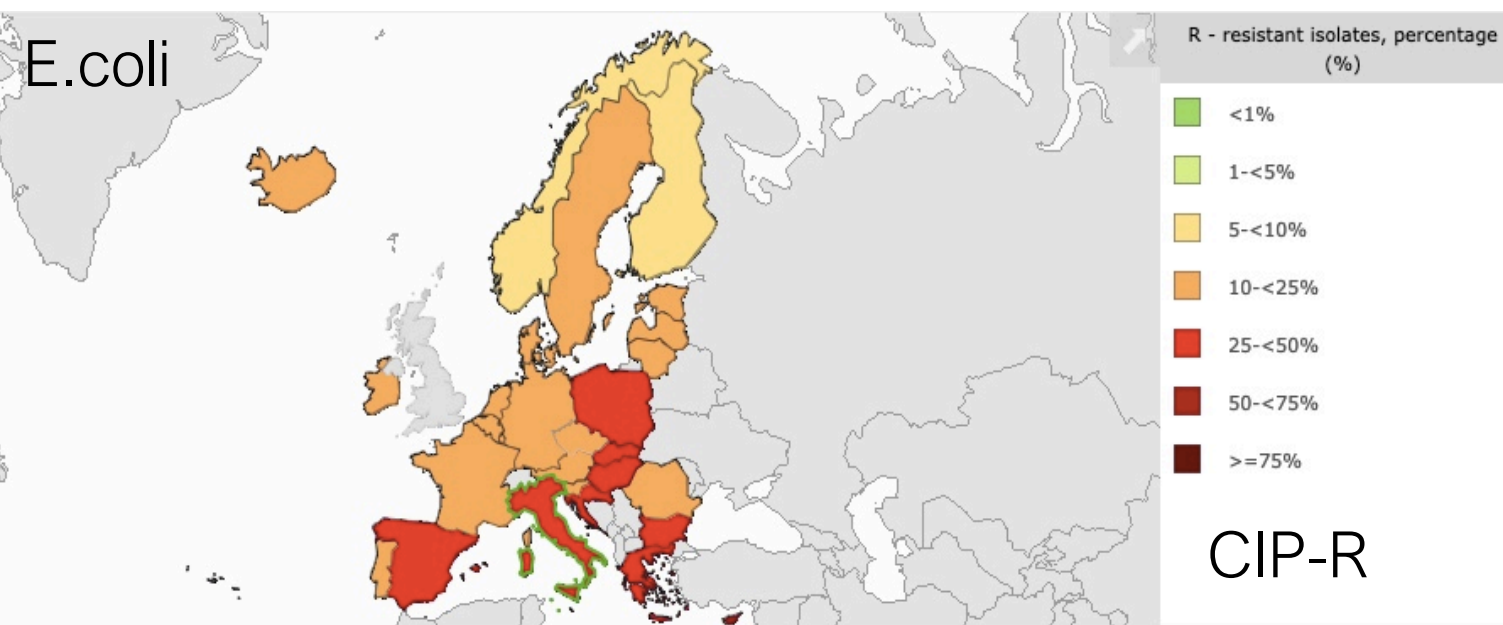
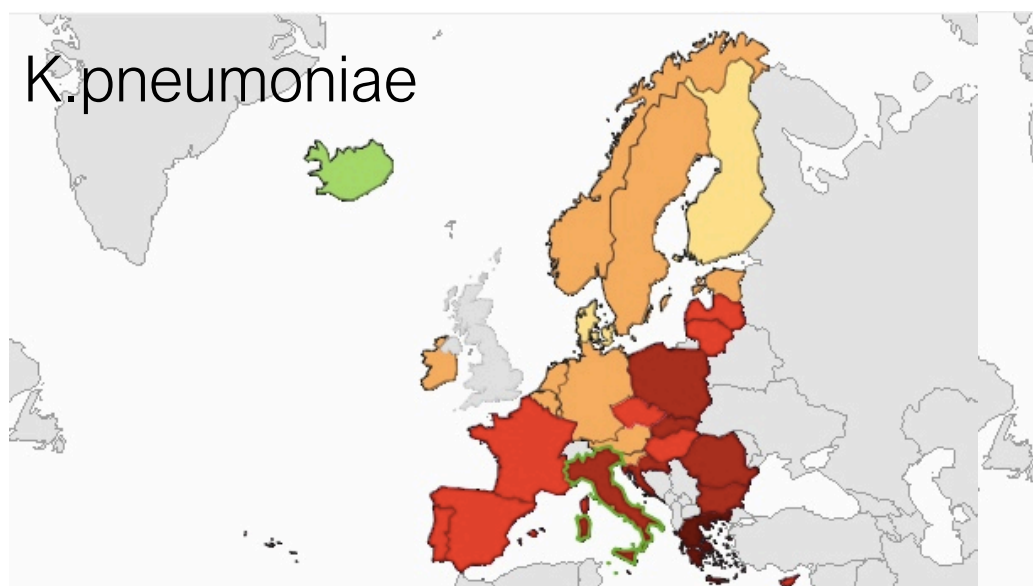
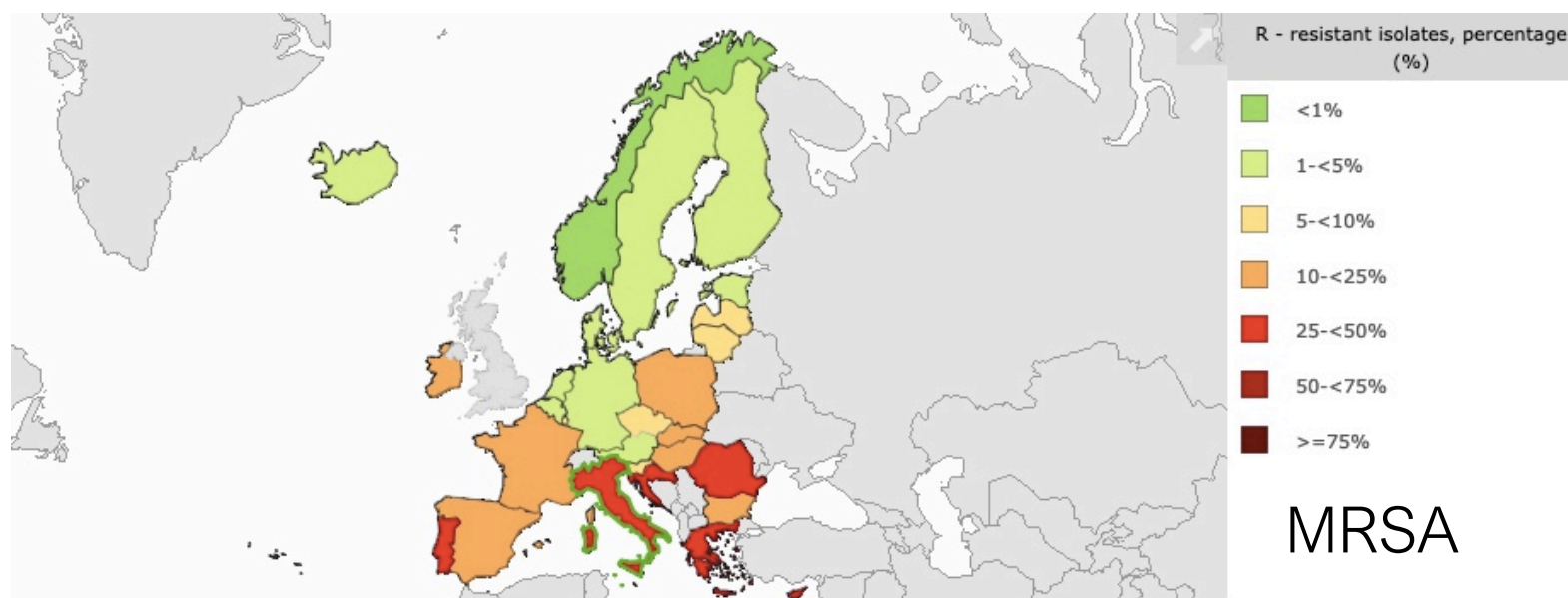


