MERCOLEDÌ 20 APRILE 2022

LA BRONCOPATIA CRONICA OSTRUTTIVA: TERRITORIO – OSPEDALE – TERRITORIO

HUMANITAS GAVAZZENI

Ordine dei Medici Chirurghi e Odontoiatri della provincia di Bergamo

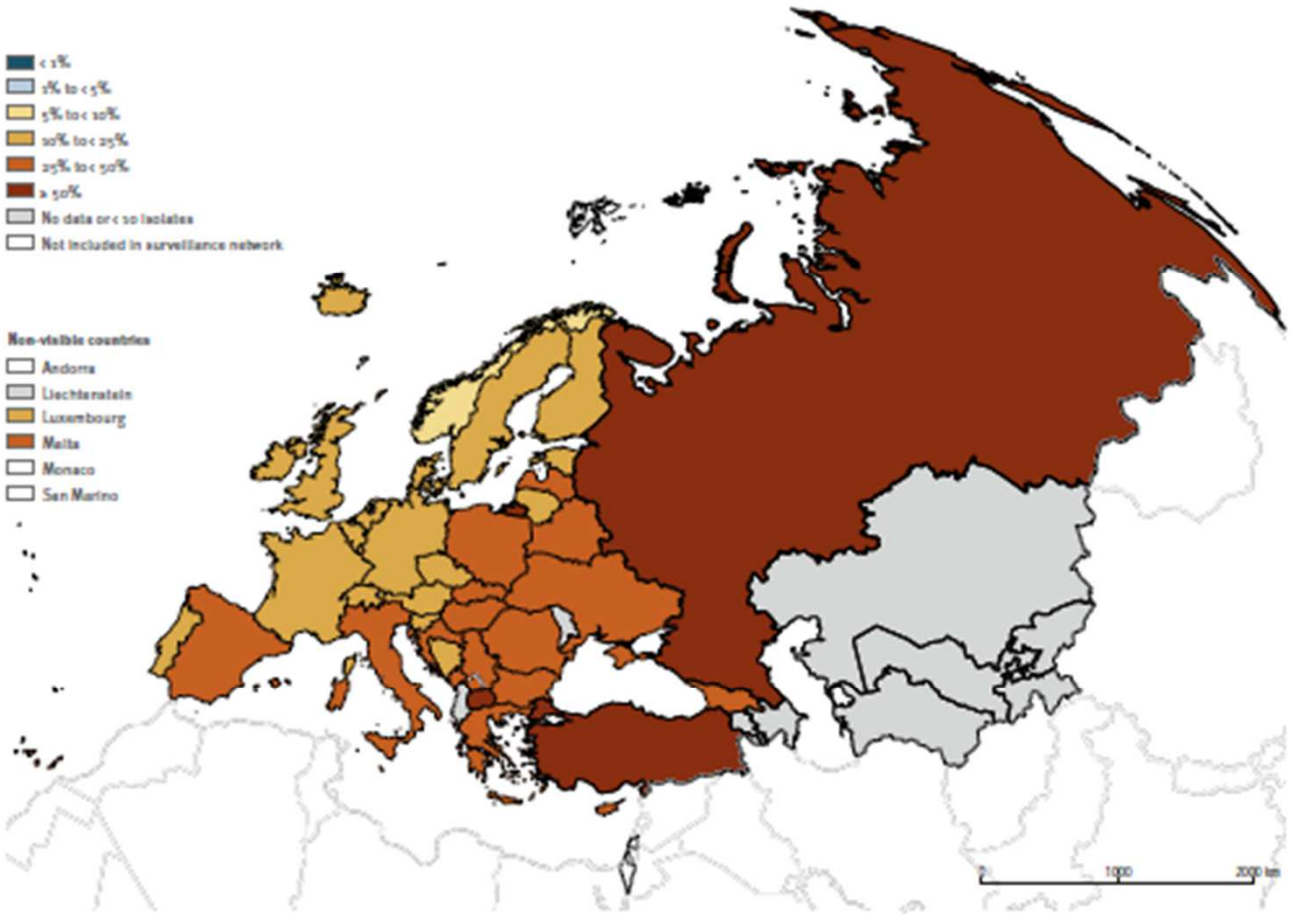
GESTIONE DELLA RIACUTIZZAZIONE: RUOLO DELLA TERAPIA ANTIBIOTICA

dott.ssa Serena Trovati
Servizio di Malattie Infettive
Humanitas Gavazzeni

25-50%

E.coli resistente ai FQ

Fig. 1 *E. coli*: percentage of invasive isolates resistant to fluoroquinolones (ciprofloxacin/levofloxacin/ofloxacin), by country/area, WHO European Region, 2020



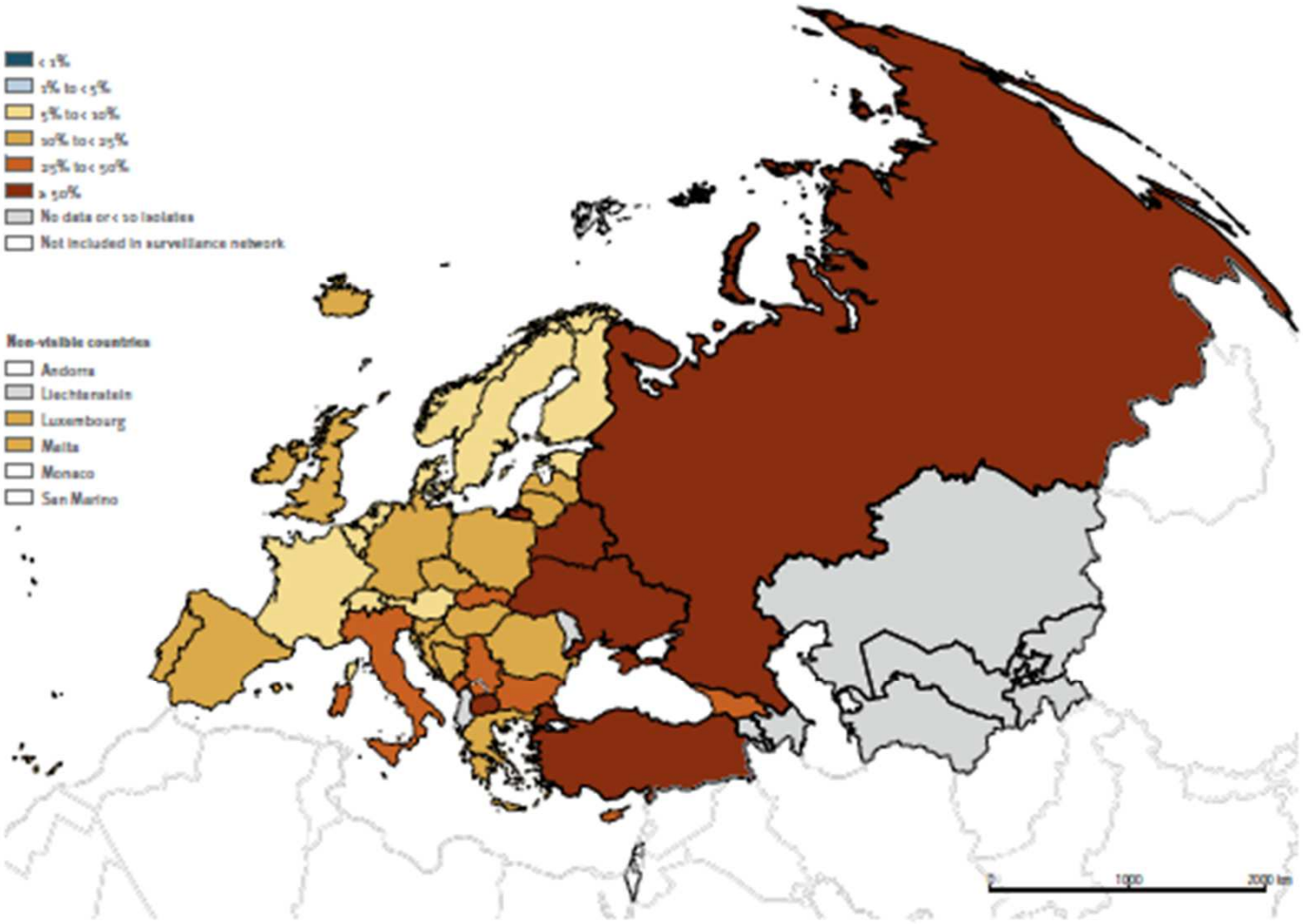
Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

