

Situația actuală a rezistenței microorganismelor la antibiotice



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World Health
Organization

Defined as **micro-organisms** that are **not inhibited** by usually achievable **systemic concentration** of an **antimicrobial** agent with normal dosage schedule and / or fall in the minimum inhibitory concentration (MIC)

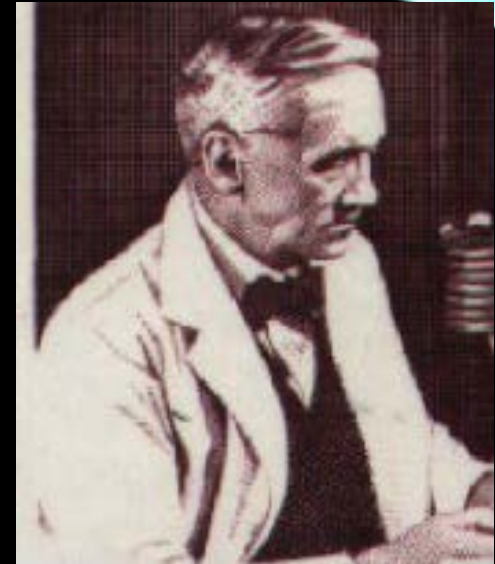


CENTERS FOR DISEASE™
CONTROL AND PREVENTION

Antimicrobial resistance (AMR) is the ability of a microorganism to resist the action of one or more antimicrobial agents.

Alexander Fleming în 1928

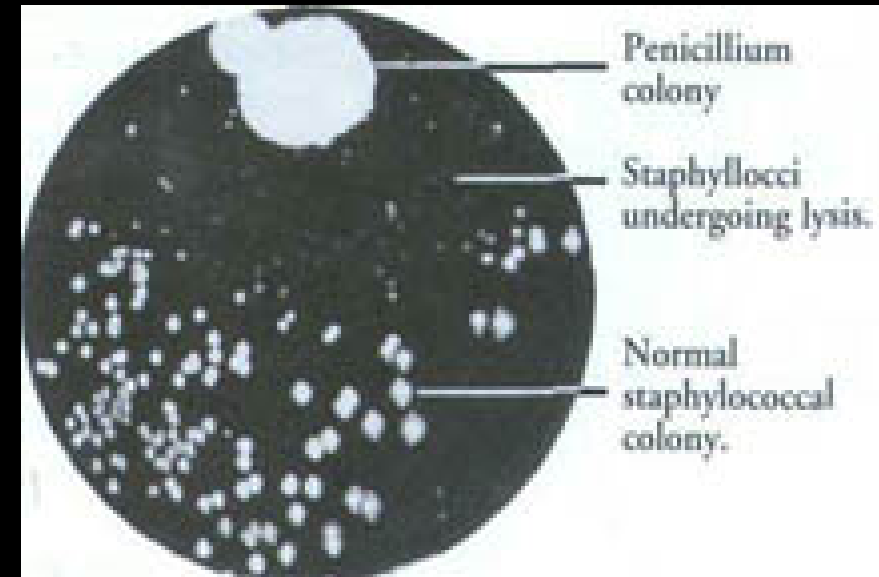
- În timpul primului război mondial, rata deceselor datorită pneumoniei a fost de 18%.



Thanks to PENICILLIN
...He Will Come Home!



În timpul celui de-al doilea război mondial, procentul a scăzut sub 1%



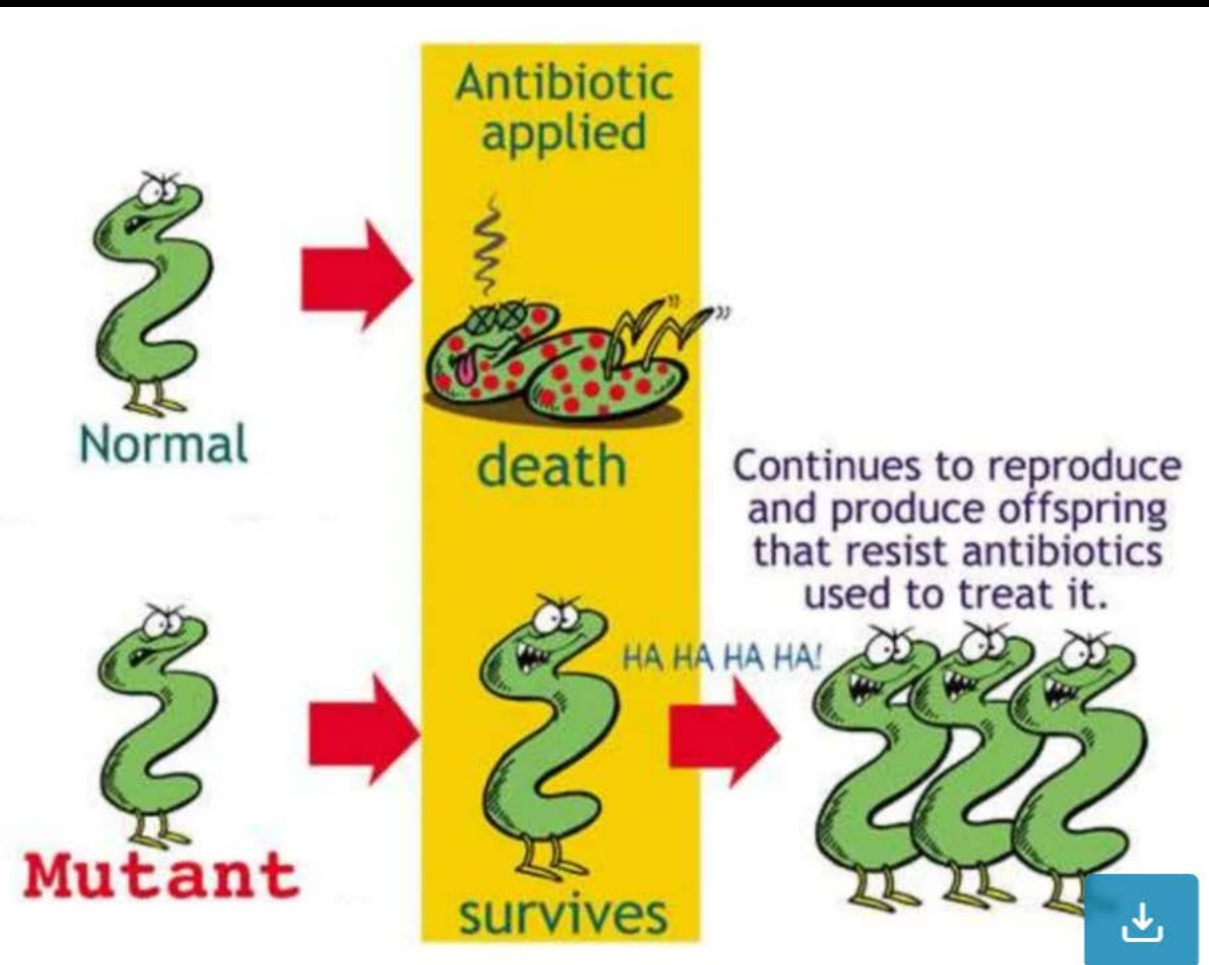
În discursul său din anul 1945, cu ocazia acordării Premiului Nobel pentru Fiziologie și Medicină, Fleming atrăgea atenția asupra pericolului instalării rezistenței...

