

Upotreba i zloupotreba antibiotika u aktuelnom trenutku

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Šta su antibiotici?

anti – protiv

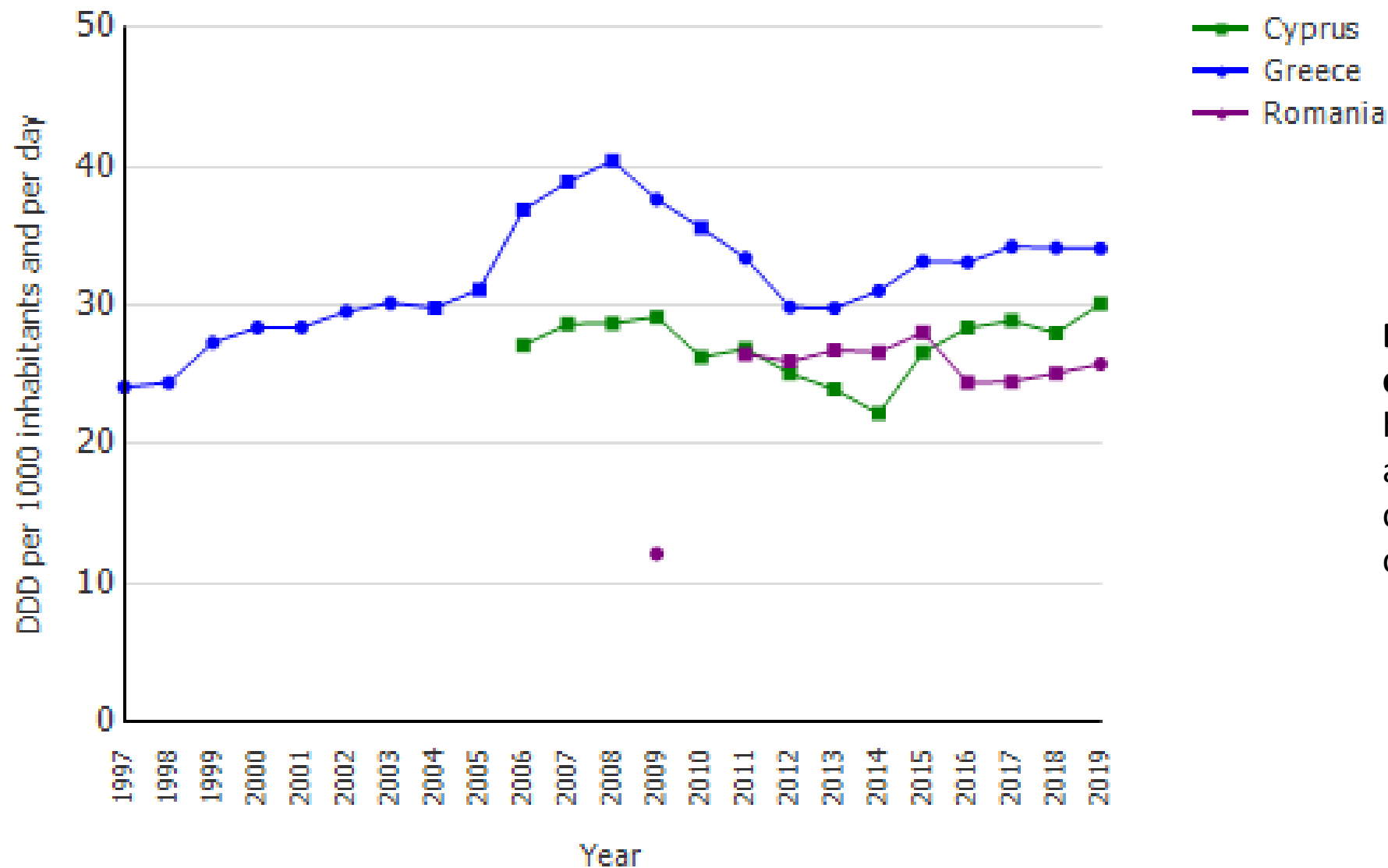
bios – život

Antimikrobni lekovi su supstance koje ubijaju ili sprečavaju razmnožavanje mikroorganizama (bakterija, virusa, protozoa...)

Ukoliko antimikrobni lekovi deluju na bakterije nazivaju se antibakterijskim lekovima