Supplementary Figure S1. Distribution, by centre, of percentages of resistant antibiotic bacteremia and Gram-negative BSI

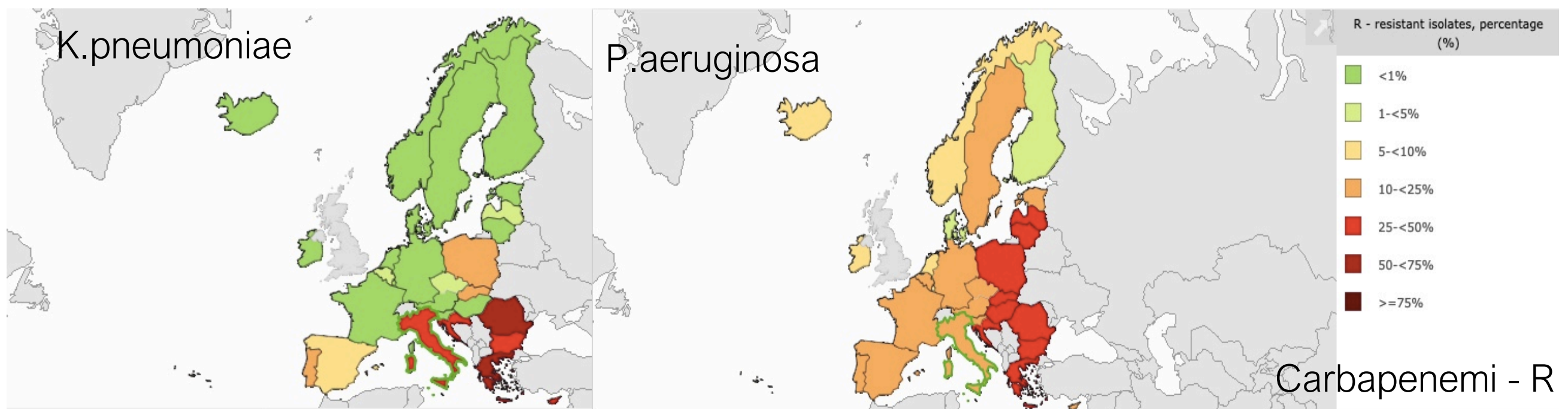
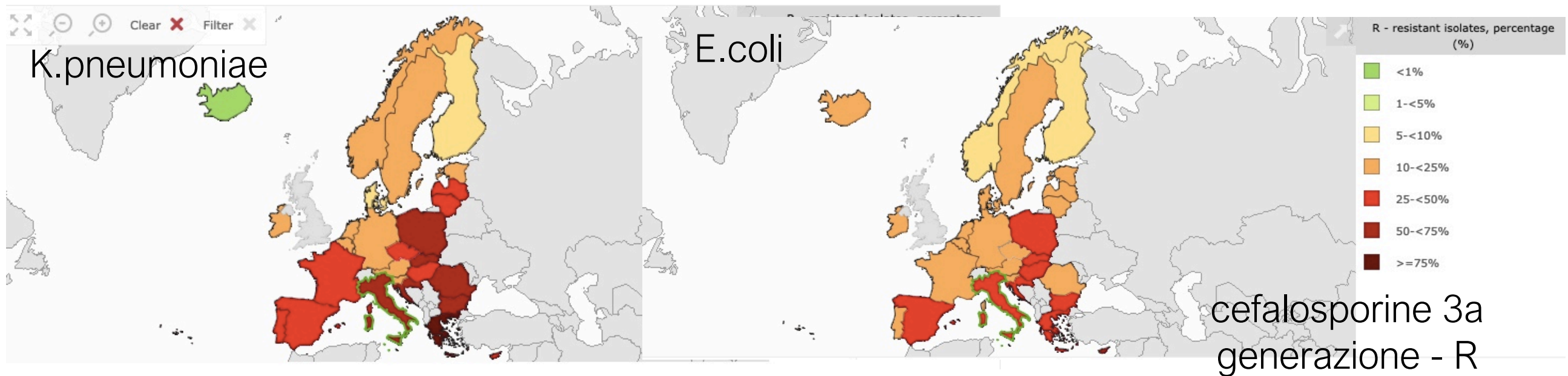