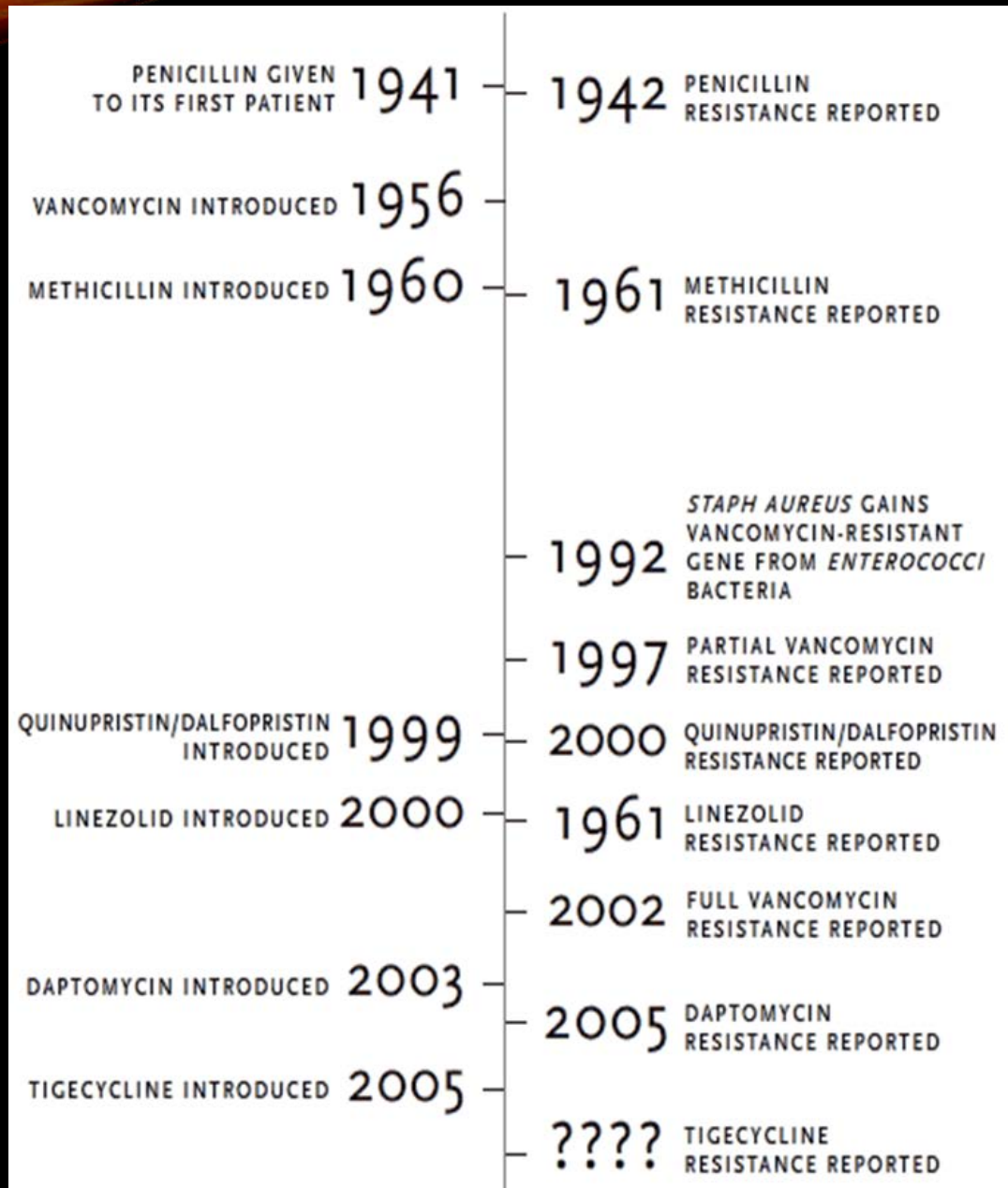
“It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them, and the same thing has occasionally happened in the body...
...and by exposing his microbes to non-lethal quantities of the drug make them resistant.”

REZISTENȚA LA ANTIBIOTICE...

•Evoluție Darwin- iană :

- Bacteriile rezistente la acțiunea unui antibiotic vor supraviețui într-un mediu ce conține antibioticul respectiv.
- Genele bacteriene ce conferă rezistență sunt transmise urmașilor, în scopul supraviețuirii



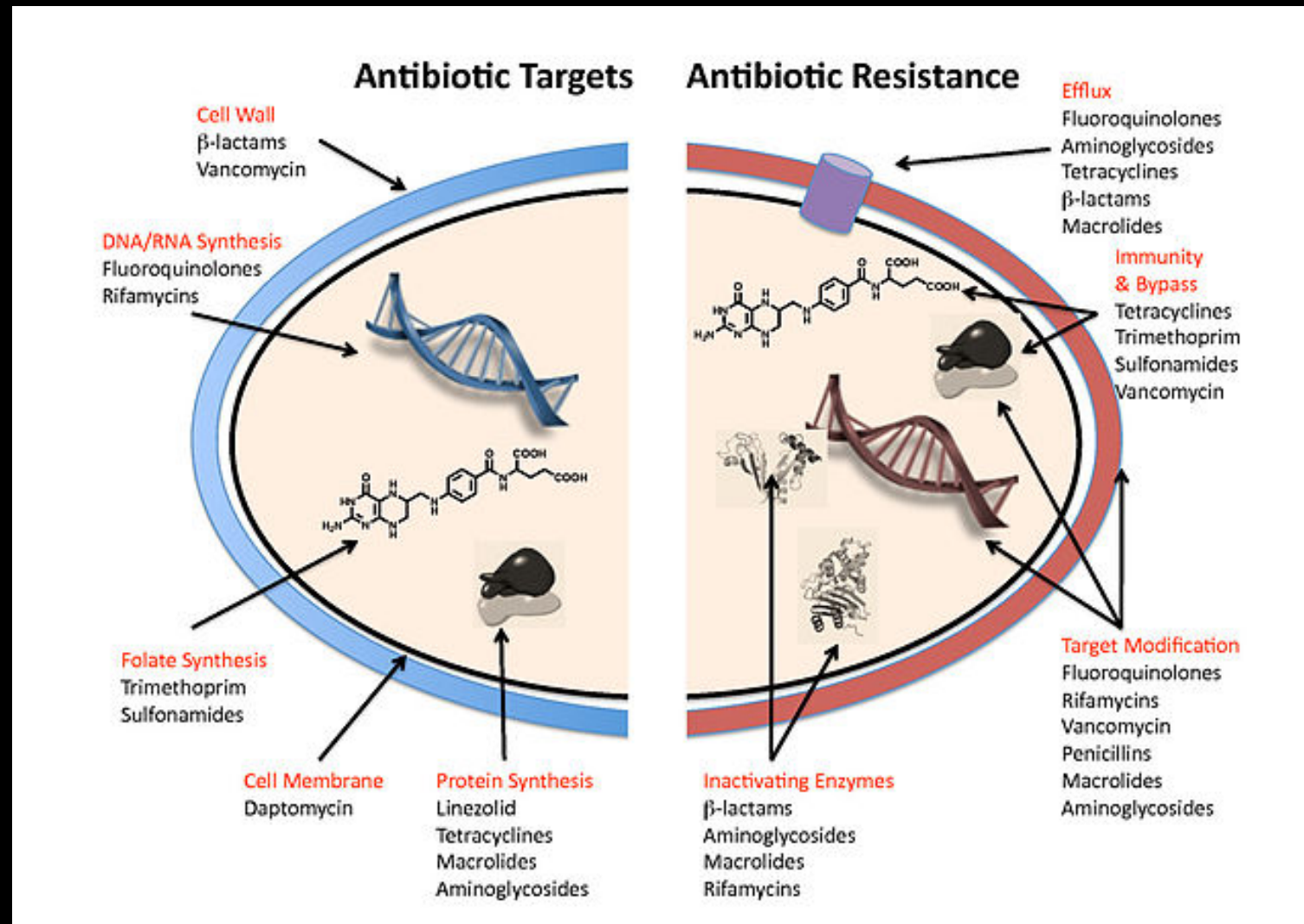


De ce rezistența la antibiotice oferă motive de îngrijorare?