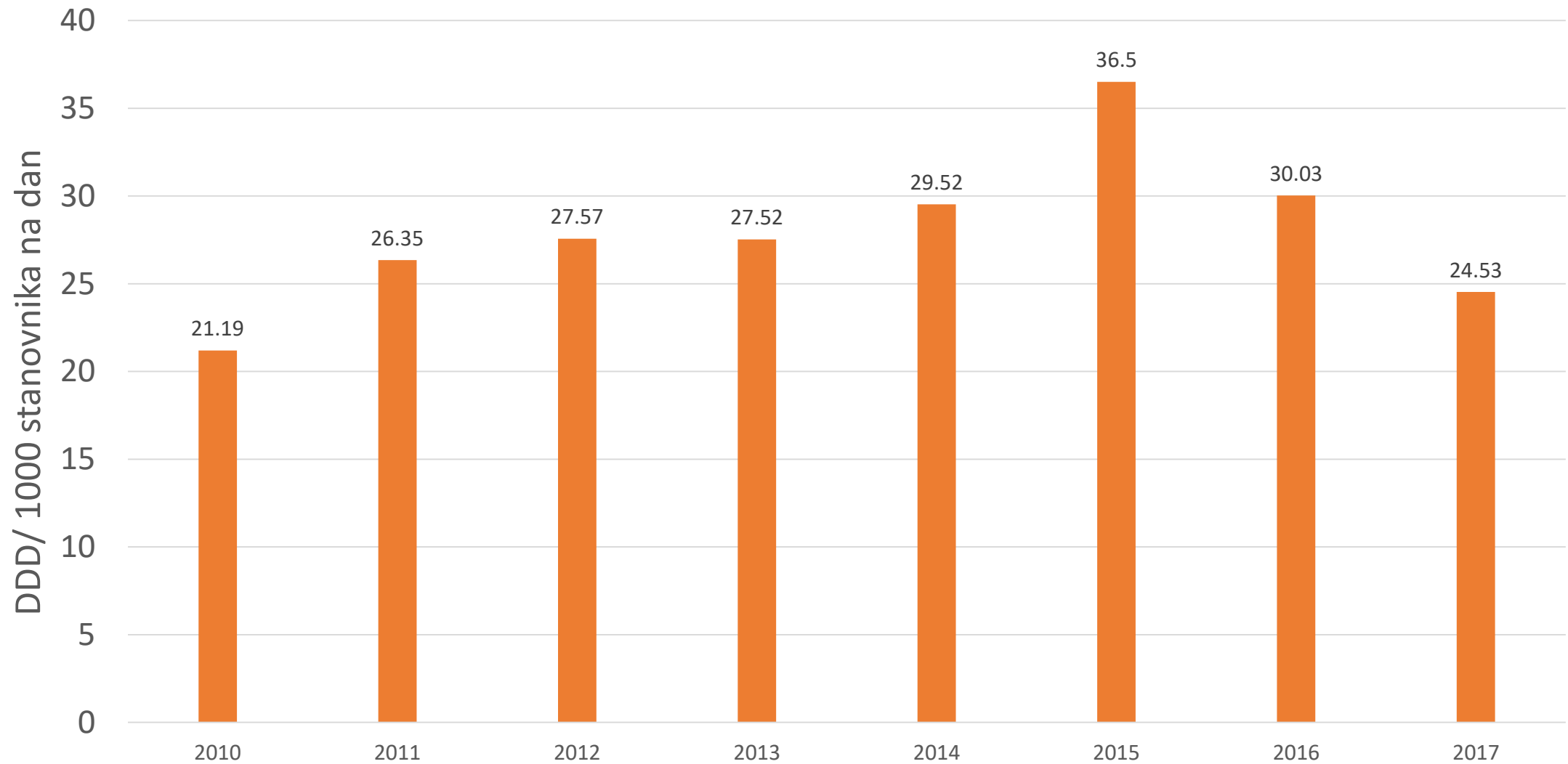
Kolokvijalno pod pojmom antibiotika se podrazumevaju antibakterijski lekovi

Trend of the consumption of antimicrobials in ATC group J01 (antibacterials for systemic use) in the community and hospital sector in Greece, Cyprus and Romania from 1997 to 2019



Podaci ECDC koji su javno dostupni za sve zemlje članice
<https://www.ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>

Ukupna potrošnja antibiotika za sistemsku primenu u Srbiji (2010-2017)





**Lečiti pacijenta
uspešno sada**

**Sačuvati antibiotike
za buduće pacijente**

Rezultat široke upotrebe antibiotika – rezistencija!

- Ako lek nema efekat na bakteriju, bakterija je *rezistentna* na taj lek
- Neke rezistencije su urođene
 - *E. coli* i vankomicin
 - *M. tuberculosis* i penicilin
- Mnogo više ih je novih od 1930 – stečene
 - *S. aureus* i oksacilin
 - *N. gonorrhoeae* i penicilin