E.coli resistente alle cefalosporine di terza generazione

25-50%

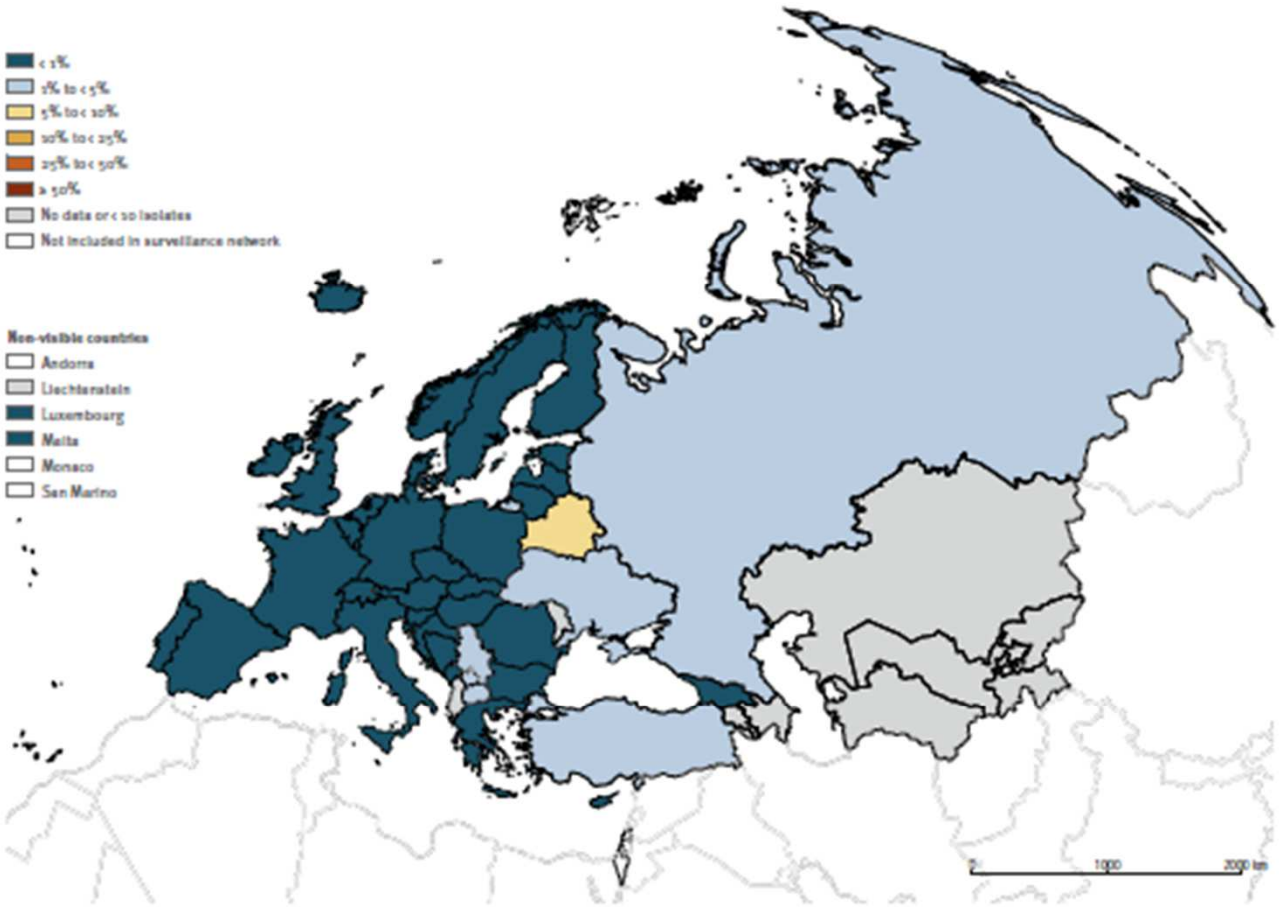
Fig. 2 *E. coli*: percentage of invasive isolates resistant to third-generation cephalosporins (cefotaxime/ceftriaxone/ceftazidime), by country/area, WHO European Region, 2020



Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

Fig. 3 *E. coli*: percentage of invasive isolates resistant to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020



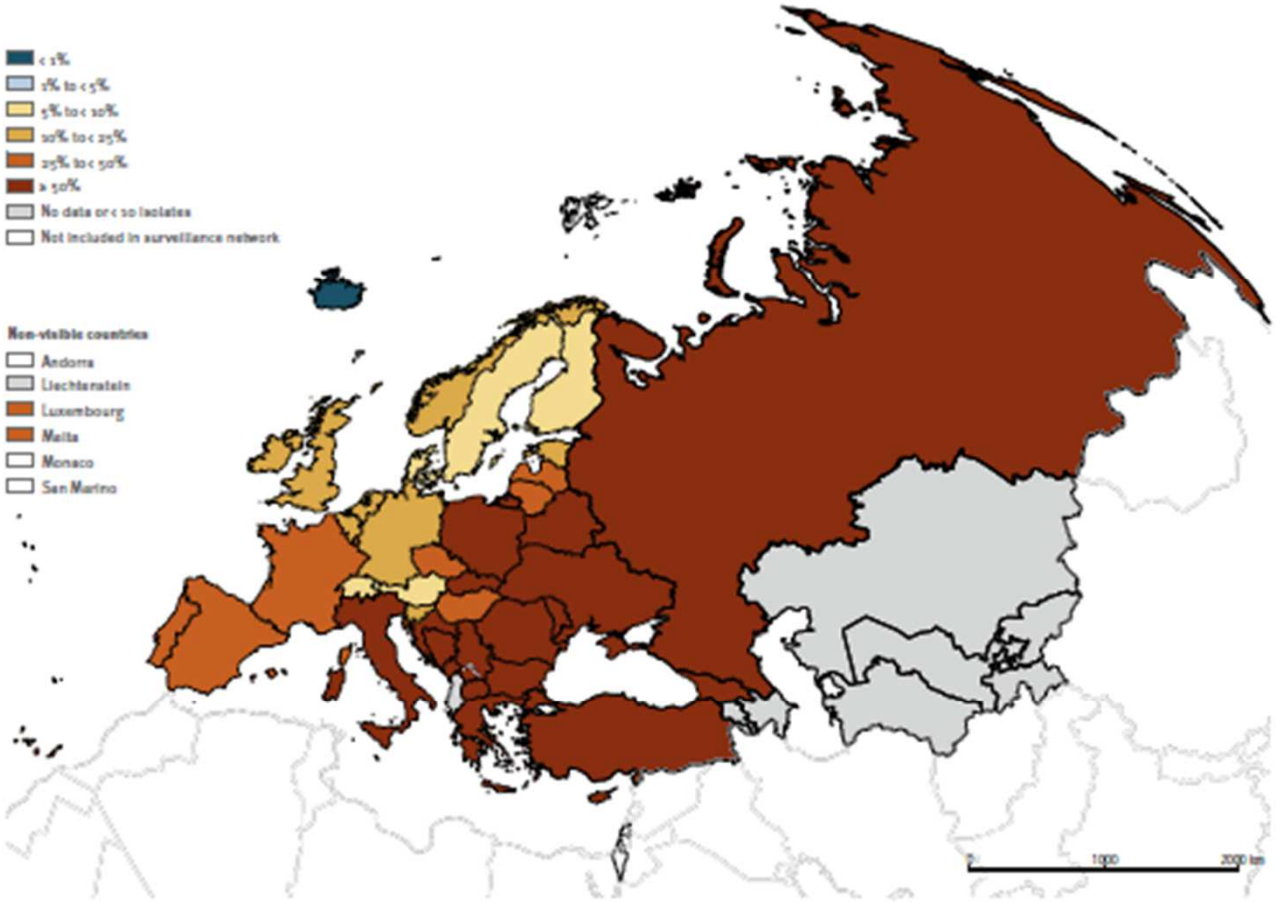
Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

E.coli resistente ai carbapenemi

Fig. 4 *K. pneumoniae*: percentage of invasive isolates resistant to third-generation cephalosporins (cefotaxime/ceftriaxone/ceftazidime), by country/area, WHO European Region, 2020