- ✓ Microorganismele rezistente determină eșecul farmacoterapiei;
- ✓ Microorganismele rezistente se răspândesc în comunitate;
- ✓ Rezistența scăzută se sustrage ușor decelării;
- ✓ Creșterea cheltuielilor din domeniul sănătății;
- ✓ Pericolul reîntoarcerii la era pre-antibiotică.



Mecanismele rezistenței la antibiotice



Rețele oficiale de supraveghere a rezistenței la AB

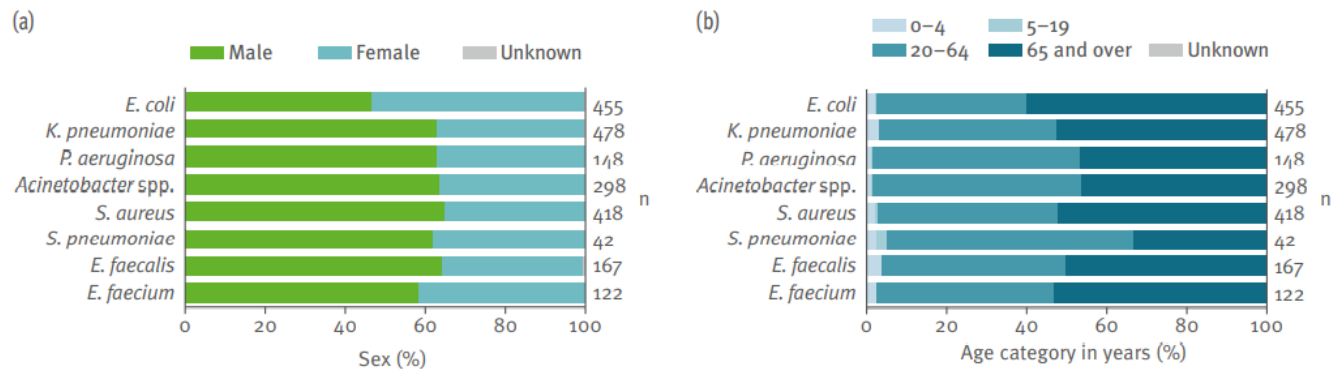
EARS-Net (European Antimicrobial Resistance Surveillance Network) - is coordinated by the European Centre for Disease Prevention and Control (ECDC) with the aim of collecting, analysing and reporting data on AMR through a network of national surveillance systems across EU/EEA countries

CAESAR - was founded in 2012 as a collaborative effort by the WHO Regional Office for Europe, the WHO Collaborating Centre for AMR Epidemiology

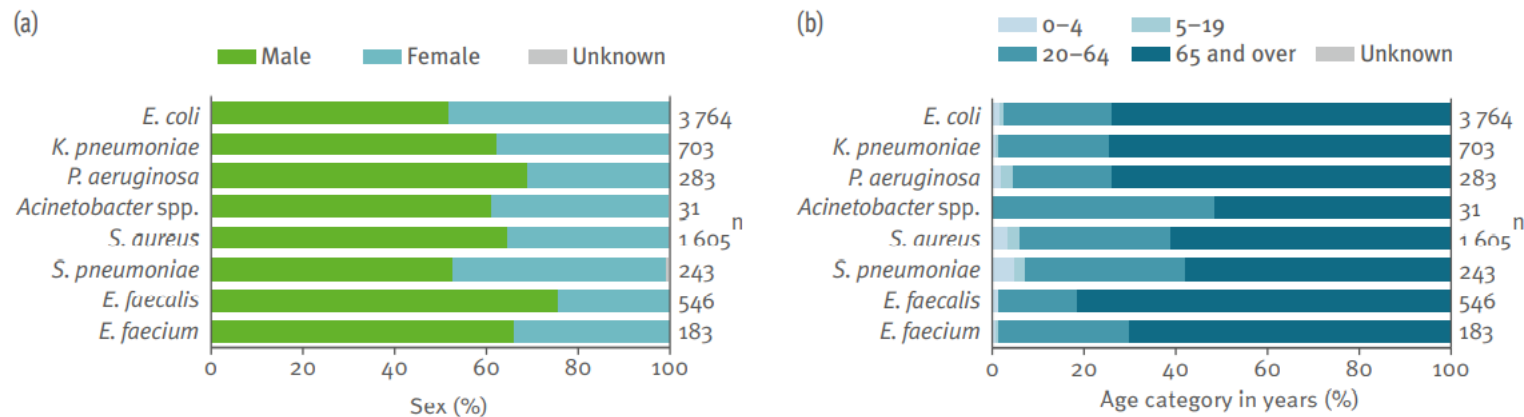
The goal of the CAESAR network is to assist non-EU/EEA countries and areas in the WHO European Region in setting up or strengthening national AMR surveillance

As of 2021, 20 countries are engaged in the CAESAR network – Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, the Republic of Moldova, the Russian Federation, Serbia, Switzerland, Tajikistan, Turkey, Turkmenistan, the United Kingdom, Ukraine, Uzbekistan, Kosovo

Percentage of isolates by patient sex (a) and age group (b), by bacterial species, Romania, 2020



Percentage of isolates by patient sex (a) and age group (b), by bacterial species, Norway, 2020



Percentage of isolates by patient sex (a) and age group (b), by bacterial species, Spain, 2020

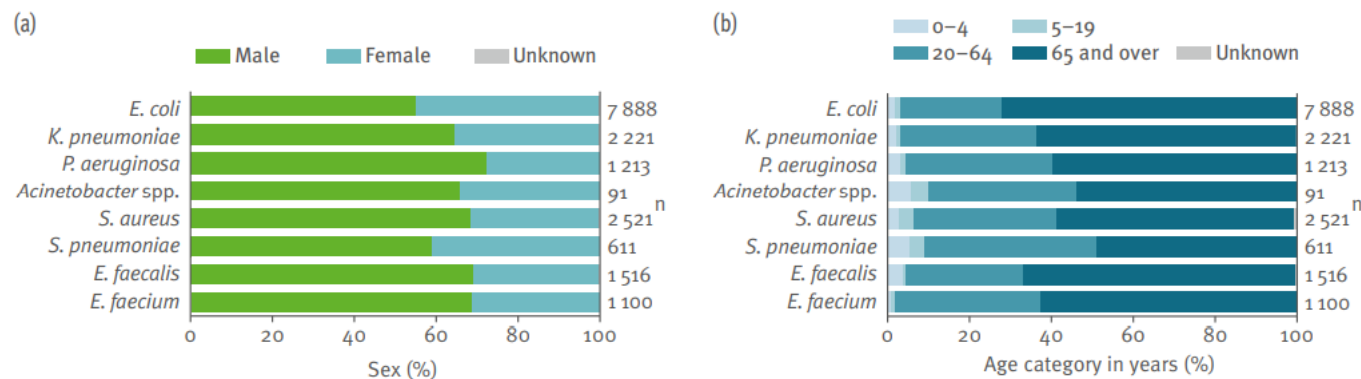


Fig. 1 *E. coli*: percentage of invasive isolates resistant to fluoroquinolones (ciprofloxacin/levofloxacin/ofloxacin), by country/area, WHO European Region, 2020