Ciklus antibiotijske rezistencije

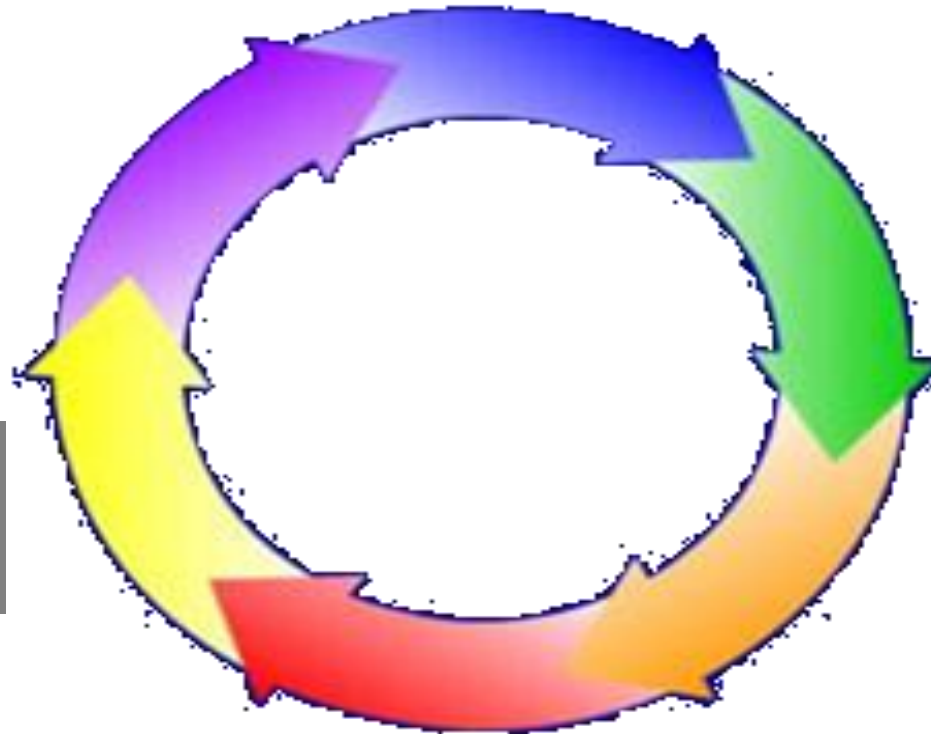
Povećana upotreba antibiotika

Nedostatak terapijskih mogućnosti

➔ još antibiotika

➔ povećanje mortaliteta

Povećanje opterećenja kapaciteta zdravstvenog sistema



Češći rezistentni sojevi

Neefikasna empirijska terapija