>50%



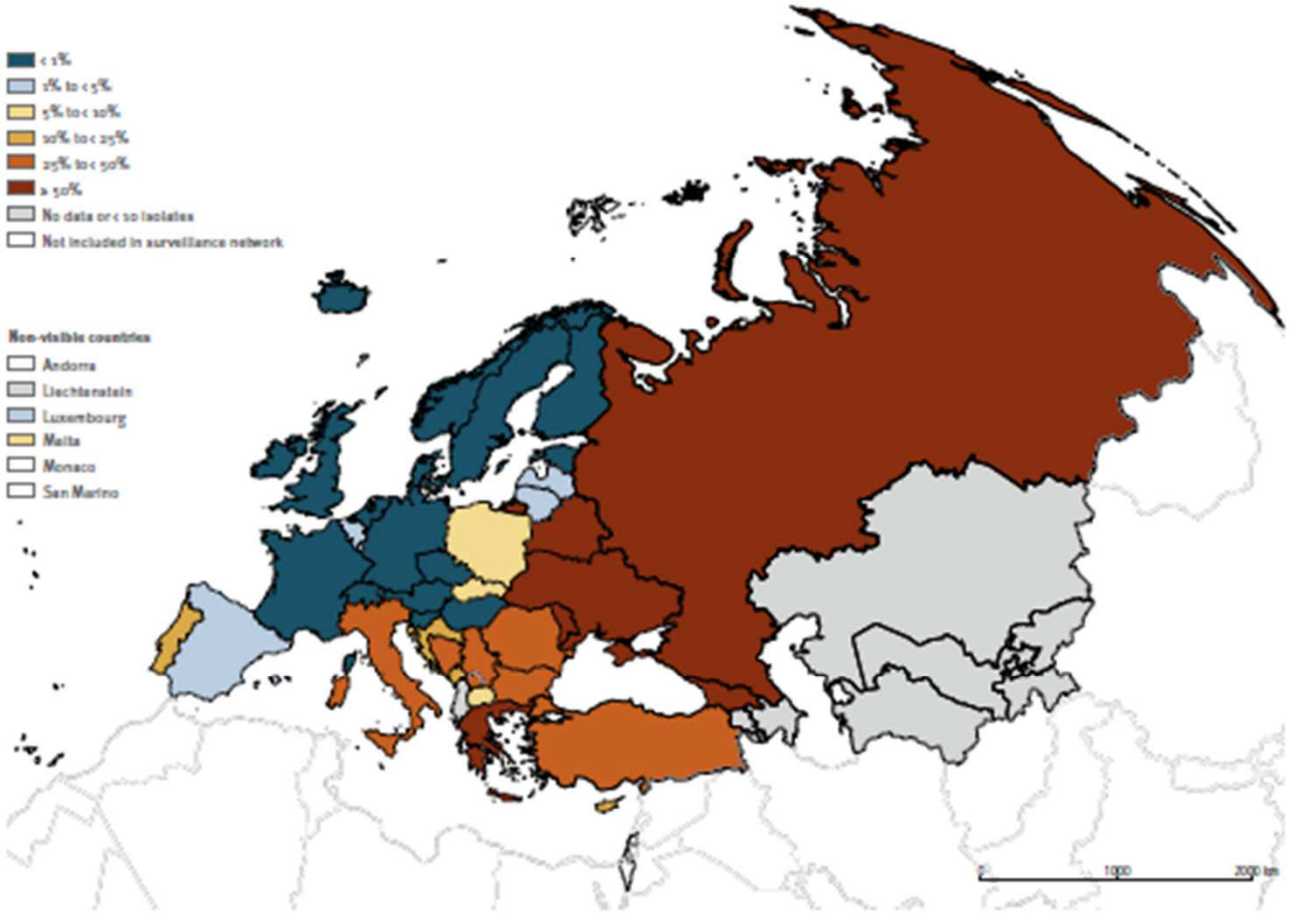
Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

K.pneumoniae resistente alle cefalosporine di 3^ generazione

25-50%

Fig. 5 *K. pneumoniae*: percentage of invasive isolates resistant to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020



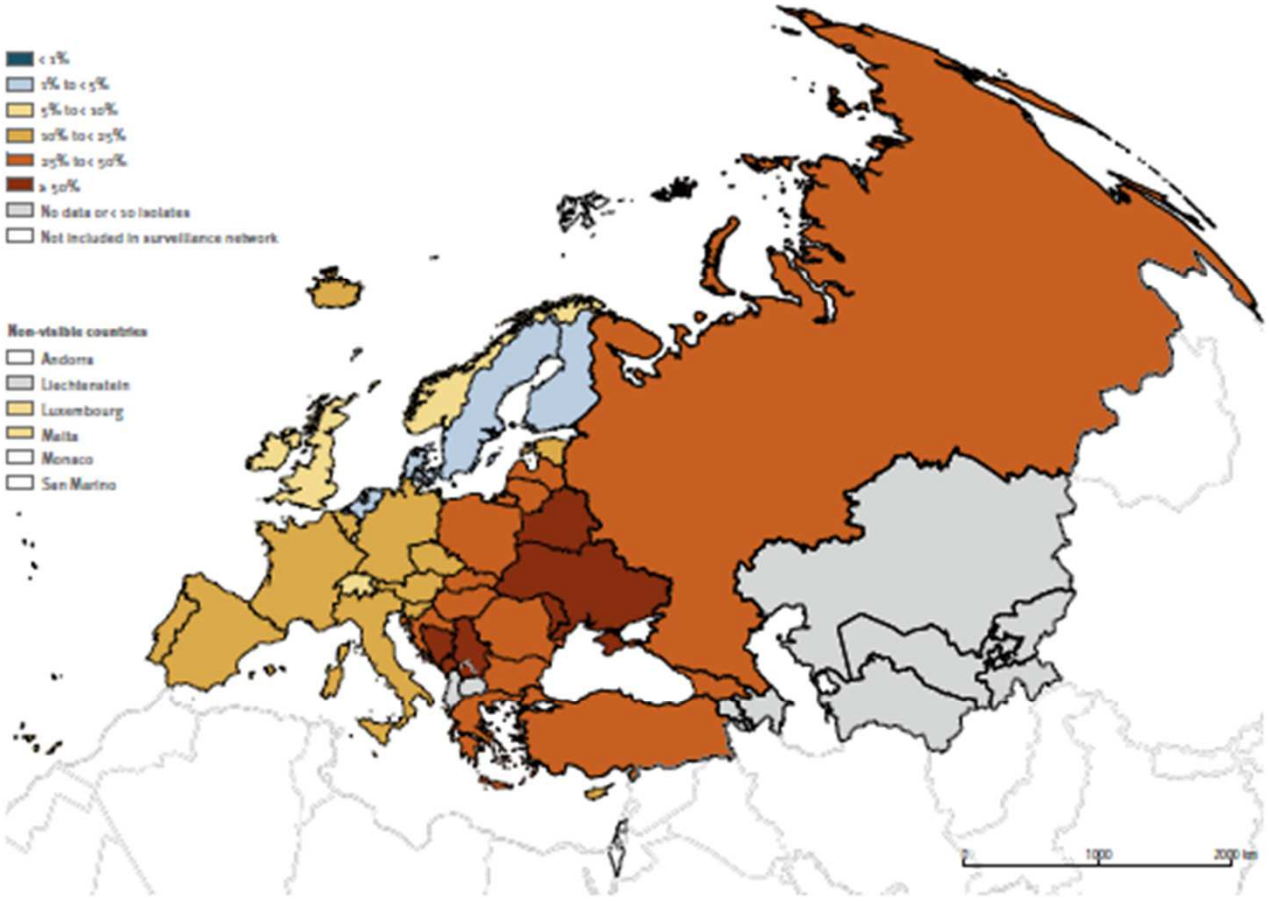
Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

K.pneumoniae resistente ai carbapenemi

10-25%

Fig. 6 *P. aeruginosa*: percentage of invasive isolates with resistance to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020



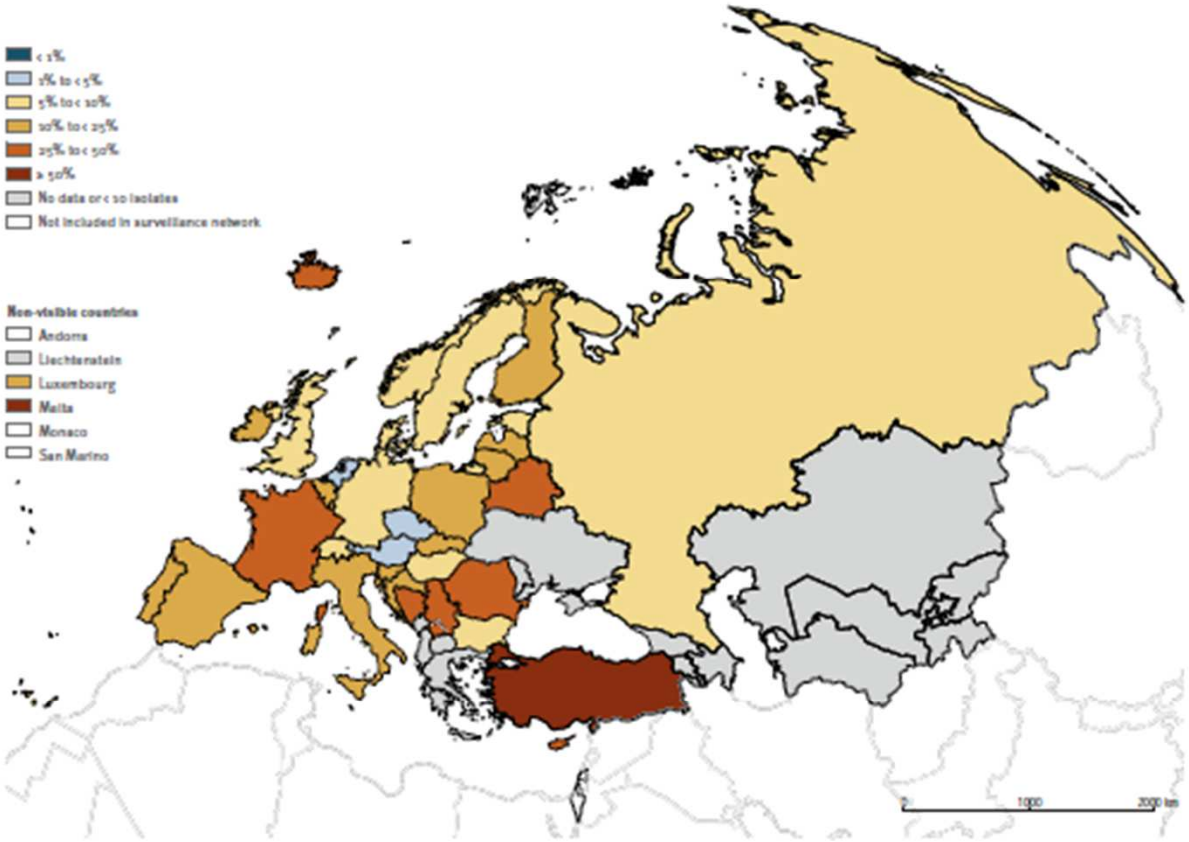
Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