Meropenem

# Surveillance Atlas of Infectious Diseases







# Linee guida terapia neutropenia febbrile in pediatria

## 8th European Conference on Infections in Leukaemia: 2020 guidelines for the use of antibiotics in paediatric patients with cancer or post-haematopoietic cell transplantation Lancet Oncol 2021; 22: e270–80

**Guideline for  
and Neutropenic  
Cancer and  
Recipients: 2020**  
J Clin Oncol 41:1774-1785.

- Empirical treatment should be adjusted on the basis of the results of resistance testing for patients who are colonised or were previously infected with resistant Gram-negative bacteria, or in centres with a high rate of resistant pathogens (grade A recommendation, level of evidence IItu)

### Antibacterial therapy in patients with febrile neutropenia

#### Initial empirical antibacterial therapy

Recommendation 2: the ECIL-8 group recommends that initial empirical antibacterial therapy should be administered according to these escalation and de-escalation principles:

- Monotherapy with an antipseudomonal non-carbapenem  $\beta$ -lactam and  $\beta$ -lactamase inhibitor combination, or with fourth-generation cephalosporin, is recommended for clinically stable patients at low risk of resistant infections (grade A recommendation, level of evidence IIr)
- This group includes patients without colonisation or previous infections with resistant bacteria, or patients treated in institutions with a low rate of resistant pathogens; for these patients, carbapenems are not recommended due to the risk of collateral damage and

and anti-Gram-negative  
e, is recommended for  
en at low risk of resistant  
, level of evidence IIr)  
ed on the basis of the  
nts who are colonised or  
nt Gram-negative  
e of resistant pathogens  
vidence IItu)

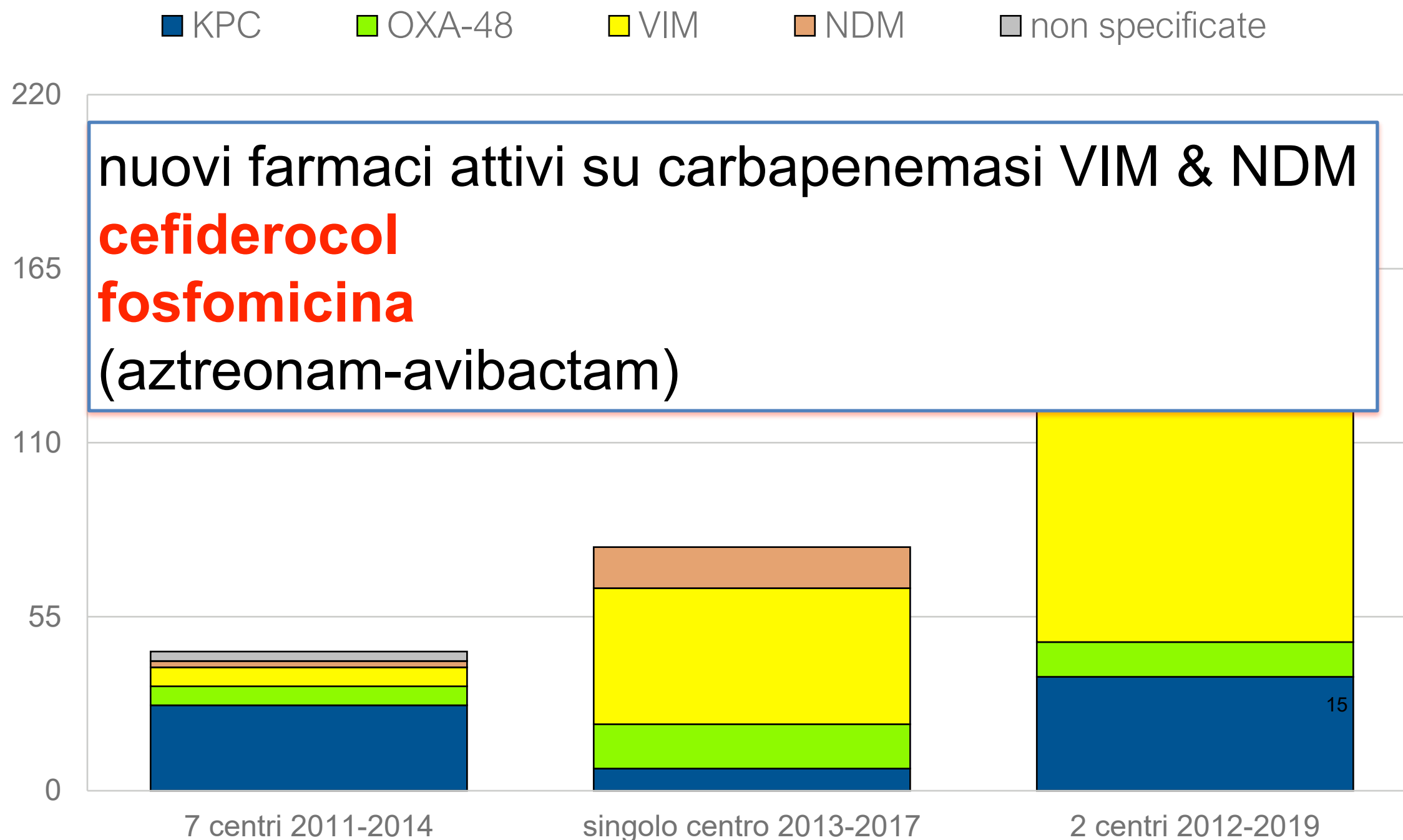
Treatment	
A6. In high-risk FN	
A6a. Use monotherapy with an antipseudomonal $\beta$ -lactam, a fourth-generation cephalosporin or a carbapenem as empiric antibacterial therapy in pediatric high-risk FN (strong recommendation, high-quality evidence)	New RCTs, 2017 recommendation confirmed
A6b. Reserve addition of a second anti-Gram-negative agent or a glycopeptide for patients who are clinically unstable, when a resistant infection is suspected, or for centers with a high rate of resistant pathogens (strong recommendation, moderate-quality evidence)	New RCTs, 2017 recommendation confirmed
A7. In low-risk FN	
A7a. Consider initial or step-down outpatient management if the infrastructure is in place to ensure careful monitoring and follow-up (conditional recommendation, moderate-quality evidence)	New RCTs, 2017 recommendation confirmed
A7b. Consider oral antibacterial therapy administration if the patient is able to tolerate this route of administration reliably (conditional recommendation, moderate-quality evidence)	No new RCTs, 2017 recommendation not changed