➔ povećanje morbiditeta

➔ još antibiotika

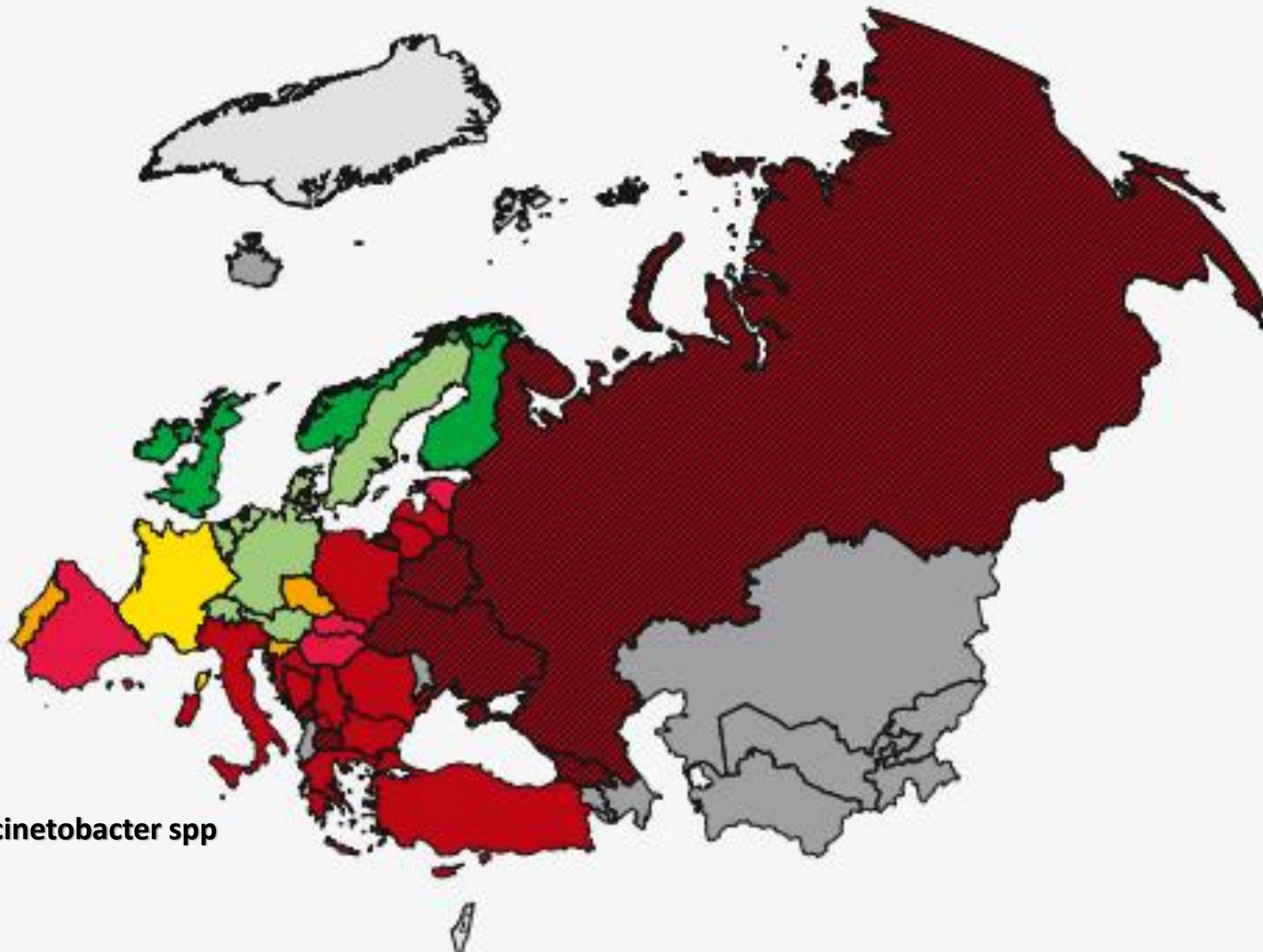
Više i duže hospitalizacije

➔ još antibiotika



Non-visible countries

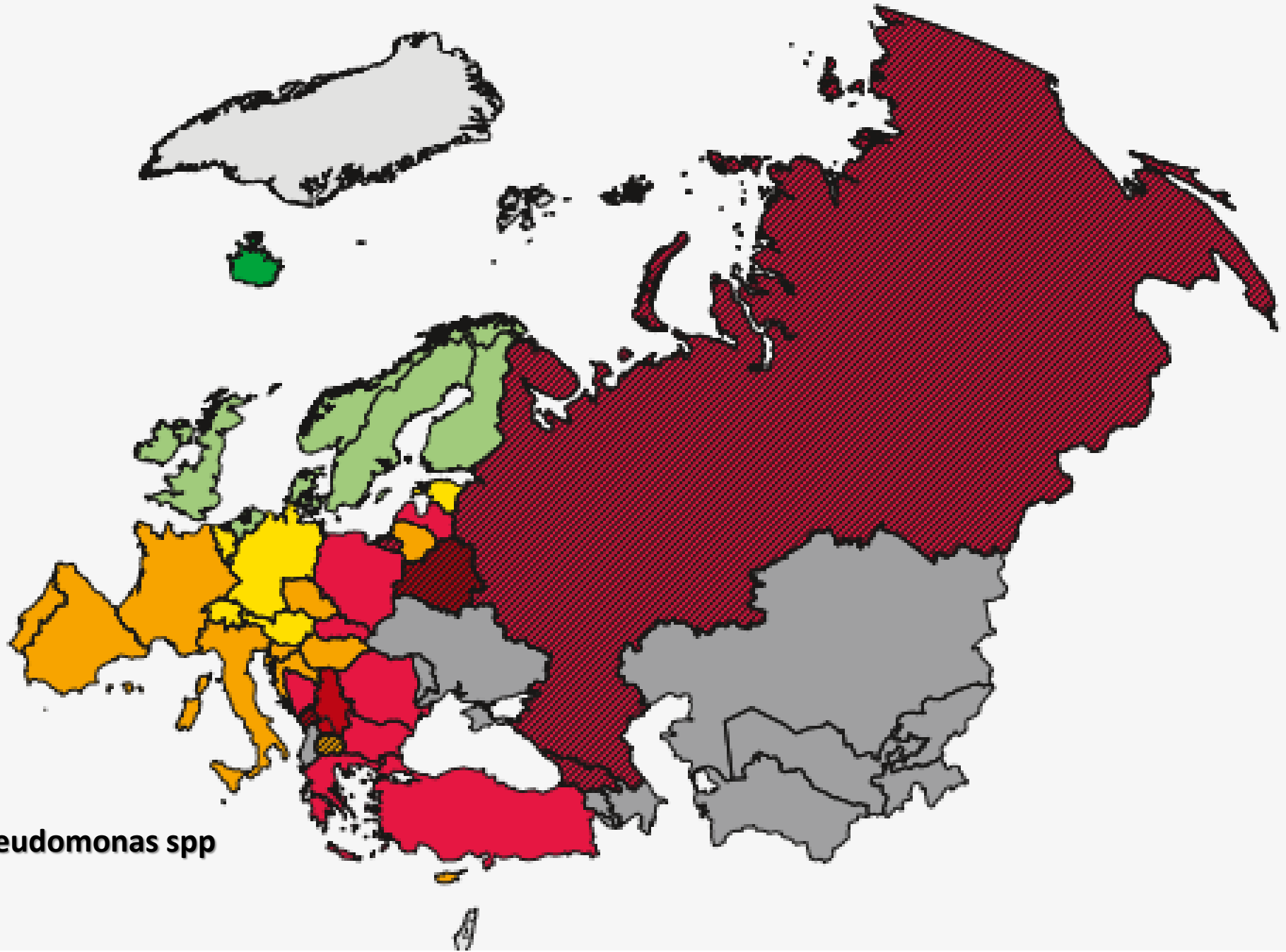
- Andorra
- Liechtenstein
- Luxembourg
- Malta
- Monaco
- San Marino