Pseudomonas aeruginosa resistente ai carbapenemi

10-25%

Fig. 9 *S. pneumoniae*: percentage of penicillin[a] non-wild-type[b] invasive isolates, by country/area, WHO European Region, 2020



Note: data for Serbia and Kosovo (All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2020 do not include Scotland and Wales.

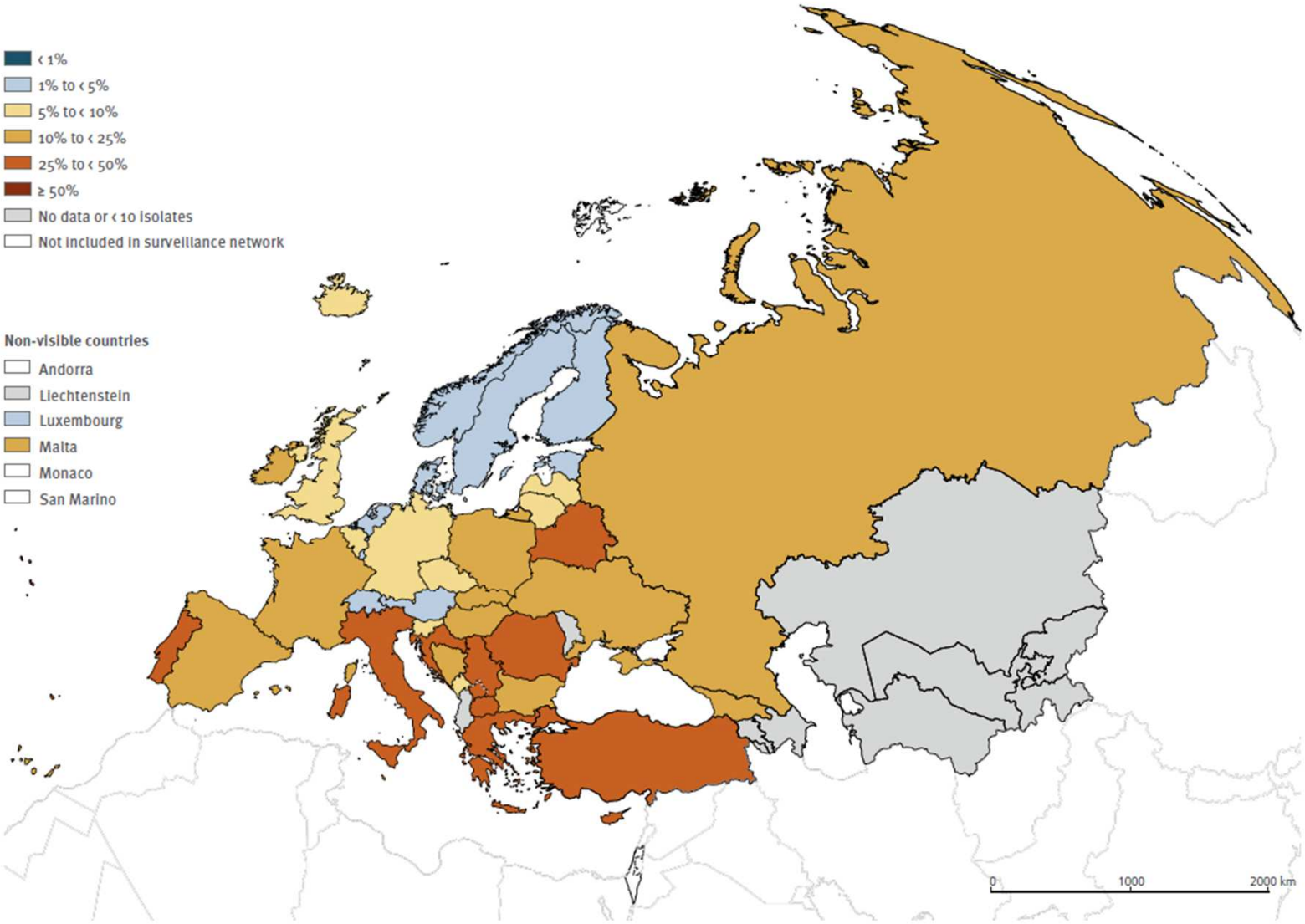
[a] Penicillin results are based on penicillin or, if not available, oxacillin.

[b] For *S. pneumoniae*, the term penicillin non-wild-type is used in this report, referring to *S. pneumoniae* isolates reported by local laboratories as susceptible, increased exposure (I) or resistant (R) to penicillin, assuming MIC to benzylpenicillin above those of wild-type isolates (> 0.06 mg/L). The qualitative susceptibility categories (S/I/R) as reported by the laboratory are used, since quantitative susceptibility information is missing for a large part of the data. Laboratories not using EUCAST clinical breakpoints (this applies to only a few laboratories in CAESAR countries/areas in 2020) might define the cut-off values for the susceptibility categories differently.

Data sources: 2020 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR, ©WHO 2021. All rights reserved.) and 2020 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021).
Map production: ©WHO.

Streptococcus pneumoniae «non wild type» per le penicilline

Fig. 8 *S. aureus*: percentage of invasive isolates resistant to methicillin (MRSA),[a] by country/area, WHO European Region, 2020

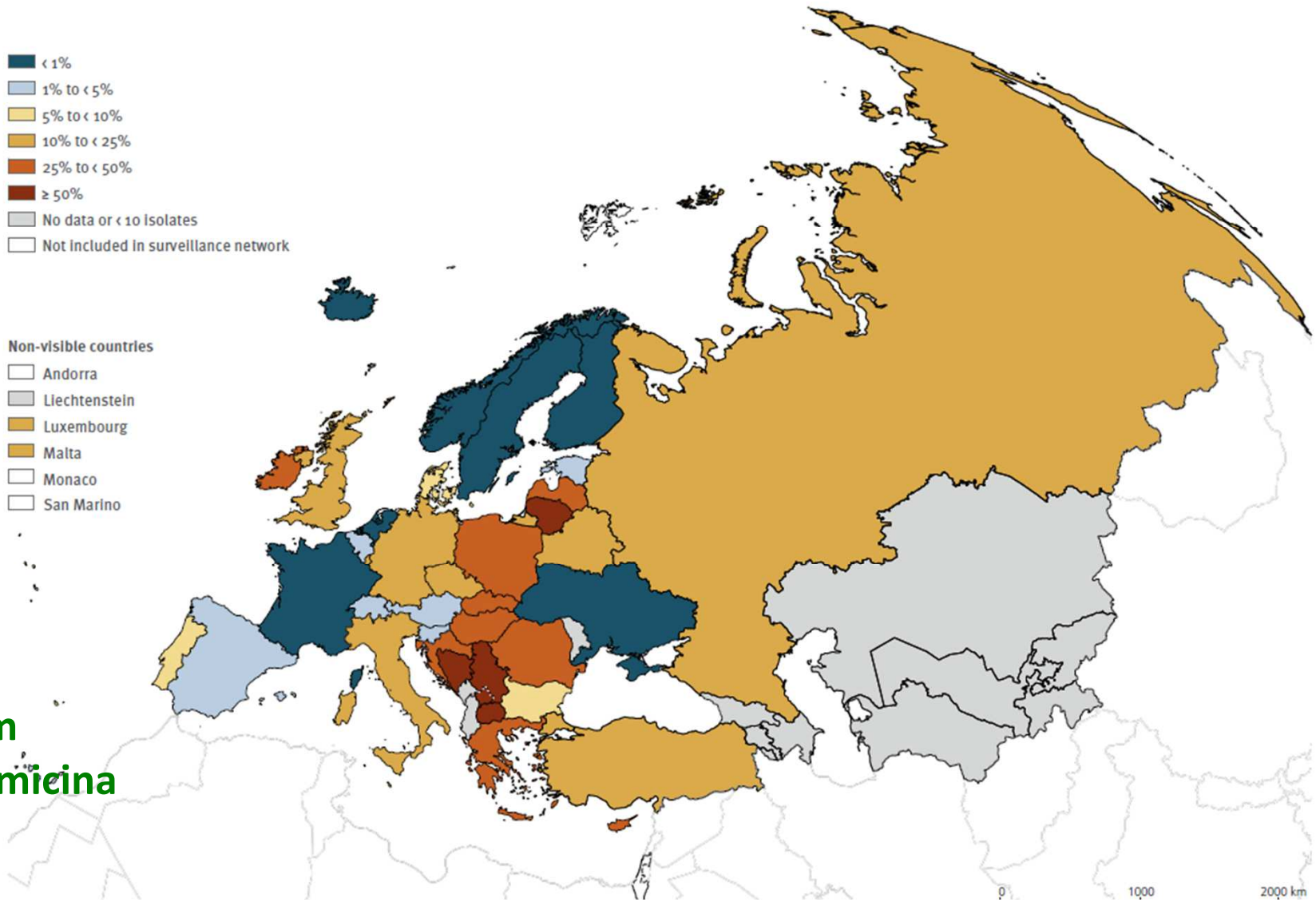


25-50%

Staphylococcus aureus resistente alla meticillina (MRSA)