Epidemiology of carbapenemase-producing *Enterobacteriaceae* in a  
pediatric hospital in a country with high endemicity

*Journal of Infection and Public Health* 12 (2019) 270–274

3 studi 2011-2019, con diversità tra i centri e variazioni nel tempo

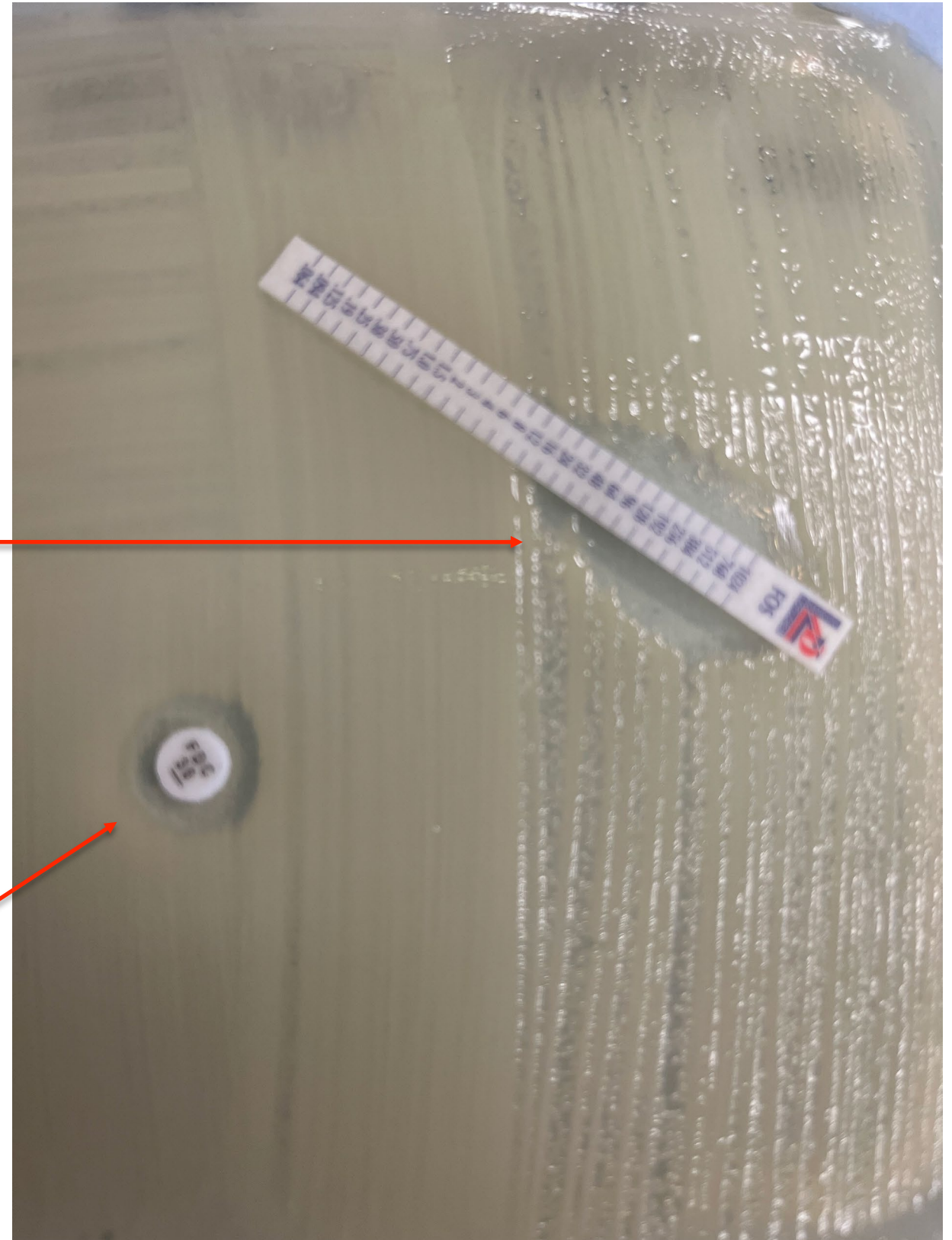


*K.pneumoniae* NDM  
(paziente colonizzato  
proveniente dall'estero)

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fosfomicina e.v.  
MIC 64 mg/l  
(ECOFF 256 mg/l)

cefiderocol: 1 mm  
(breakpoint 22 mg/l)