Zastupljenost invazivnih MDR ***Acinetobacter* spp**
 izolata
 EARS-Net and CAESAR 2018

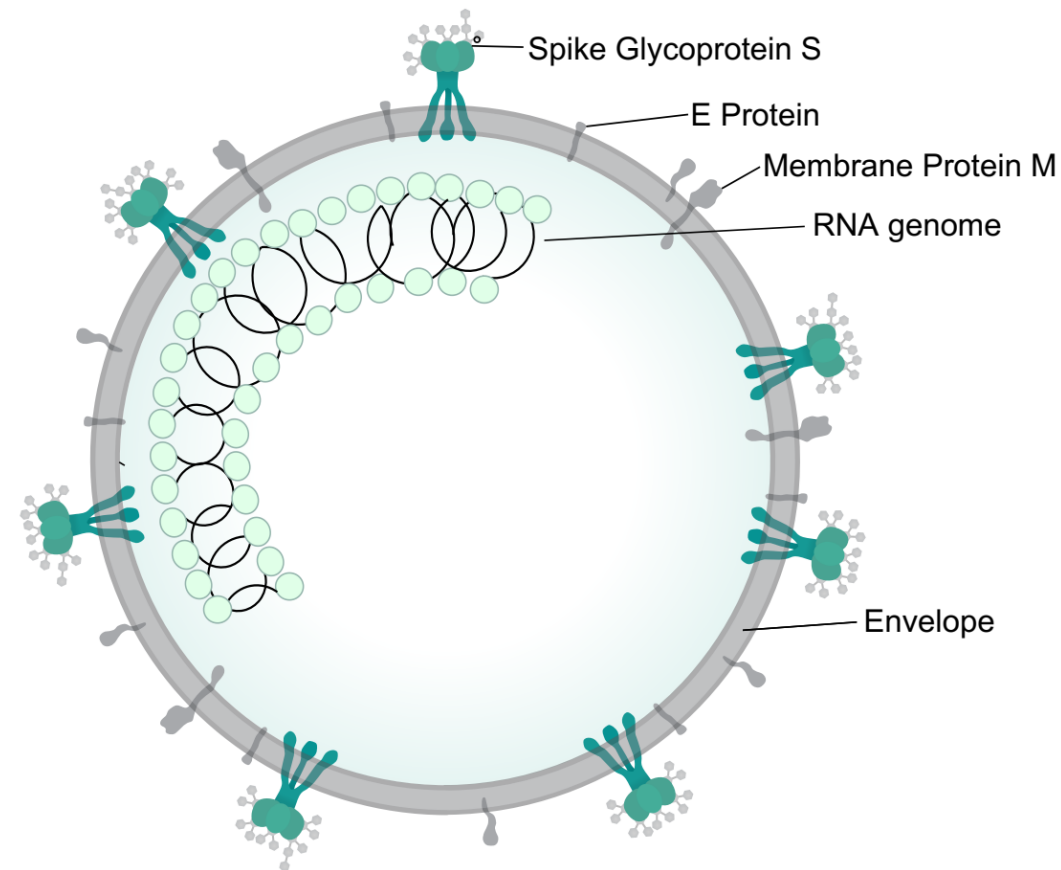
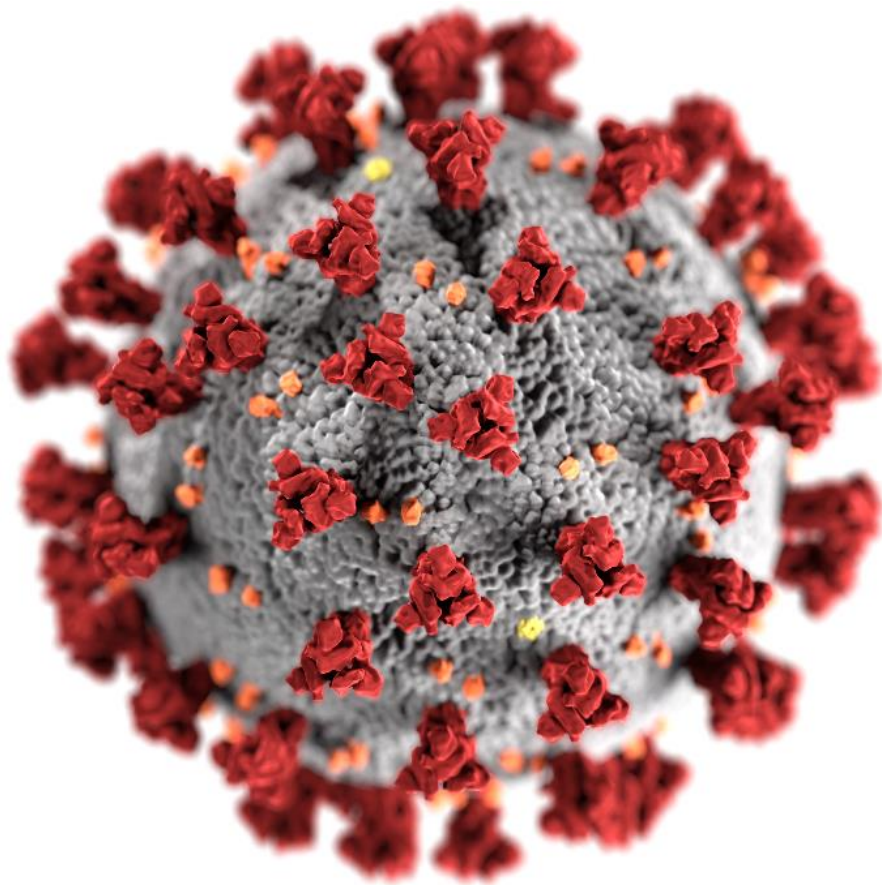
- <1%
- 1% to <5%
- 5% to <10%
- 10% to <25%
- 25% to <50%
- ≥50%
- No data or <10 isolates
- Not included in surveillance network
- Level B data