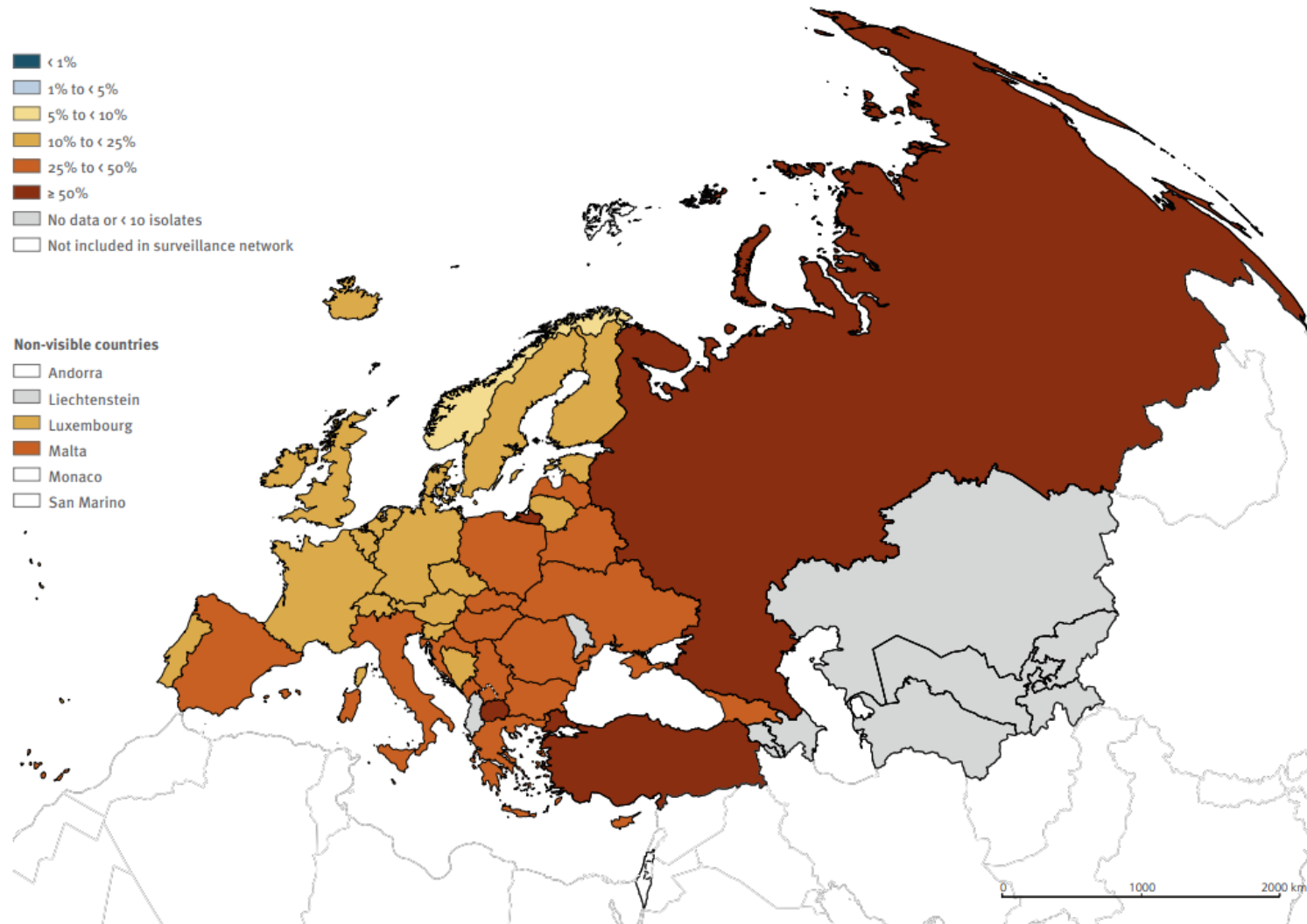


Fig. 3 *E. coli*: percentage of invasive isolates resistant to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020