Fig. 10 *E. faecium*: percentage of invasive isolates resistant to vancomycin, by country/area, WHO European Region, 2020

10-25%

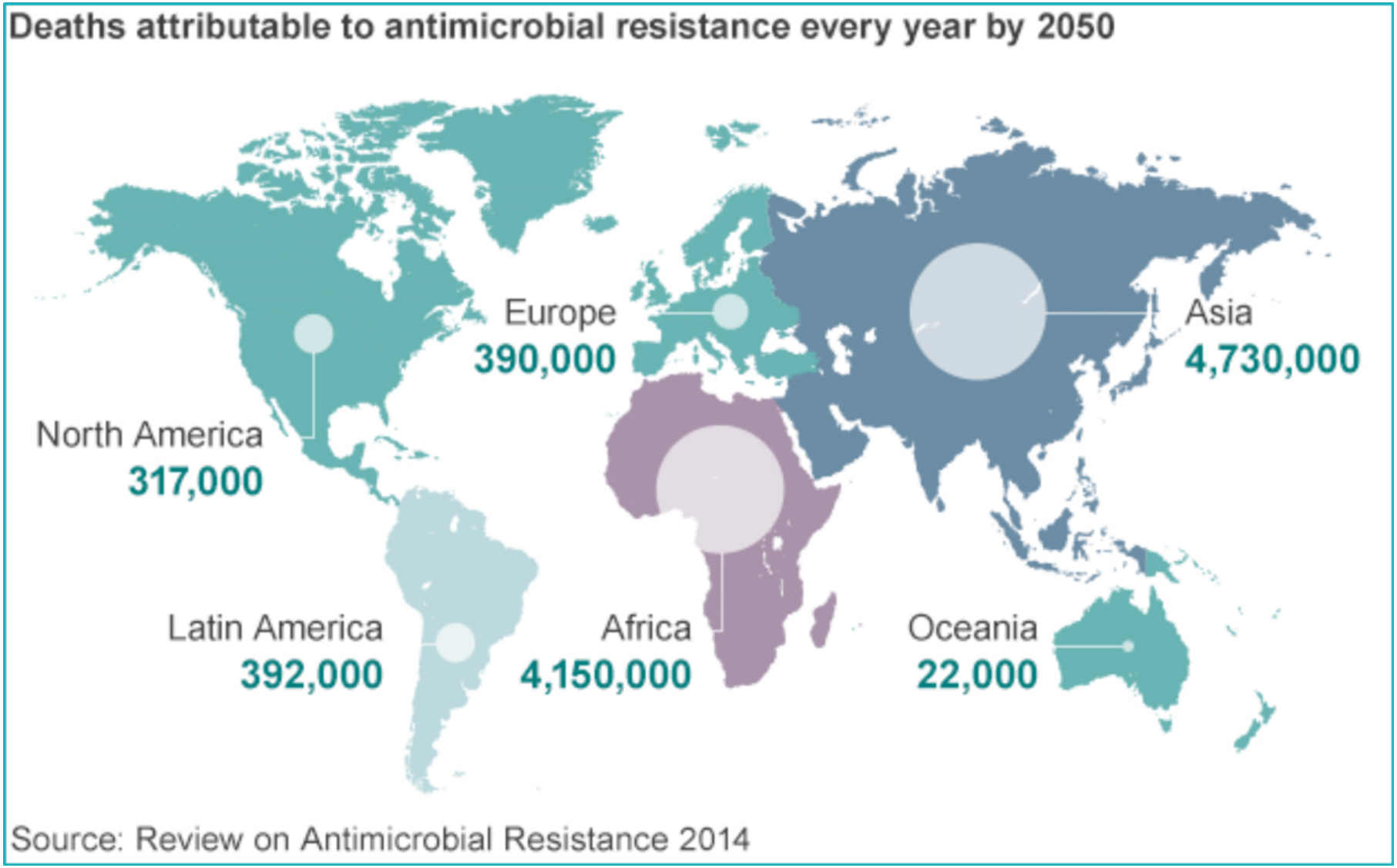


Enterococcus faecium resistente alla vancomicina (VRE)

Total number of invasive isolates tested (n) and percentages of isolates with resistance phenotype (%), by bacterial species and antimicrobial group/agent, 2020 EU/EEA range, population-weighted mean and trend, Italy, 2016–2020

Bacterial species	Antimicrobial group/agent	2016		2017		2018		2019		2020		2020 EU/EEA range and population-weighted mean[a]	Trend 2016–2020[b]
		n	%	n	%	n	%	n	%	n	%		
E. coli	Aminopenicillin (amoxicillin/ampicillin) resistance	3 114	66.9	4 078	67.1	7 533	64.5	4 457	68.1	4 214	64.5	54.6 (34.1–67.9)	–
	Third-generation cephalosporin (cefotaxime/ceftriaxone/ceftazidime) resistance	5 938	29.8	7 077	29.5	16 253	28.7	18 409	30.9	18 750	26.4	14.9 (5.8–41.4)	↓
	Carbapenem (imipenem/meropenem) resistance	6 106	0.3	7 280	0.3	15 452	0.4	17 086	0.4	18 001	0.5	0.2 (0.0–0.8)	↑*
	Fluoroquinolone (ciprofloxacin/levofloxacin/ofloxacin) resistance	5 950	43.3	6 946	44.9	16 043	41.7	18 417	40.6	18 840	37.6	23.8 (10.0–48.2)	↓
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance	6 079	19.0	7 134	18.4	15 901	16.0	18 382	15.9	17 994	14.9	10.9 (5.5–34.2)	↓
	Combined resistance to third-generation cephalosporins, fluoroquinolones and aminoglycosides[c]	5 763	12.9	6 454	13.7	15 622	11.4	17 961	11.6	17 593	9.8	5.7 (1.6–18.7)	↓
K. pneumoniae	Third-generation cephalosporin (cefotaxime/ceftriaxone/ceftazidime) resistance	2 246	55.8	2 546	54.6	5 802	53.6	7 699	57.6	8 400	54.3	33.9 (0.0–79.1)	–
	Carbapenem (imipenem/meropenem) resistance	2 303	33.8	2 633	29.5	5 660	26.8	7 325	28.5	8 293	29.5	10.0 (0.0–66.3)	↓
	Fluoroquinolone (ciprofloxacin/levofloxacin/ofloxacin) resistance	2 348	56.0	2 562	55.7	5 752	52.7	7 692	54.7	8 486	52.4	33.8 (10.0–74.4)	↓
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance	2 300	36.1	2 571	34.5	5 693	27.0	7 682	32.6	8 084	31.6	23.7 (0.0–67.0)	↓
	Combined resistance to third-generation cephalosporins, fluoroquinolones and aminoglycosides[c]	2 174	32.7	2 352	31.6	5 587	24.8	7 560	30.3	7 842	29.5	21.0 (0.0–58.3)	–
P. aeruginosa	Piperacillin-tazobactam resistance	1 146	23.8	1 309	23.2	2 938	23.9	3 768	24.1	4 537	24.2	18.8 (4.4–64.3)	↓
	Ceftazidime resistance	1 160	23.0	1 332	20.0	2 974	19.9	3 798	19.0	4 473	19.3	15.5 (2.9–54.3)	↓*
	Carbapenem (imipenem/meropenem) resistance	1 206	23.3	1 433	19.6	3 014	15.8	3 794	13.7	4 615	15.9	17.8 (3.6–48.9)	↓
	Fluoroquinolone (ciprofloxacin/levofloxacin) resistance	1 166	34.7	1 390	25.1	2 994	22.9	3 875	21.7	4 599	19.6	19.6 (3.2–52.9)	↓
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance[d]	1 203	19.1	1 428	18.0	2 983	12.8	3 859	11.4	ND	ND	9.4 (0.0–37.1)	NA
	Combined resistance to ≥ 3 antimicrobial groups (among piperacillin-tazobactam, ceftazidime, carbapenems, fluoroquinolones and aminoglycosides)[e]	1 205	19.8	1 434	17.2	3 006	14.9	3 882	13.1	4 593	11.2	12.1 (0.0–47.1)	↓
Acinetobacter spp.	Carbapenem (imipenem/meropenem) resistance	702	78.5	868	78.7	1 383	79.2	1 588	79.3	2 552	80.8	38.0 (0.0–96.4)	–
	Fluoroquinolone (ciprofloxacin/levofloxacin) resistance	697	79.9	804	79.2	1 368	81.1	1 636	82.5	2 522	83.4	41.8 (0.0–98.2)	↑
	Aminoglycoside (gentamicin/netilmicin/tobramycin) resistance	704	76.4	836	76.1	1 369	77.0	1 637	78.8	2 496	80.2	37.1 (0.0–96.4)	↑
	Combined resistance to carbapenems, fluoroquinolones and aminoglycosides[c]	692	74.7	763	72.6	1 351	75.7	1 569	76.6	2 451	78.7	34.1 (0.0–95.1)	↑
S. aureus	MRSA[f]	2 981	33.6	3 591	33.9	8 263	34.0	9 681	34.3	10 923	33.5	16.7 (1.4–49.1)	–
S. pneumoniae	Penicillin non-wild-type[g]	359	6.5	522	10.5	928	9.2	1 057	11.9	516	13.4	15.6 (3.9–56.3)	↑
	Macrolide (azithromycin/clarithromycin/erythromycin) resistance	464	22.4	599	22.7	1 095	20.3	1 298	22.3	639	24.2	16.9 (3.5–43.8)	–
	Combined penicillin non-wild-type and resistance to macrolides[h]	361	4.4	478	5.3	879	4.7	989	6.7	491	7.7	9.0 (0.0–37.5)	↑*
E. faecalis	High-level gentamicin resistance	1 441	45.3	1 630	45.9	2 927	39.9	2 395	34.9	3 028	37.4	29.0 (8.1–51.6)	↓
E. faecium	Vancomycin resistance	941	13.4	1 049	14.6	2 273	18.9	2 839	21.3	4 166	23.6	16.8 (0.0–56.6)	↑