- Non-visible countries
- Andorra
 - Liechtenstein
 - Luxembourg
 - Malta
 - Monaco
 - San Marino



Zastupljenost invazivnih MDR *Pseudomonas* spp
 izolata
 EARS-Net and CAESAR 2018

SARS CoV -2



CDC/ PHIL/ Alissa Eckert, MSMI; Dan Higgins, MAMS

Šema strukture virusnog kapsida – izvor wikipedia

Upotreba antibiotika u Kovidu

- Skoro svi pacijenti primaju bar jedan antibiotik
- Ambulantno se uglavnom daju azitromicin, doksiciklin, levofloksacin, cefiksim
- U bolnicama od ceftriaksona na dalje
- Prometovanje levofloksacina i azitromicina je udesetostručeno
- Prometovanje meropenema je utrostručeno

Upotreba antibiotika u Kovidu

Acute Bacterial Co-Infection in COVID-19

A Rapid Living Review and Meta-analysis

 **24** Studies included
  **3338** COVID-19 Patients
  December 2019 to March 2020

3.5%
Co-Infection

On presentation

14.3%
Secondary Infection

After presentation

71.8% Antibiotic Prescribing

Langford BJ, So M, Raybardhan S, Leung V, Westwood D, MacFadden DR, Soucy JPR, Daneman N. Clinical Microbiology and Infection. 2020.



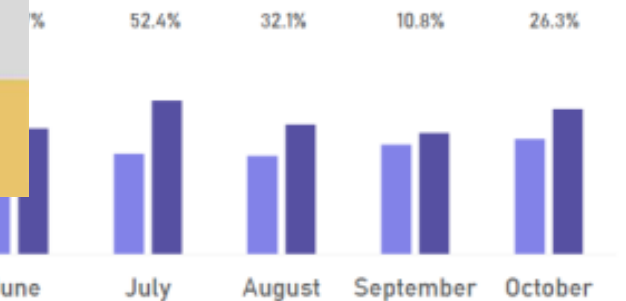
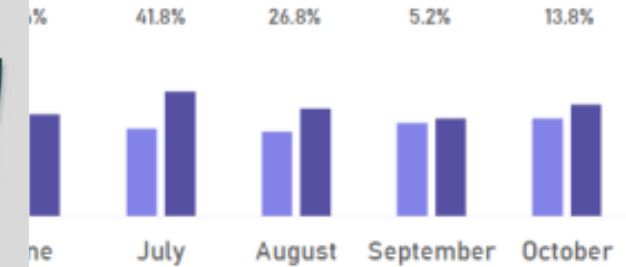
TARRN
www.tarrn.org/covid

Aggregated

National Healthcare Safety Network (710 hospitals)
Days of Therapy per 1,000 Days Present - Ceftriaxone

Premier Healthcare Database (716 hospitals)
Days of Therapy per 1,000 patient days - Ceftriaxone

omycin



Note: NHSN AU days present denominator counts any portion of a day when a patient was hospitalized and thus is larger than the Premier patient day denominator, which counts 24-hour periods.

% indicates percent difference in pooled mean rate by year.



