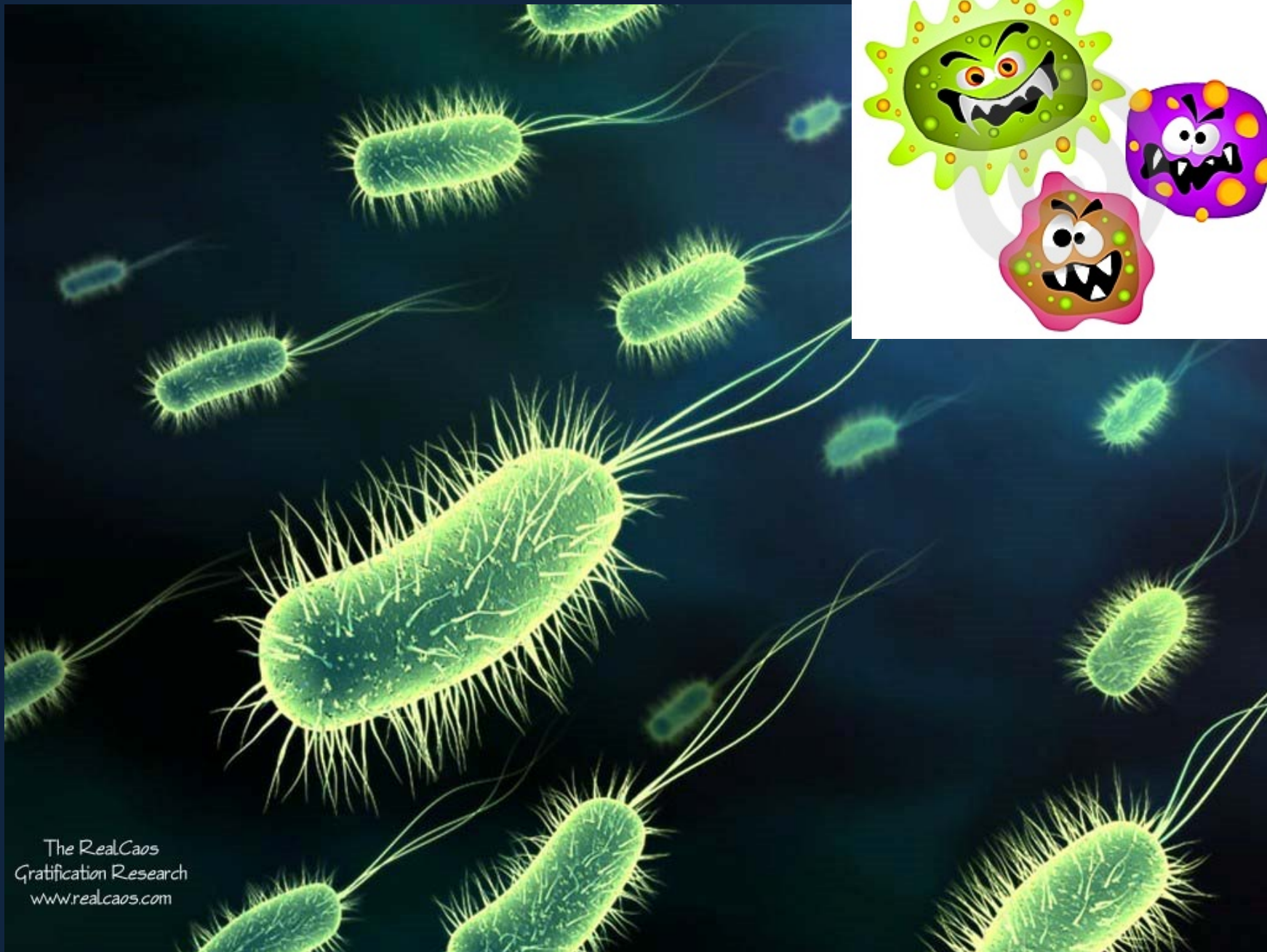


Rezistencija bolničkih patogenih

Prof.dr.sc. Arjana Tambić Andrašević

Klinika za infektivne bolesti “Dr. Fran Mihaljević”