NA: not applicable as data were not reported for all years, a significant change in data source occurred during the period, or the number of isolates was < 20 in any year during the period.
ND: no data available.
[a] Lowest and highest national resistance percentage among reporting EU/EEA countries (n = 29).
[b] ↑ and ↓ indicate statistically significantly increasing and decreasing trends, respectively; * indicates a significant trend in the overall data, but not in data that only included laboratories reporting continuously for all five years; – indicates no statistically significant trend.
[c] The aminoglycoside group includes only gentamicin and tobramycin from 2020 onwards.
[d] The aminoglycoside group includes only tobramycin from 2020 onwards.
[e] MRSA is based on oxacillin or cefoxitin, but AST results reported as cloxacillin, dicloxacillin, flucloxacillin or methicillin are accepted as a marker for oxacillin resistance if oxacillin is not reported. Data from molecular confirmation tests (detection of *mecA* gene by PCR or a positive PBP2A-agglutination test) are given priority over phenotypic AST results.
[f] Penicillin results are based on penicillin or, if not available, oxacillin. For *S. pneumoniae*, the term penicillin non-wild-type is used in this report, referring to *S. pneumoniae* isolates reported by the local laboratories as susceptible increased exposure (I) or resistant (R) to penicillin, assuming MIC to benzylpenicillin above those of wild-type isolates (> 0.06 mg/L). The qualitative susceptibility categories (S/I/R) as reported by the laboratory are used, since quantitative susceptibility information is missing for a large part of the data. Laboratories not using EUCAST clinical breakpoints in the period 2016–2018 might define the cut-off values for the susceptibility categories differently.



ANTIBIOTICO-RESISTENZA: CAUSE

USO ECCESSIVO

- Per trattare infezioni quando non è necessario
- Durata

USO IMPROPRIO

- Ciclo prescritto non completato
- Uso di antibiotici prescritti ad altri o per altra patologia

RIACUTIZZAZIONE di BPCO

Sintomi cardinali
- Dispnea
- Aumento volume secrezioni
- Aumento della purulenza

La maggior parte delle riacutizzazioni (MA NON TUTTE!) sono correlate a infezione (70-80%)

Table 2. Pathogens responsible for chronic obstructive pulmonary disease exacerbations.

Microbe	Role in exacerbations
Bacteria	
Haemophilus influenzae	20–30%
Streptococcus pneumoniae	10–15%
Moraxella catarrhalis	10–15%
Psuedomonas aeruginosa	5–10%
Enterobacteriaceae	Undefined
H. hemolyticus	Undefined
H. parainfluenza	Undefined
Staphylococcus aureus	Undefined
Viruses	
Rhinovirus	10–25%
Parainfluenza virus	5–10%
Influenza virus	5–10%
Respiratory syncytial virus	5–10%
Adenovirus	3–5%
Coronavirus	3–5%
Human metapneumovirus	3–5%
Atypical bacteria	
Chlamydophilia pneumoniae	3–5%
Mycoplasma pneumoniae	1–2%
Fungi	
Pneumocystis jeroveci	Undefined

ESCREATOCOLTURA

- Pazienti con fattori di rischio per *Pseudomonas aeruginosa*

  recente ospedalizzazione (≥2 giorni negli ultimi 90 agiorni)

  frequente utilizzo di terapia antibiotica

  BPCO severa

  isolamento di *Pseudomonas aer.* in precedente riacutizzazione

  nota colonizzazione con *Pseudomonas aer.*

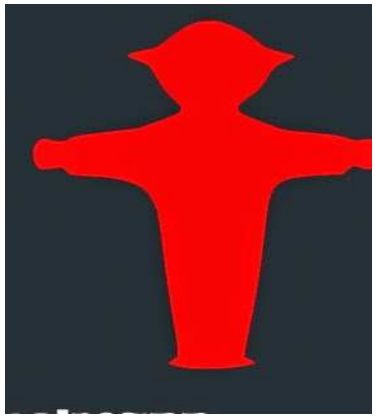
  terapia steroidea sistemica

- Pazienti con fallimento a terapia
- Pazienti ospedalizzati

BIOMARCATORI?

- **Esacerbazioni lievi**

solo 1 dei sintomi cardinali



NO ANTIBIOTICO

- **Esacerbazioni moderate/severe**

almeno 2 dei sintomi cardinali

SI ANTIBIOTICO

Il paziente ha uno o più fattori di rischio per un'evoluzione sfavorevole o di germi MDR?

-età ≥ 65 anni
-FEV1<50%
- ≥ 2 esacerbazioni/anno
- patologia cardiaca

NO

BPCO NON COMPLICATA

MACROLIDE
Azitromicina 500 mg/die
Claritromicina 500 mg x 2/die

CEFALOSPORINA 2^/3^generazione

Trimethoprim-sulfametossazolo 1 cp x 2/die

(Doxicilina 100 mg x 2 /die)

SI

BPCO COMPLICATA

BPCO COMPLICATA

FR per PSEUDOMONAS AERUGINOSA ?

▪ Chronic colonization or previous isolation of *Pseudomonas aeruginosa* from sputum (particularly in the past 12 months)
▪ Very severe COPD (FEV_1 <30% predicted)
▪ Bronchiectasis on chest imaging
▪ Broad-spectrum antibiotic use within the past 3 months
▪ Chronic systemic glucocorticoid use

Risk factors for poor outcomes in patients with acute COPD exacerbations

▪ Comorbid conditions (especially heart failure or ischemic heart disease)
▪ Severe underlying COPD (eg, FEV_1 <50%)
▪ Frequent exacerbations of COPD (ie, ≥2 exacerbations per year)
▪ Hospitalization for an exacerbation within the past 3 months
▪ Receipt of continuous supplemental oxygen
▪ Age ≥65 years*

NO

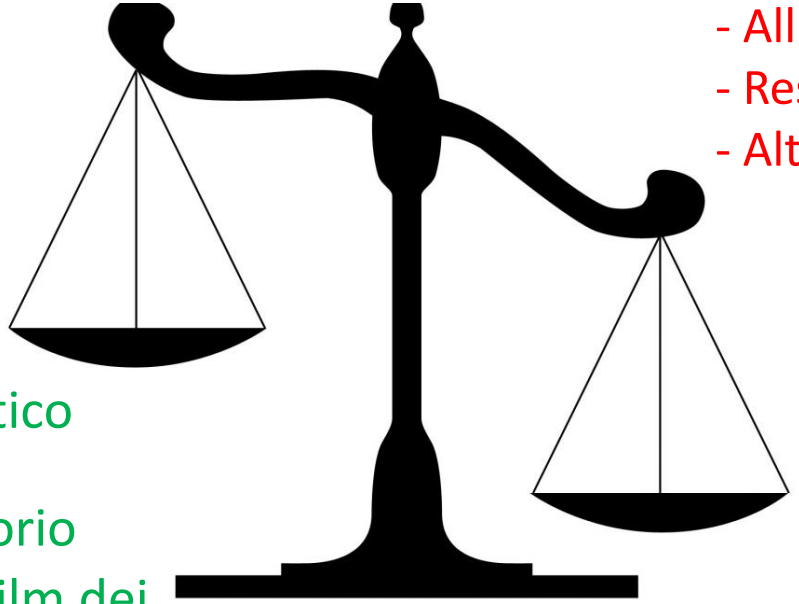
- AMOXICILLINA/ACIDO CLAVULANICO
- FQ RESPIRATORIO (levofloxacina, moxifloxacina)

SI

- CIPROFLOXACINA (+/- AMOXICILLINA)

MACROLIDI

- Effetto antibiotico
- Effetto antiinfiammatorio
- Effetto sul biofilm dei gram-
- Terapia a lungo termine



- Effetti indesiderati
(GI, udito, epatotox)
- Allungamento QT
- Resistenze
- Alterazione microbioma

Quale dosaggio?