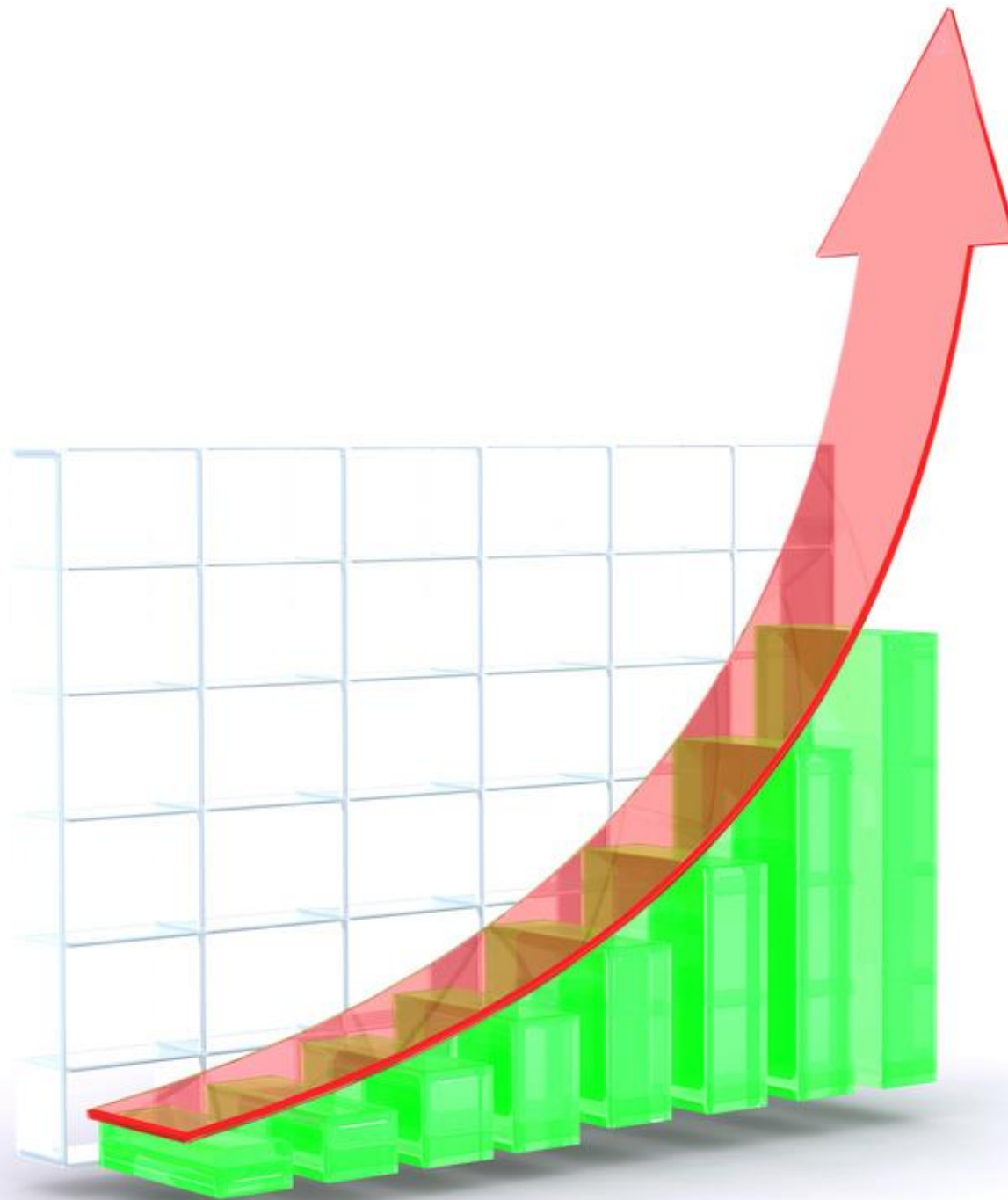
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% indicates percent difference in pooled mean rate by year.

■ 2019 ■ 2020

■ 2019 ■ 2020

**Šta će se desiti
sa rezistencijom?**



Overprescribing: What are the costs?

By 2050 antibiotic-resistant superbugs created by overprescribing will kill more people than cancer.

Approximately **55%** of all money spent on antibiotics in the U.S. in 2015 could be attributed to outpatient environments.

Antibiotic resistance added **\$1383** to the cost of treating a patient with a bacterial infection.

Antibiotic resistance has an estimated national cost of **\$2.2 billion** annually.

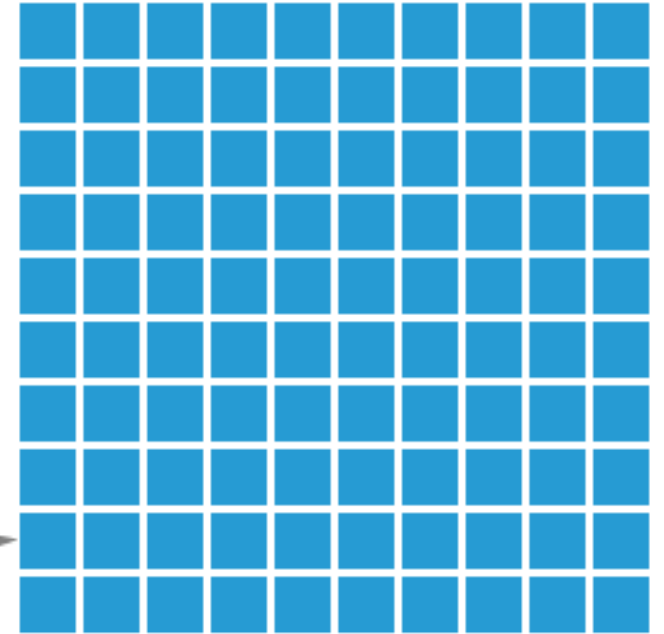
approximately **23,000 patients** in the U.S. are dying each year as a result of antibiotic-resistant infections.