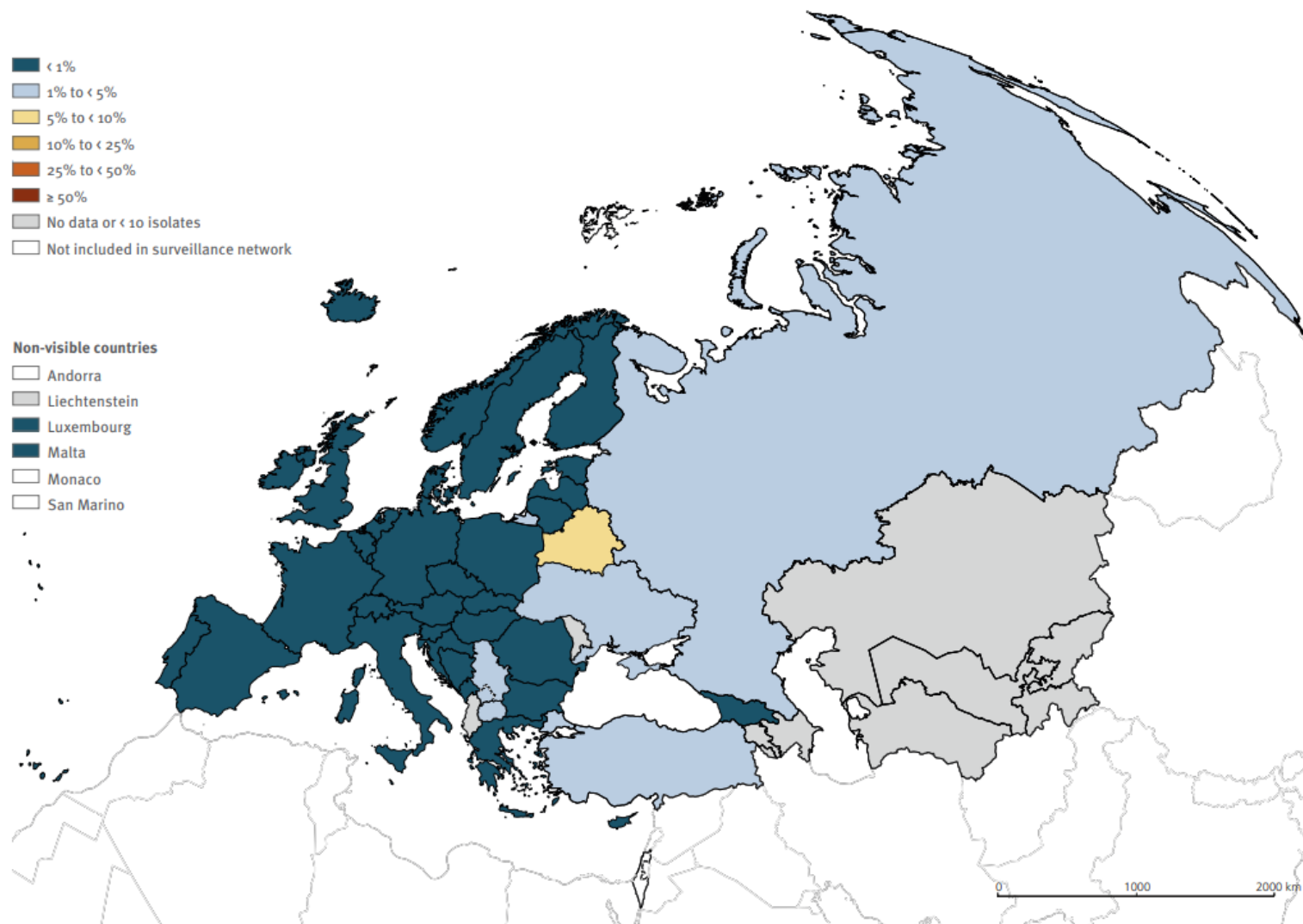


Fig. 4 *K. pneumoniae*: percentage of invasive isolates resistant to third-generation cephalosporins (cefotaxime/ceftriaxone/ceftazidime), by country/area, WHO European Region, 2020

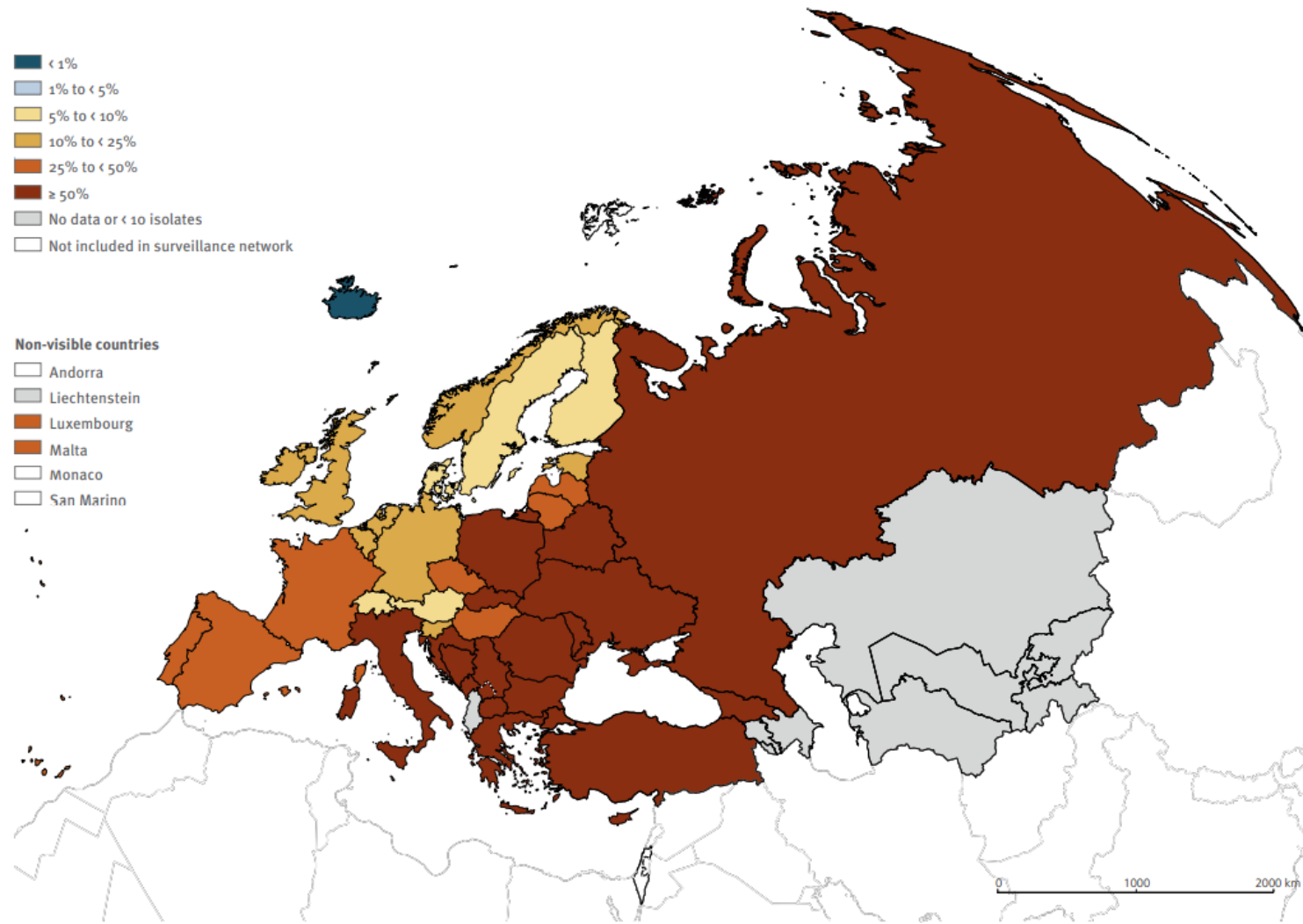


Fig. 5 *K. pneumoniae*: percentage of invasive isolates resistant to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020