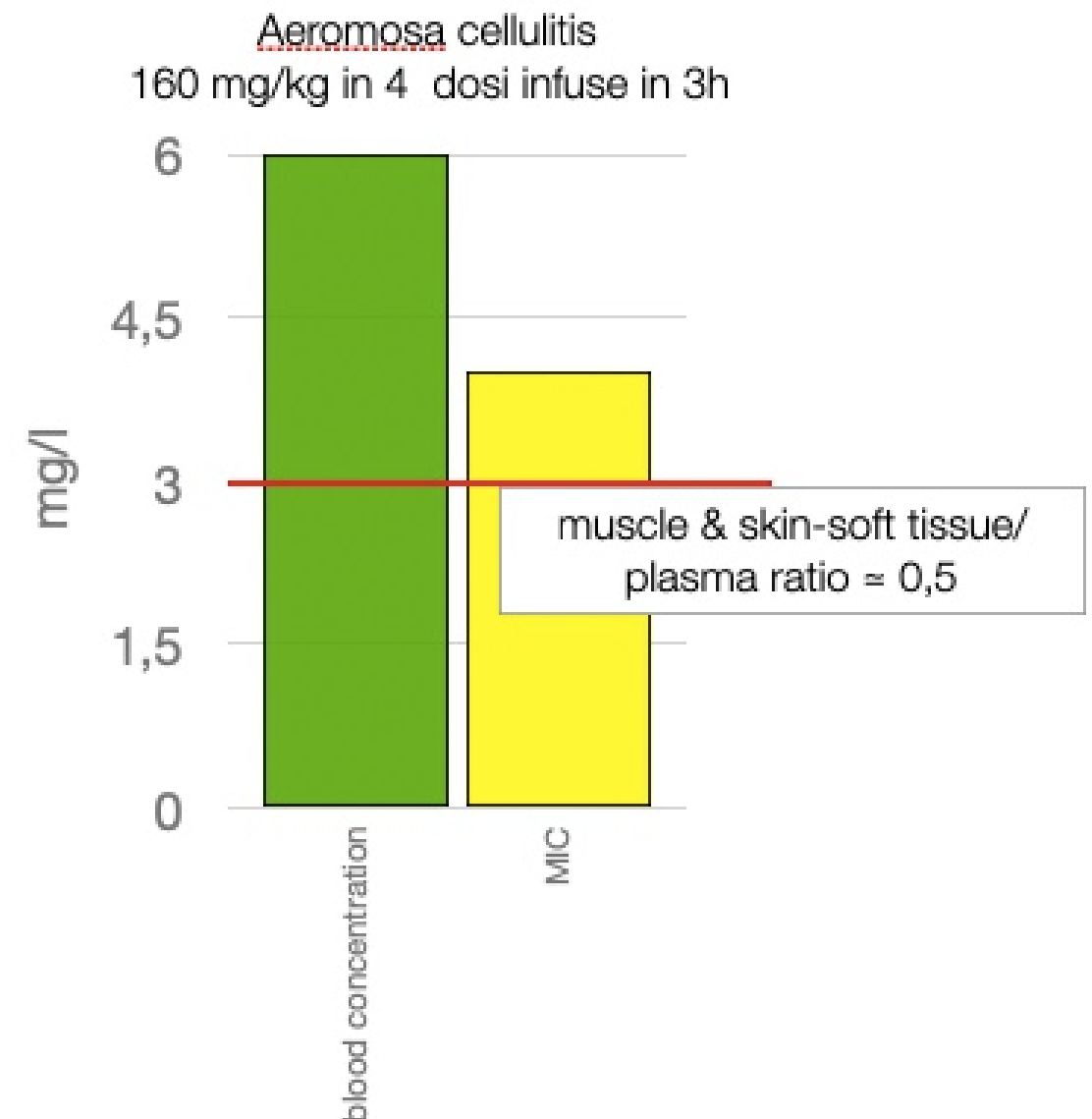
# patogeni inusuali da situazioni eccezionali (?)

## cellulite da *Aeromonas hydrophila*

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LLA in recidiva

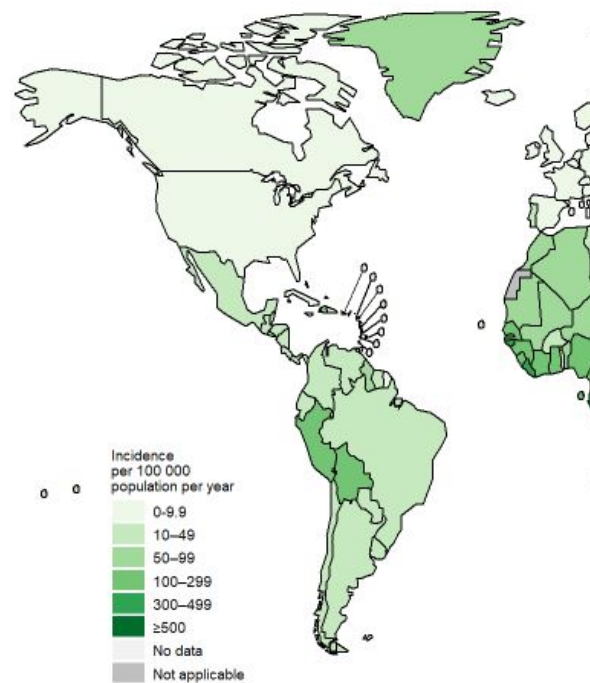
paziente su gommone caduto in mare in mezzo a petrolio (sic!)