NEW REPORT ON ANTIBIOTIC RESISTANCE

\$100 trillion

Cost of antibiotic-resistant infections by 2050

Each square is \$1 trillion



The report recommends establishing a \$2bn Global Innovation Fund for early-stage research

← This is \$2bn to scale.
That's right. It's one pixel.



SADAŠNOST I BUDUĆNOST ANTIBIOTSKE TERAPIJE

**Razvoj novih
antibiotika**



**Poznavanje
otpornosti
bakterija na
antibiotike**

**Racionalna
upotreba
postojećih**

**Stroga primena
mera prevencije
infekcija**

Principi propisivanja antibiotika

- Pravi antibiotik
 - stručni vodiči
 - antibiotici prvog izbora
 - revizija
 - prema mikrobiološkim nalazima
 - neodgovarajući ili suvišni antibiotici (dvostruko pokrivanje anaeroba npr.)
- Prava doza
 - optimalizacija doze
 - iv na oralno davanje
- Pravo vreme
 - zlatni sat za sepsu
- Pravo trajanje
 - de eskalacija

**Javno dostupan na sajtu
Ministarstva Zdravlja**



Република Србија
МИНИСТАРСТВО ЗДРАВЉА

Nacionalni vodič
dobre kliničke prakse

Racionalna upotreba antibiotika

Beograd, 2018.

Izradila Radna grupa za izradu
nacionalnog vodiča dobre
kliničke prakse za racionalnu
upotrebu antibiotika



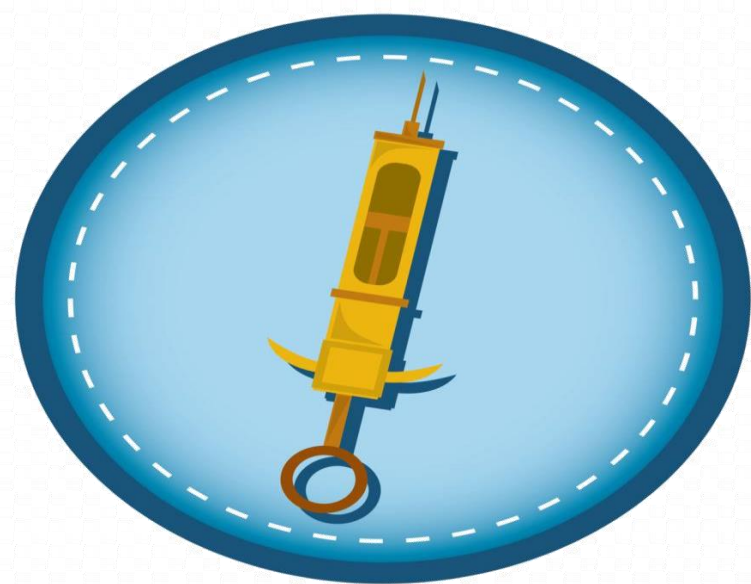
DRUGI PROJEKT
РАЗВОЈА
ЗДРАВСТВА
СРБИЈЕ

Najbolja terapija

- Terapija prema uzročniku
- Mikrobiološka potvrda i identifikacija

Situacije kada se lečenje mora započeti odmah

bez odlaganja, samo na osnovu iskustva lekara



➤ Fokalne infekcije

(pneumonija, infekcije urinarnog i bilijarnog trakta sa umereno i jako izraženim simptomima)

➤ Sepsa

➤ Febrilni bolesnici sa leukopenijom

➤ Verovatni akutni endokarditis

(bolesnici sa oboljenjima valvula ili narkomani sa groznicom i povišenom telesnom temperaturom)

➤ Bakterijski meningitis (suspektan ili dokazan)

➤ Akutni nekrotizirajući celulitis



KO SVE UTIČE NA UPOTREBU ANTIBIOTIKA?



Ako to znamo?

- Moramo:
 - Redukovati potrebu za antibioticima
 - Unaprediti upotrebu antibiotika
 - U zajednici
 - Unaprediti sanitaciju i higijenu
 - U ustanovama zdravstvene nege
 - Učvrstiti mere kontrole infekcija u bolnicama: pranje ruku, tehnike sterilizacije, kontrola kvaliteta, upotreba maski, rukavica...

I na kraju

- Rezistencija je neizbežna posledica upotrebe antiinfektiva protiv raznovrsnih populacija mikroba
- **Racionalna upotreba antibiotika mora da ima cilj da izbalansira**
 - potrebu da se leči pacijent sa infekcijom sada
sa
 - potrebama za efikasnim terapijskim opcijama u budućnosti

A person stands in silhouette under a large, leafy tree on a grassy hill. The background is a soft, golden sunset sky. The quote is written in a black serif font over the scene.

Yesterday
I was clever,
so I wanted to change
the world.

Today
I am wise, so
I am changing
myself.

MEDIAWEBAPPS.COM

Rumi

**Melvana Dželaludin Rumi,
persijski filozof, teolog, pesnik
13 vek.**