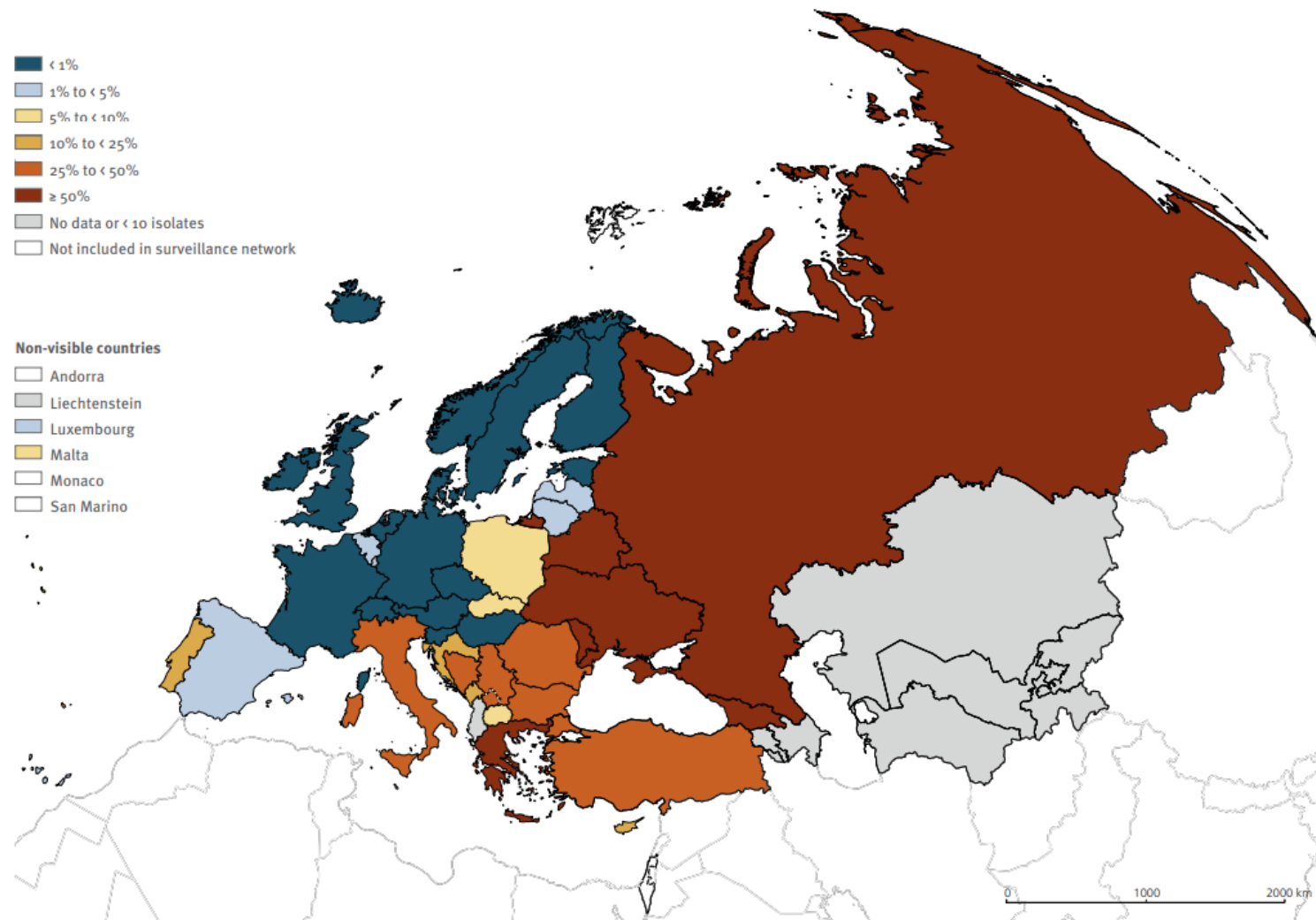


Fig. 6 *P. aeruginosa*: percentage of invasive isolates with resistance to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020

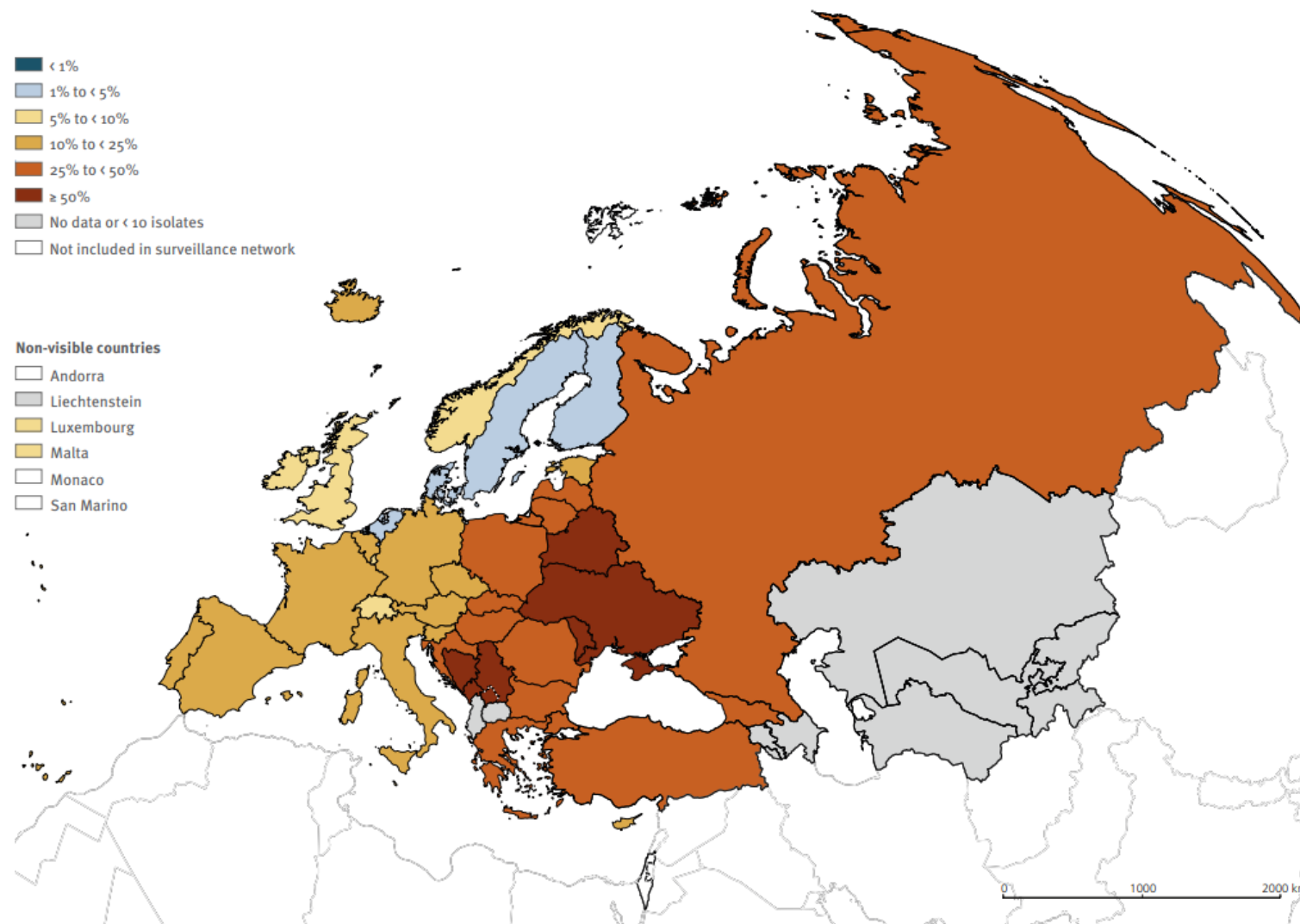


Fig. 7 *Acinetobacter* spp.: percentage of invasive isolates with resistance to carbapenems (imipenem/meropenem), by country/area, WHO European Region, 2020