**Who values you more ...
your boss or your husband?**

Pages 50-51



FILTHY WARDS KILLING 5,000 PEOPLE A YEAR

**Our restaurants, food
factories and even
abattoirs are
all subject to the
most rigorous
health checks ... yet our hospitals are
allowed to poison people with impunity**



BILLIONS of pounds of investment, superlative equipment, new state-of-the-art hospitals and an end to the scandal of waiting lists — all of these have been promised by our Labour Government.

Yet amid the political bluster, there has been no reference at all to one of the greatest scandals in the Health Service.

Yesterday, the House of Commons public accounts committee announced that no fewer than 5,000 patients in England die each year because of infections contracted from the very hospitals in which they are being treated.

To compare the figure, for example, with a maximum of 200 people who die each year from 40 poisoning.

The fact that 25 times this number die annually from being treated in hospitals is the most damning indictment of our current Health Service.

As I have to say that, as a former environmental health officer who has investigated disease in hospitals, I am not pricked by the figure.

Hospitals in Britain are so sited that they have become the worst single source of infectious disease in this country.

Only recently in the Mail, the journalist Triona Holden, a woman of trouble-spots all over the world, told of her experience of being in a London NHS ward from the debilitating case of lupus.

And those three days were



Burden of multidrug-resistant (MDR) bacteria in the EU, Iceland and Norway

- Human burden

Infections (6 most frequent MDR bacteria, 4 main types of infection)

approx. 400,000 / year

Attributable deaths approx. 25,000 / year

Extra hospital days approx. 2.5 million / year

- Economic burden

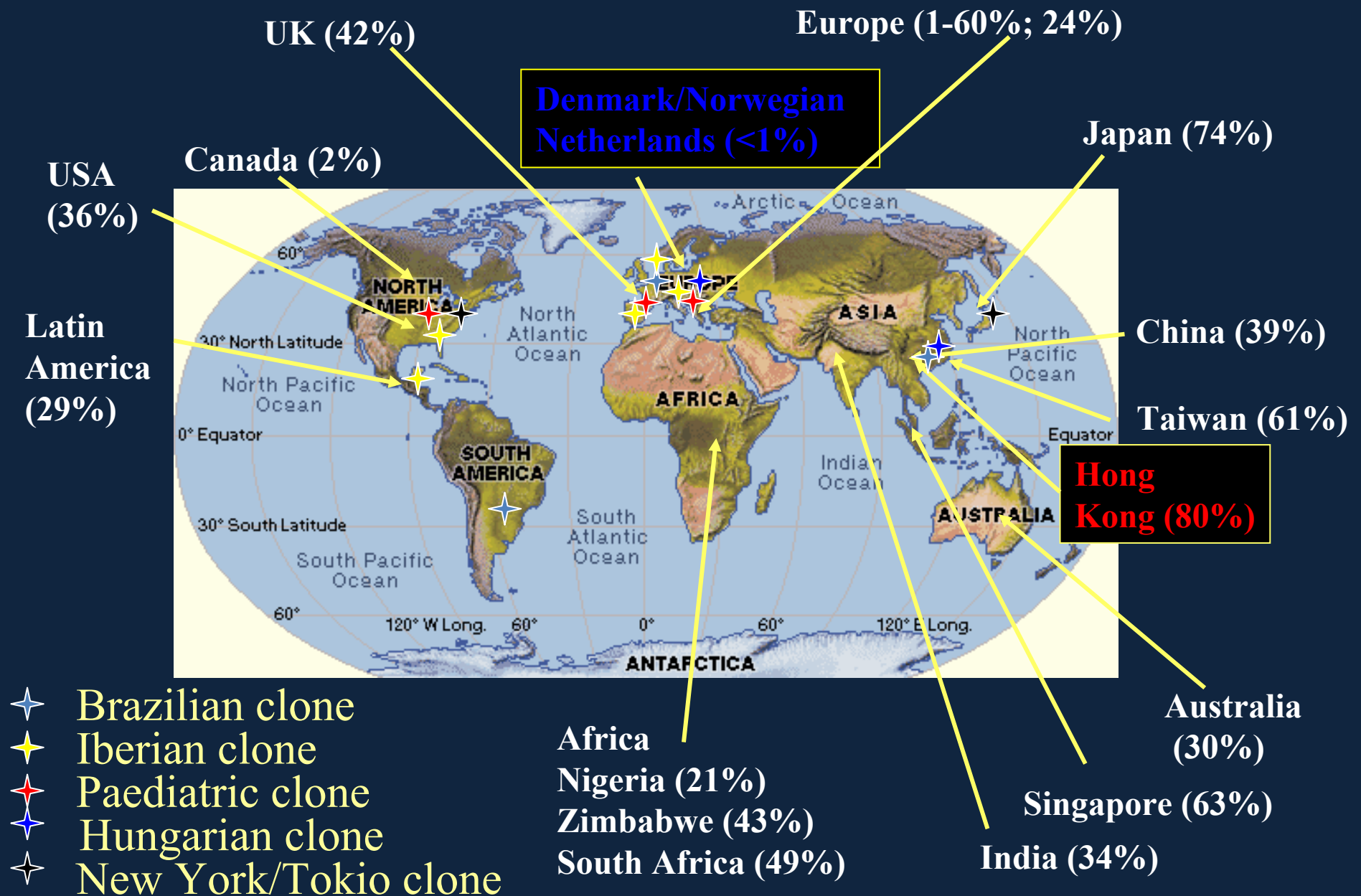
Extra in-hospital costs approx. € 900 million / year