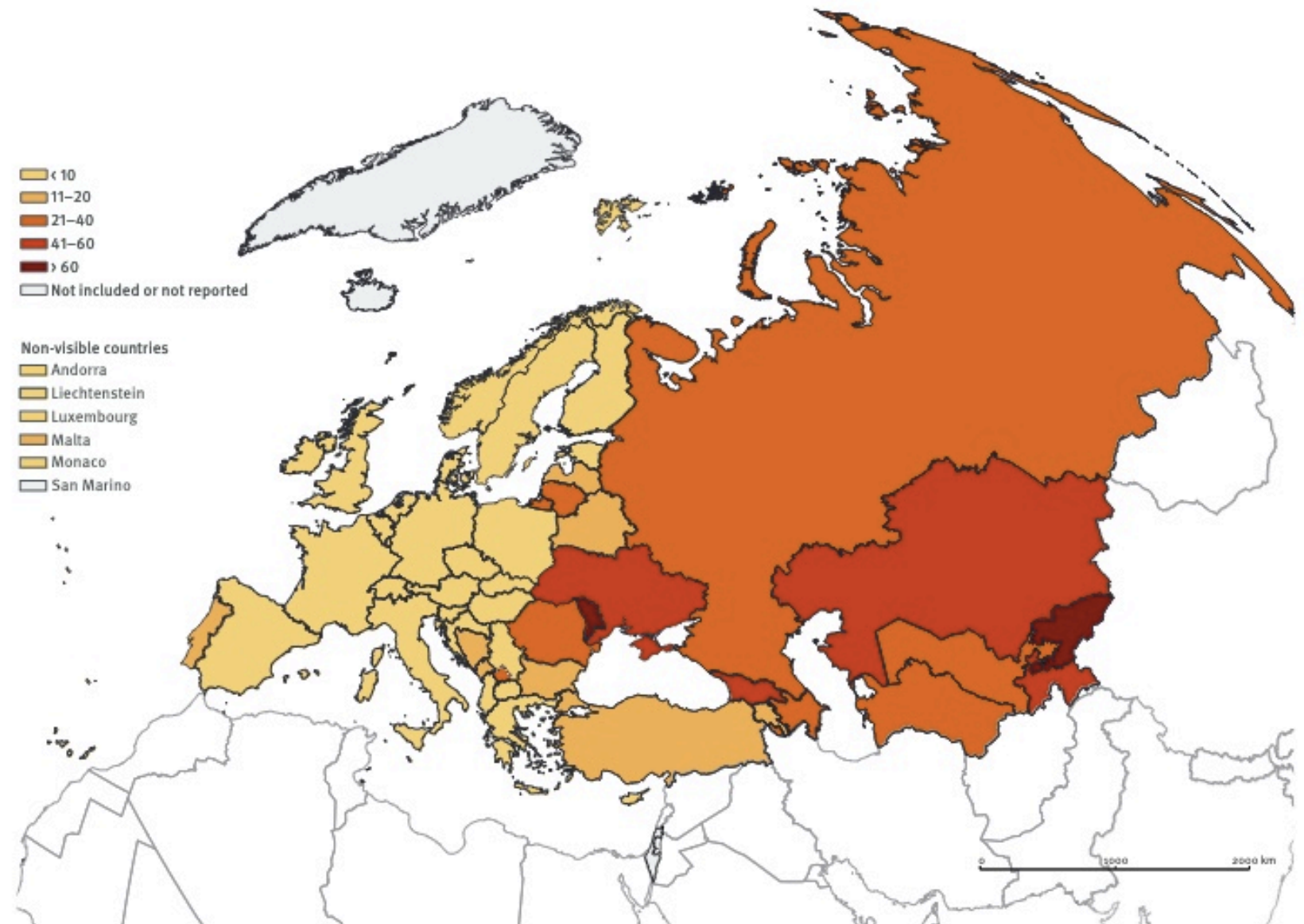
tubercolosi

# epidemiologia tubercolosi

Fig. 2.1.3 Estimated TB incidence rates, 2021



Map 1. TB notification rates of new TB cases and relapses per 100 000 population, European Region, 2021



Tuberculosis surveillance  
and monitoring in Europe

2023

2021 data

Sources: 2021 data from the European Surveillance Systems (TESSy) and 2021 data from the WHO global TB data-collection system. Map production: ©ECDC.



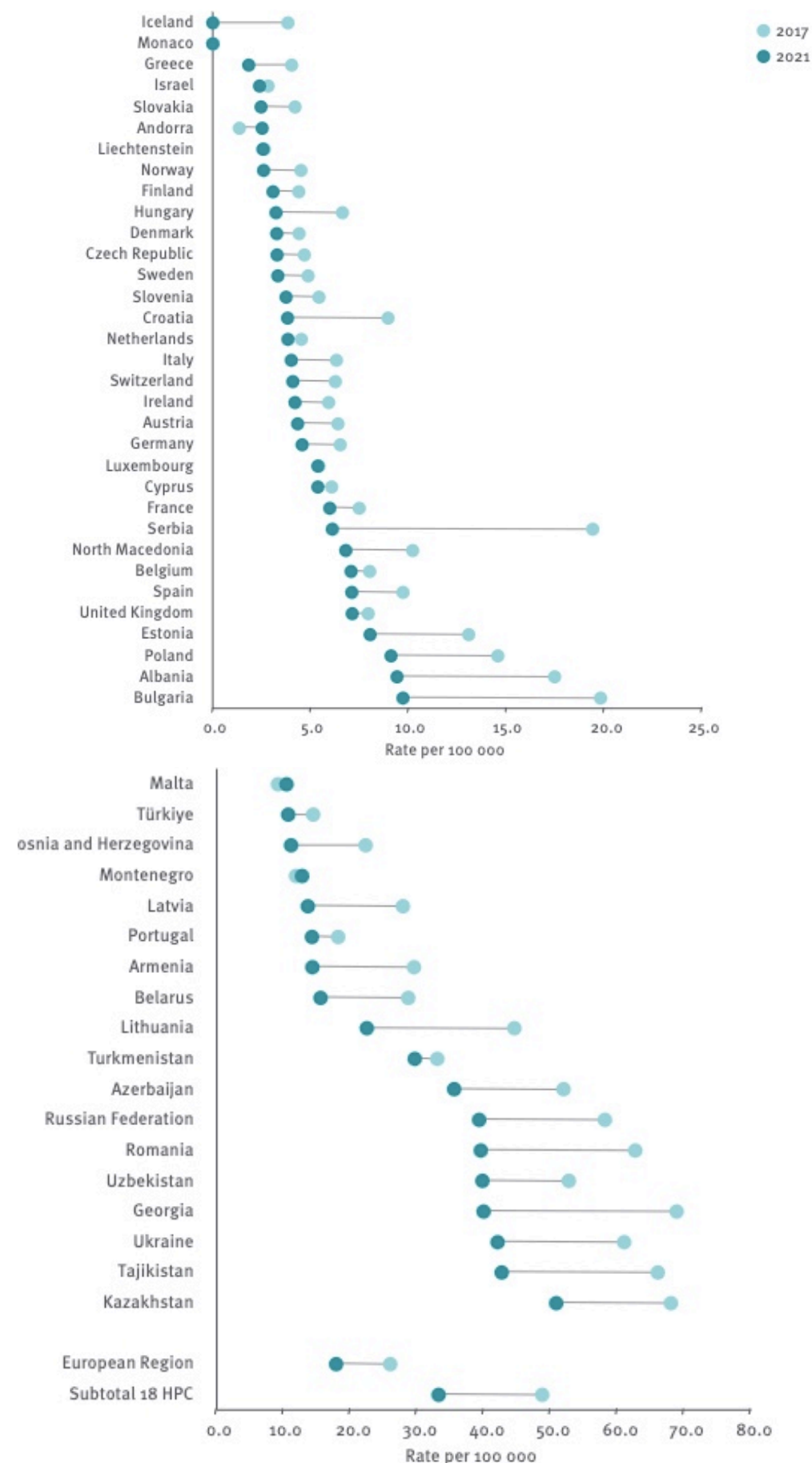
# Tuberculosis surveillance and monitoring in Europe