Per quanto tempo?

ANTIBIOTICI INALATORI-1

Elevate concentrazioni all'interno delle vie aeree
Minor rilascio sistemico = ↓ effetti indesiderati
↓ carica batterica
↓ infiammazione

- Dimensioni del farmaco per la deposizione all'interno delle piccole vie aeree 1-6 micrometri
- Muco può interferire sia con l'uniformità di rilascio sia direttamente con l'azione
- Preparati per via endovenosa → scarsa tolleranza (pH, conservanti)
- Broncospasmo

ANTIBIOTICI INALATORI-2

Uso raccomandato:

Bronchiectasici con ≥ 3 riacutizzazioni/anno

Bronchiectasici con infezione cronica da Pseudomonas

in cui la terapia con macrolide è: inefficace

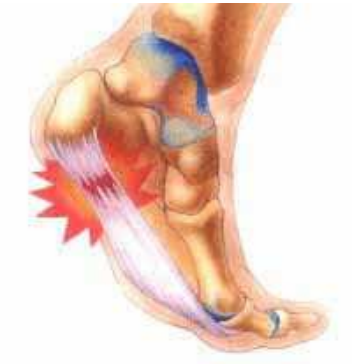
controindicata

non tollerata

EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

10 Febbraio 2017
EMA/85325/2017

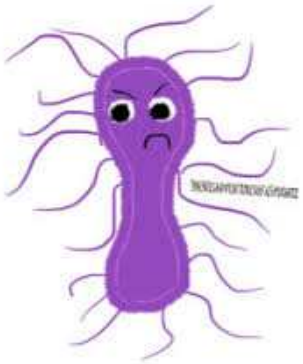
EMA revisiona la persistenza di effetti indesiderati noti che si verificano con gli antibiotici fluorochinoloni e chinoloni

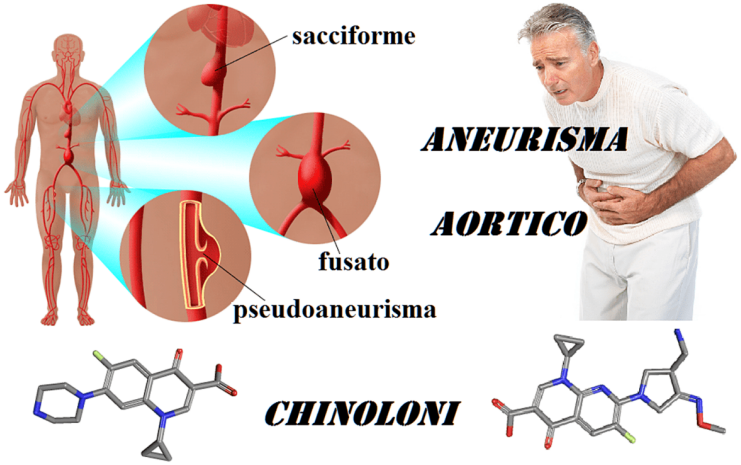


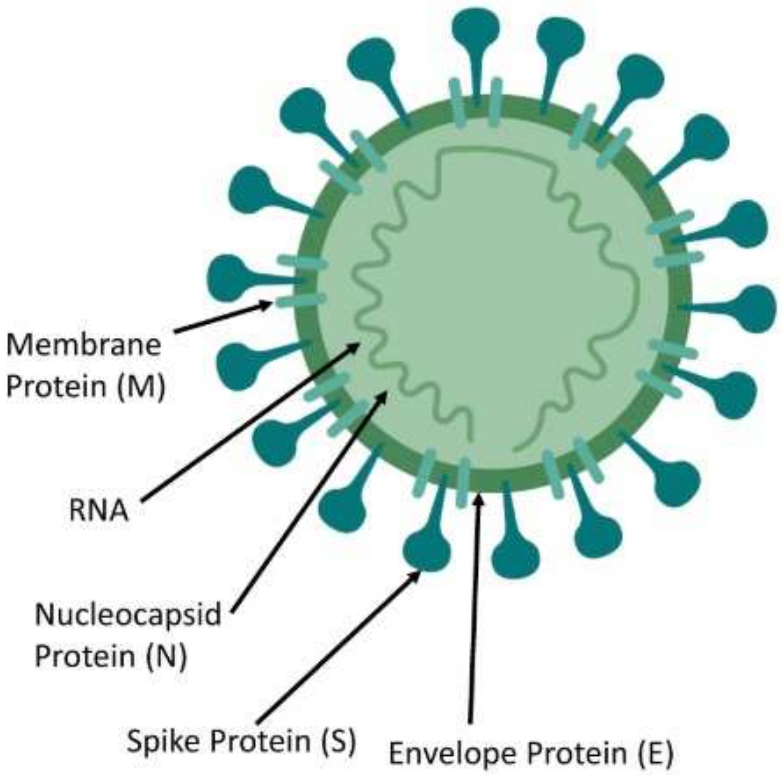
tendinite

convulsioni

Colite da Clostridium difficile







COVID-19 e BPCO

- I pazienti con BPCO che presentano nuovi sintomi polmonari (febbre o altri sintomi anche lievi) devono essere sottoposti a tampone per SarsCov2
- I pazienti devono continuare ad assumere l'abituale terapia respiratoria (orale e inalatoria)
- Anticorpi monoclonali
- Terapia antivirale precoce

ANTICORPI MONOCLONALI

Età>12 anni
Peso corporeo>40 kg
No gravide o in allattamento

➢ Pz **NON** ricoverati per COVID: **TERAPIA PRECOCE**

- Tampone positivo → tipizzazione per escludere omicron
- Non serve sierologia
- Pz non in O2*, con FR (vedi elenco)
- **Entro 7 giorni**

- Indice di massa corporea (BMI) ≥ 30
- Insufficienza renale cronica, incluse dialisi peritoneale o emodialisi
- Diabete mellito non controllato (HbA1c>9% o 75 mmol/l) o con complicanze croniche
- Immunodeficienza primitiva o secondaria
- Età >65 anni
- Malattia cerebrovascolare (inclusa ipertensione con danno d'organo)
- **BPCO e/o altra malattia respiratoria cronica**
- Epatopatia cronica
- Emoglobinopatie
- Patologie del neurosviluppo e patologie neurodegenerative

*se in O2 terapia cronica, aumento del fabbisogno rispetto allo standard abituale

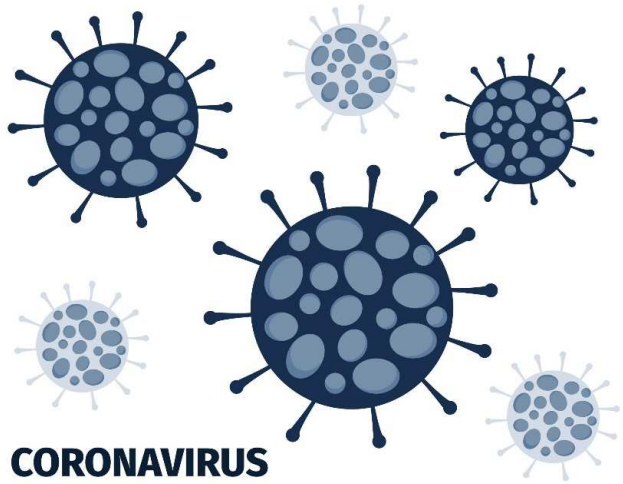
➢ Pz ricoverati per **COVID forma moderata** (fabbisogno di O2 a bassi flussi)

- Tampone positivo → necessità di tipizzazione per escludere omicron
- Sierologia negativa