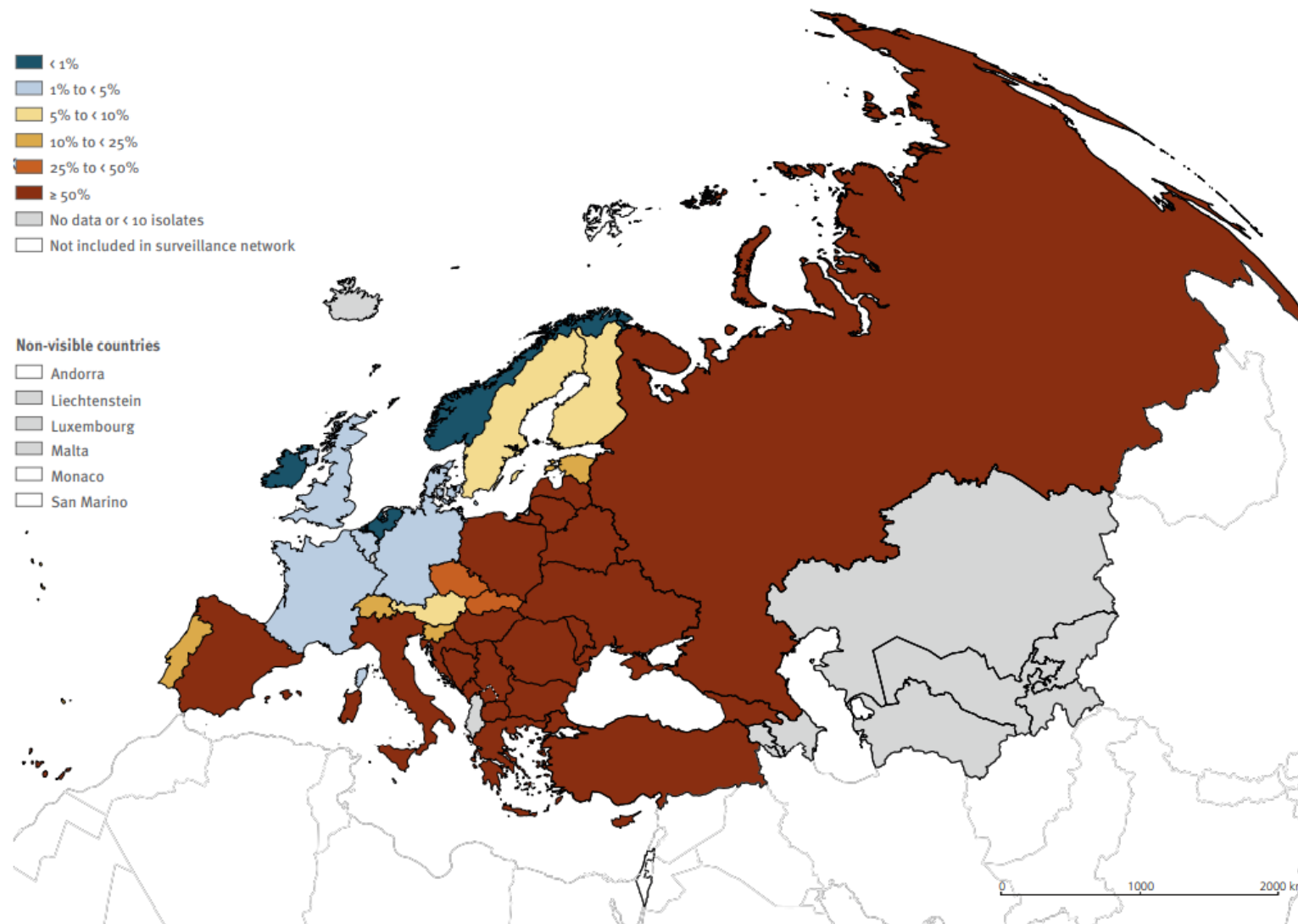


Fig. 8 *S. aureus*: percentage of invasive isolates resistant to methicillin (MRSA),^a by country/area, WHO European Region, 2020

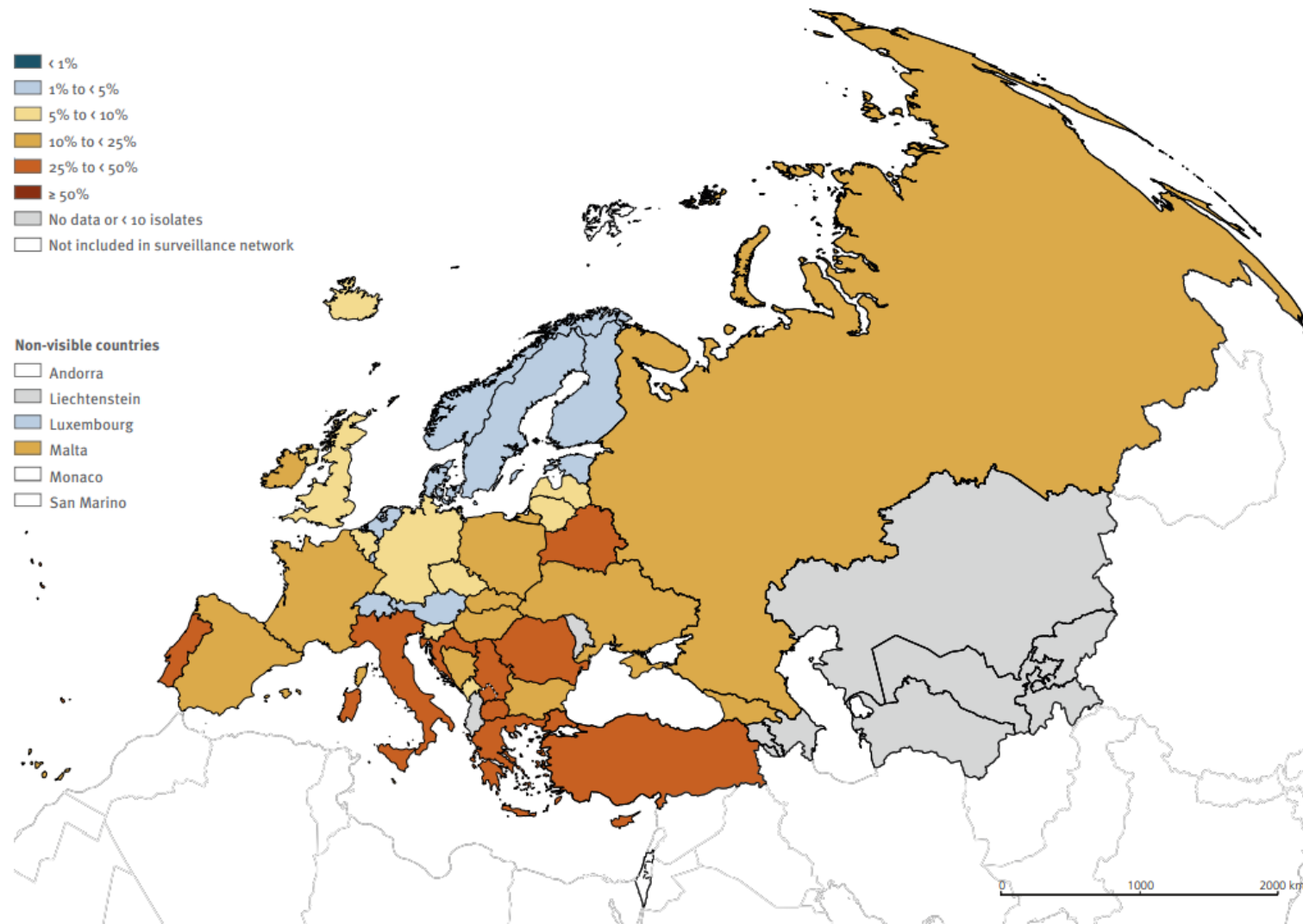
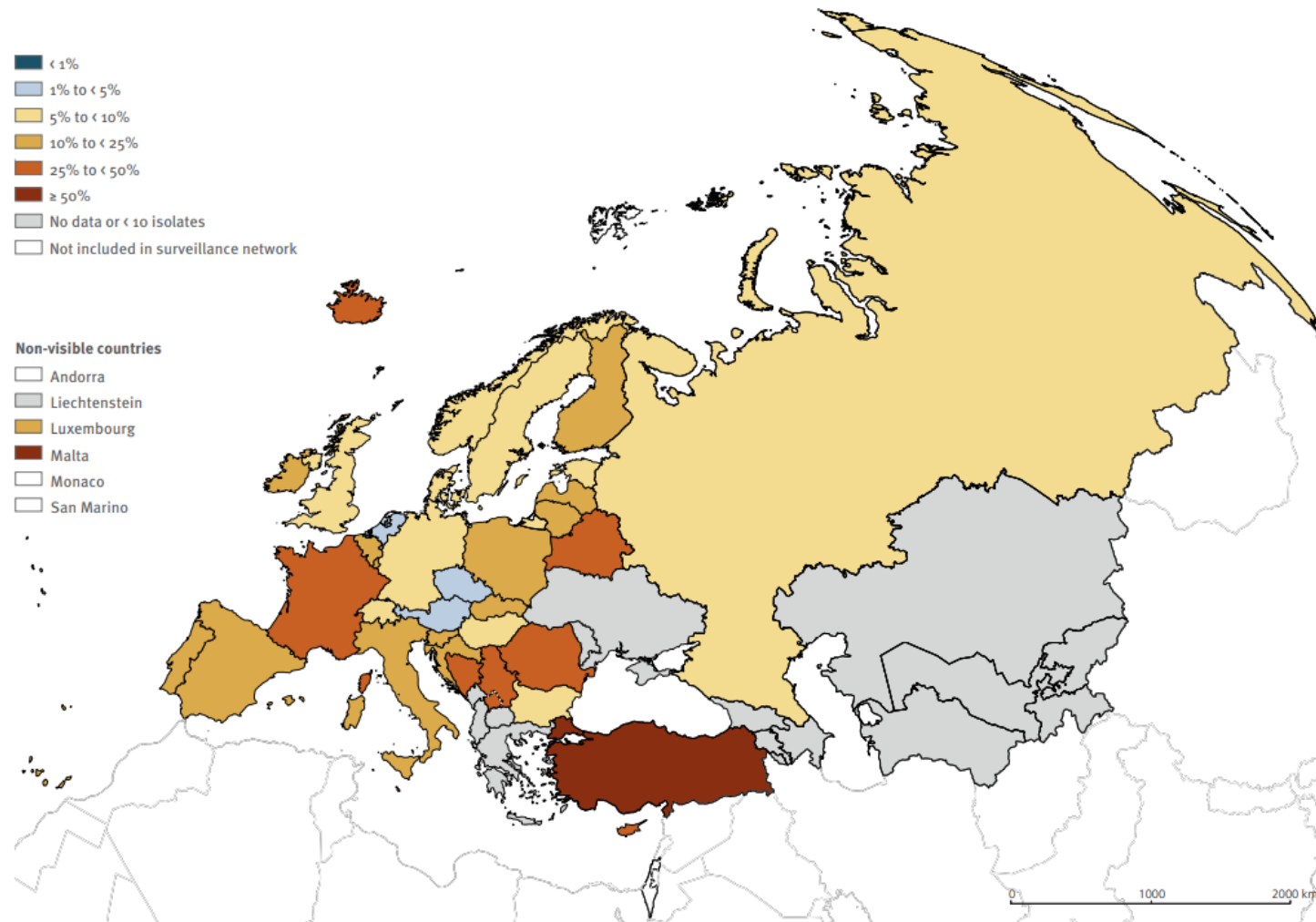