# 2023

2021 data

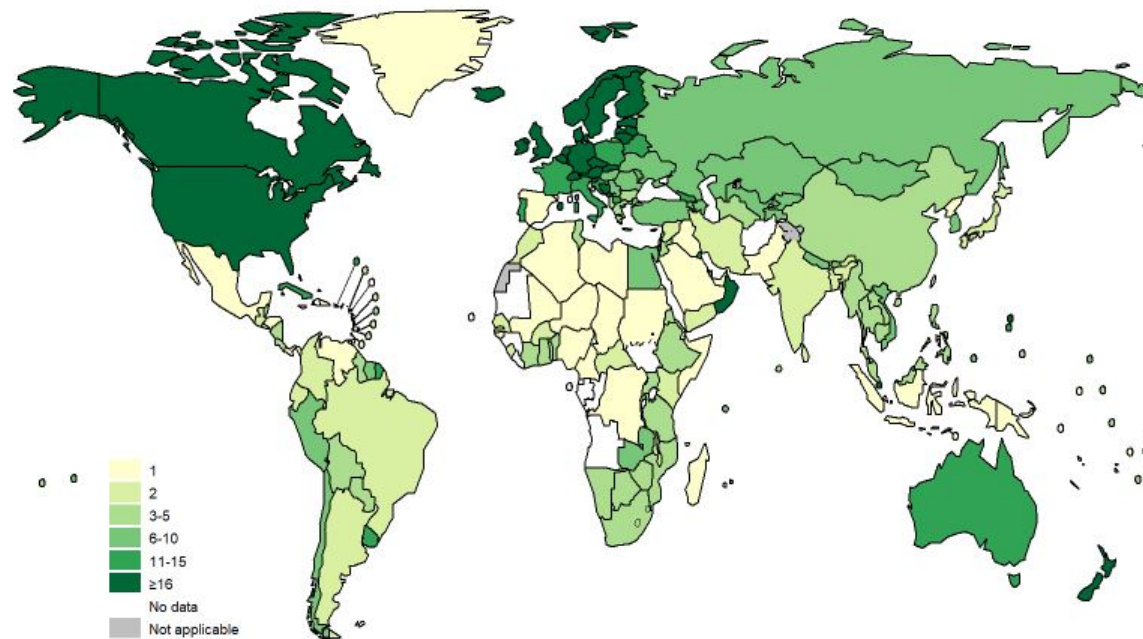
Data from the 18 high-priority countries (HPCs) identified in the 'Plan to stop TB in 18 high-priority countries in the WHO European Region, 2007–2015' [9] are presented in italics and as sub-totals alongside the sub-totals for the EU/EEA countries and non-EU/EEA countries and areas. The 18 HPCs in the WHO European Region are: Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, the Republic of Moldova, Romania, the Russian Federation, Tajikistan, Türkiye, Turkmenistan, Ukraine and Uzbekistan.

**Fig. 3.1.1.** Trend in TB notification rate per 100 000 between 2017 and 2021 for countries with under 10 cases per 100 000 (upper panel) and 10 cases and over per 100 000 (lower panel) in the WHO European Region



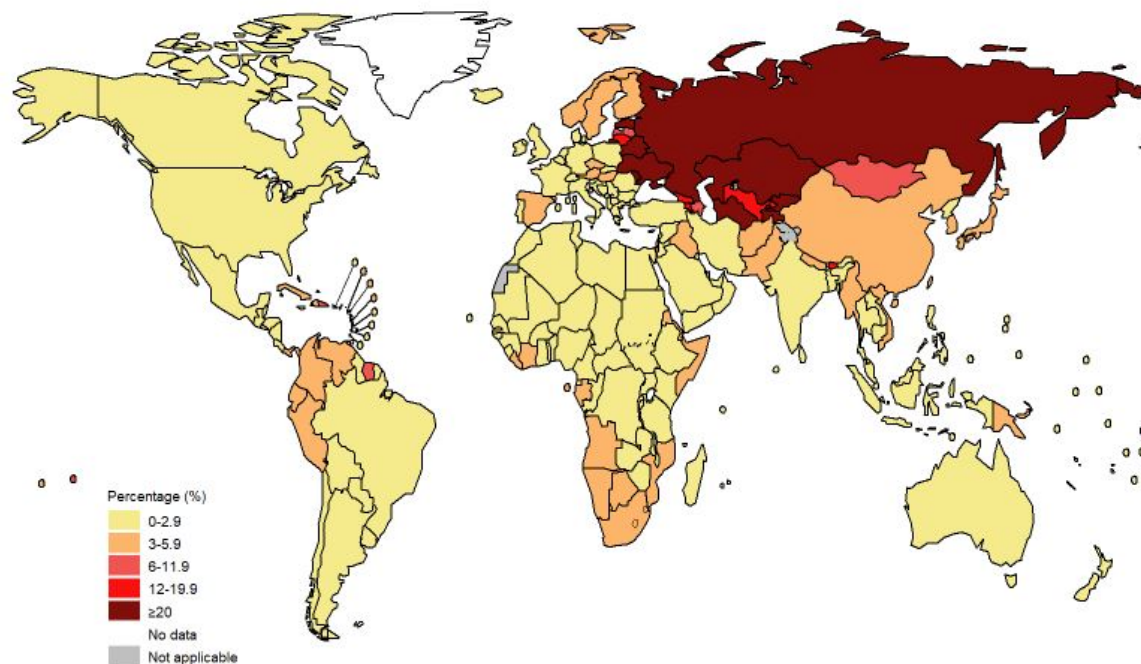
>10 casi /100.000 abitanti

**Fig. 2.3.10** Number of data points on rifampicin resistance among new cases, 1996–2022 <sup>a</sup>



<sup>a</sup> In 2022, a first-ever national drug-resistance survey was completed in Niger, and a repeat survey was completed in Mozambique.