	TERAPIA PRECOCE	TERAPIA FORME MODERATE (O2)	EFFICACIA SU VOCs
BAM/ETE	700/1400 mg ev	Non indicato	No beta, gamma, omicron
CAS/IMD	600/600 mg ev	1200/1200/mg/ev	No omicron
SOV	500 mg ev	Non indicato	Tutte

BAM: BAMLANIVIMAB
ETE: ETESEVIMAB
CAS:CASIRIVIMAB
IMD: IMDEVIMAB
SOV: SOTROVIMAB

TERAPIA ANTIVIRALE: REMDESIVIR (VEKLURY®)



- Tampone positivo
- Polmonite radiologicamente documentata
- Esordio sintomi < 10 giorni
- eGFR≥30 ml/min
- AST<5 volte il limite superiore
- NO se O2 ad alti flussi
- NO se NIV o ventilazione meccanica
- Durata trattamento 5 giorni: 200 mg il giorno 1, 100 mg dal 2 al 5

→ Richiesta tramite portale AIFA
→ E-mail al Servizio di Farmacia per segnalare la richiesta
→ Consegna il giorno successivo

Approvato da AIFA anche per **terapia precoce**
- Tampone positivo
- **NO O2**
- **NO ricoverati per COVID**
- Alto rischio di progressione verso malattia grave
- **Entro 7 giorni**
- Durata del trattamento 3 giorni (200/100/100)

→ Richiesta tramite portale AIFA

TERAPIA ANTIVIRALE: MOLNUPIRAVIR

- Tampone positivo (indipendentemente da varianti)
- Non serve sierologia
- **NO O2**
- **NON ricoverati per COVID**
- Alto rischio di progressione verso malattia grave:
  - età non conta più
  - ipertensione da sola non basta più: serve **malattia cardiovascolare GRAVE** (SCC, coronaropatia, cardiomiopatia)
  - **diabete** solo se "**non compensato**"
  - **IRC** ma solo se GFR > 30 (non se dializzato)
  - **BMI > 30**
  - **immunodepressione**
  - "**patologia oncologica/oncoematologica in fase attiva**" (non altrimenti specificato cosa si intenda per "attiva")
  - **broncopneumopatia "severa"** (non altrimenti specificata)
- **Entro 5 giorni**
- Durata del trattamento 5 giorni
- 4 cp da 200 mg x 2 volte>/die

→ MUTAGENO: test di gravidanza preliminare e garanzia di contraccezione efficace fino a 4 gg dopo l'ultima cp per le donne, fino a 3 mesi per gli uomini


#LA VACCINAZIONE NON HA ETA'
VACCINARSI È UN ATTO D'AMORE VERSO SE STESSI E GLI ALTRI
C'È UN TEMPO PER OGNI COSA. QUELLO DELLE VACCINAZIONI È ADESSO ED È PER TUTTI.
NON PERMETTERE CHE LE MALATTIE INFETTIVE COLPISCANO TE E CHI TI STA VICINO.
LA VACCINAZIONE AIUTA A DIFENDERTI.
#LAVACCINAZIONENONHAETÀ
Con il patrocinio di
Società Italiana di Pediatria


SULL'ESTINZIONE DEI DINOSAURI NON VI HANNO MAI DETTO LA VERITA'
IL WEB DICE CHE I VACCINI FANNO MALE


Ti spetta.
Che aspetti?


PRIMA DI VACCINARMI MI DOCUMENTO
MEDICINE FOR DUMMIES
AGJ
facebook.com/vignetteagj


IL VACCINO
TI RENDE PIÙ FORTE.


GET
WELL
SOON
WITHOUT
ANTIBIOTICS
Antibiotics are not
always the answer

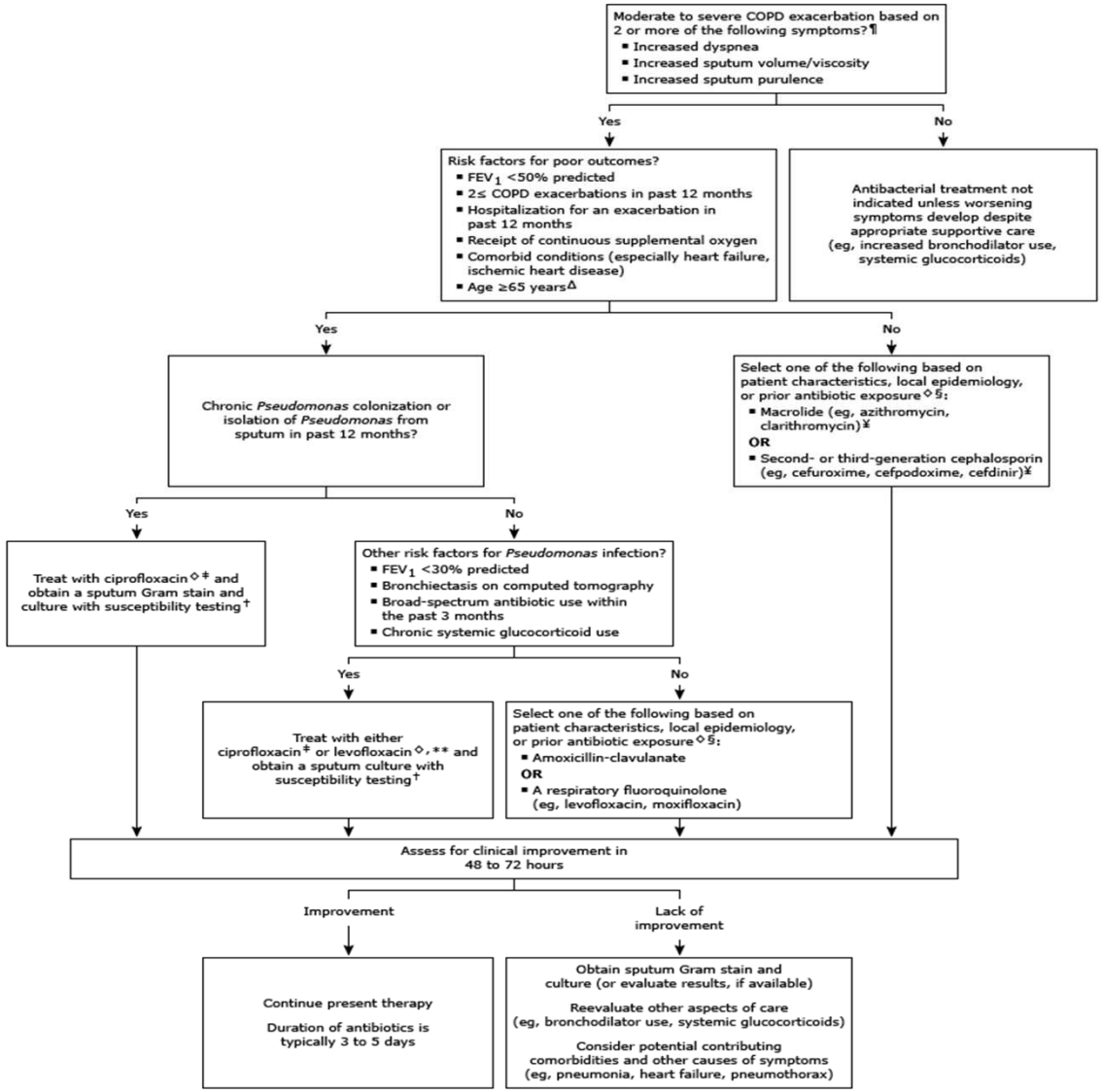
Risk factors for poor outcomes in patients with acute COPD exacerbations

- Comorbid conditions (especially heart failure or ischemic heart disease)
- Severe underlying COPD (eg, FEV_1 <50%)
- Frequent exacerbations of COPD (ie, ≥2 exacerbations per year)
- Hospitalization for an exacerbation within the past 3 months
- Receipt of continuous supplemental oxygen
- Age ≥65 years*

Risk factors for infection with *Pseudomonas aeruginosa* in patients with acute COPD exacerbations

- Chronic colonization or previous isolation of *Pseudomonas aeruginosa* from sputum (particularly in the past 12 months)
- Very severe COPD (FEV_1 <30% predicted)
- Bronchiectasis on chest imaging
- Broad-spectrum antibiotic use within the past 3 months
- Chronic systemic glucocorticoid use

Our approach to empiric antibacterial treatment of COPD exacerbations in outpatients*



References:

1. Sethi S, Murphy TF. Acute exacerbations of chronic bronchitis: New developments concerning microbiology and pathophysiology--impact on approaches to risk stratification and therapy. Infect Dis Clin N Am 2004; 18:861.
2. Sethi S, Anzueto A, Miravitlles M, et al. Determinants of bacteriological outcomes in exacerbations of chronic obstructive pulmonary disease. Infection 2016; 44:65.
3. Gallego M, Pomares X, Espasa M, et al. Pseudomonas aeruginosa isolates in severe chronic obstructive pulmonary disease: characterization and risk factors. BMC Pulm Med 2014; 14:103.