Fig. 9 *S. pneumoniae*: percentage of penicillin^a non-wild-type^b invasive isolates, by country/area, WHO European Region, 2020



Rezistența la AB

Factori legați
de
medicament

Factori de
mediu

Factori legați
de
prescriptor

Factori legați
de pacient


Factori de mediu:

- Creșterea facilităților de transport/călătorii
- Condiții de igienă precare
- Programe deficitare pentru controlul răspândirii infecțiilor
- Utilizarea masivă a AB la animalele din ferme

Factori legați de medicament

(părerea unui farmacolog indian):

- Over the counter availability of antimicrobials
- Counterfeit and substandard drug causing sub-optimal blood concentration
- Irrational fixed dose combination of antimicrobials
- Soaring use of antibiotics

Policy Decision at Higher level 

Factori legați de pacient:

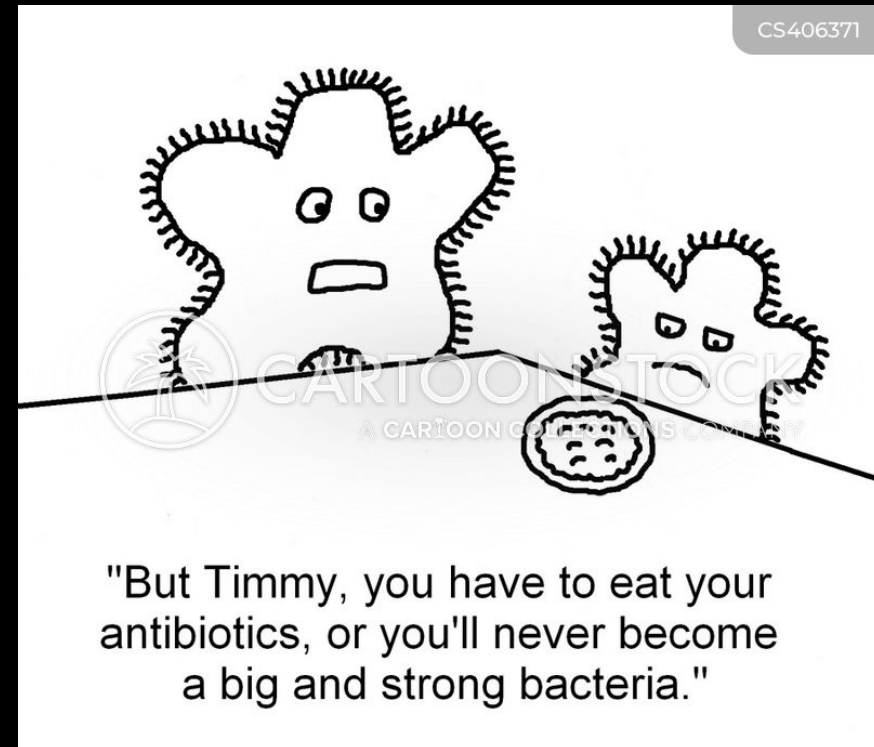
- Informare greșită
- Automedicația

Factori legați de prescriptor:

- Prescrierea unor AB necorespunzătoare
- Doze necorespunzătoare
- Utilizarea empirică a unor asocieri de AB
- Prescriere excesivă

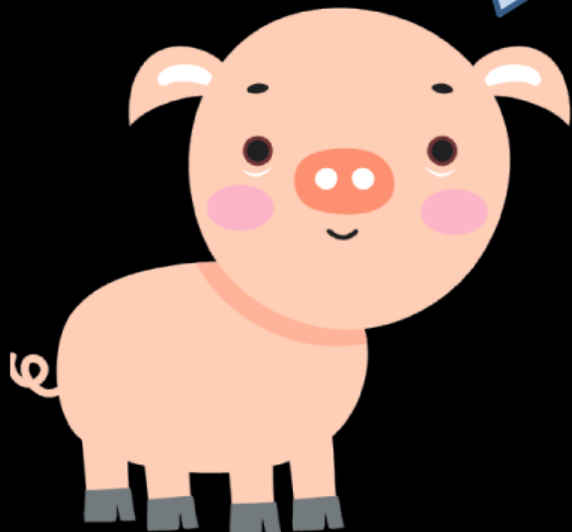
Rezistența la AB versus pandemia COVID-19

- ✓ La nivel internațional, s-au redus foarte mult raportările
- ✓ A scăzut consumul de AB
- ✓ Au fost dezechilibrate sistemele de sănătate, ceea ce, probabil, va avea un impact important în perioada post-pandemică



VĂ MULȚUMESC!

Just had some
penicillin for
breakfast. What
about you?



Yum, I went for
the Kanamycin.