**Fig. 2.3.6** Percentage of new TB cases with MDR/RR-TB, 2021



Global prevalence of drug-resistant tuberculosis: a systematic review and meta-analysis

Salari et al. *Infectious Diseases of Poverty* (2023) 12:57  
<https://doi.org/10.1186/s40249-023-01107-x>

fattori sociali:  
povertà, famiglie  
numerosi, stili di  
vita

fattori sanitari:  
scarso controllo  
infezioni e  
scarsa igiene

tubercolosi resistente ai farmaci

	Grading
<b>How to screen for LTBI</b>	
IGRA should be preferred over TST for patients previously vaccinated with BCG	BIIt
For other patients, either TST or IGRA can be used	CIlu
TST positivity should be defined as an induration of $\geq 5$ mm	BIIt
For IGRAs, either T.SPOT-TB or Quantiferon can be used	BIlu
In case of doubt about the proximity and duration of tuberculosis sporadic contact, IGRA conversion could be helpful and should be repeated after 8–12 weeks from the last exposure, if initially scored negative	BIIt
If the IGRA score is indeterminate, data from populations of HSCT recipients and patients with haematological malignancies do not support repeating IGRA or TST	BIIt
<b>How to treat LTBI</b>	
Before starting preventive therapy, active tuberculosis must be ruled out (investigate clinical symptoms and perform lung imaging)	AIII
Initiating tuberculosis preventive therapy should not delay haematological malignancy treatment or haematopoietic stem cell transplantation	AIII

: ECIL recommendations for screening and treatment for latent tuberculosis infection



	Grading
<b>Patients to target</b>	
Only the high-risk subpopulation of HSCT recipients and patients with haematological malignancies should be considered for treatment preventing active tuberculosis development	Allu
<b>Factors associated with a high risk of developing active tuberculosis in HSCT recipients and patients with haematological malignancies are:</b>	
Patients from countries or communities with a high incidence of tuberculosis ( $\geq 100$ per 100 000 population)*	CIII
People referring exposure to a patient with contagious tuberculosis	Allt
People with pleuro-parenchymal imaging abnormalities (mainly on the upper lobes) suggestive of previous tuberculosis in patients who had not received appropriate anti-tuberculosis treatment	BIIt
Patients who receive ruxolitinib if epidemiological risk factors are substantial (eg, patient history and endemic areas) <sup>27</sup>	BIlu
Special attention should be paid to the risk of primary infection or re-infection throughout the haematological follow-up	Alll

: ECIL recommendations for screening and treatment for latent tuberculosis infection

# **Mycobacterium tuberculosis pneumonia and bacteremia after allogeneic hematopoietic stem cell transplant: report of an instructive pediatric case**

NEW MICROBIOLOGICA, 35, 353-357, 2012

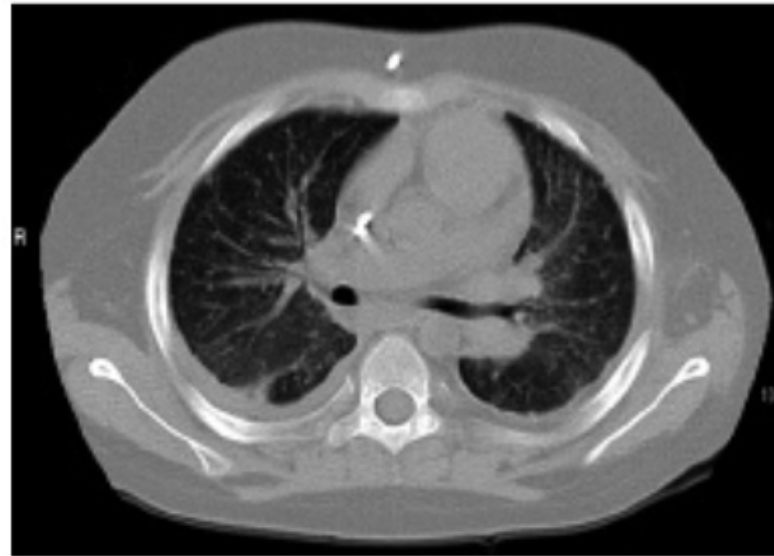


FIGURE 1 - Chest CT: diffuse reticulo-micro-nodular parenchymal pattern, with increased lymphadenopathies mainly in the left hilum; a bilateral pleural effusion is also present.

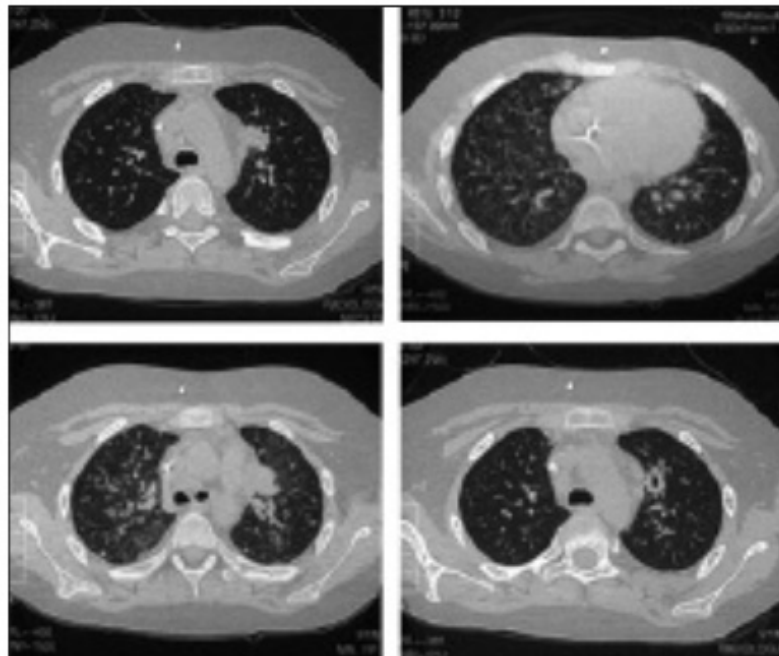


FIGURE 2 - Chest CT scan shows the persistence of the diffuse reticulo-nodular parenchymal pattern, with a left paracardiac infiltrate: its hypodense core is suggestive for a cavitation process.

Successful management of cutaneous BCG dissemination in a child affected by SCID and receiving allogeneic hematopoietic stem cell transplant

Bone Marrow Transplantation (2015) 50, 1572–1573



# cosa considerare ancora? in ordine sparso e sperando di non dimenticare qualcosa

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- micosi endemiche
- parassitosi: strongiloides (che c'è anche in Italia)...
- virus: HBV-HCV, dengue, chikungunya, west Nile, ecc.
- non dimenticando che alcuni sono «assenti» nei bambini italiani, mentre altri «stanno arrivando» e praticamente non sappiamo quasi niente di loro nella popolazione emato-oncologica...



# che fare?

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- studiare geografia?
- studiare il fenomeno
  - attenzione alle aree di provenienza...
  - valutazione epidemiologica «costante»
  - controllo su siti istituzionali studiare il fenomeno
- screening e isolamento
  - aspettarsi un po' di tutto...