Productivity losses approx. € 600 million / year

- Limitation: these are underestimates.

Source: ECDC, 2009. In: ECDC/EMA Joint Technical Report, 2009.

Pandemic MRSA clones

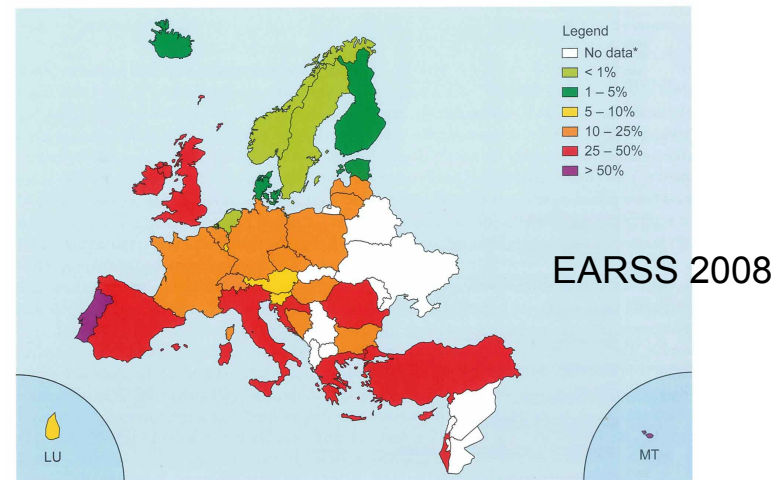


MRSA Hospital Prevalence Rates* in Europe, 2001-2005

	2001	2005
Austria	8	13%
Belgium	22	31%
Cyprus	n/a	56%
France	33	27%
Germany	18	21%
Greece	39	42%
Ireland	42	42%
Italy	41	37%
Portugal	32	47%
Romania	n/a	61%
Spain	23	27%
UK	45	44%

	2001	2005
Denmark	0.8	2.0%
Finland	0.4	3.0%
Sweden	0.9	1.0%
Norway	n/a	< 1%
Netherlands	0.5	< 1%

Croatia 32% 37%



*% of SA isolates that are MRSA.

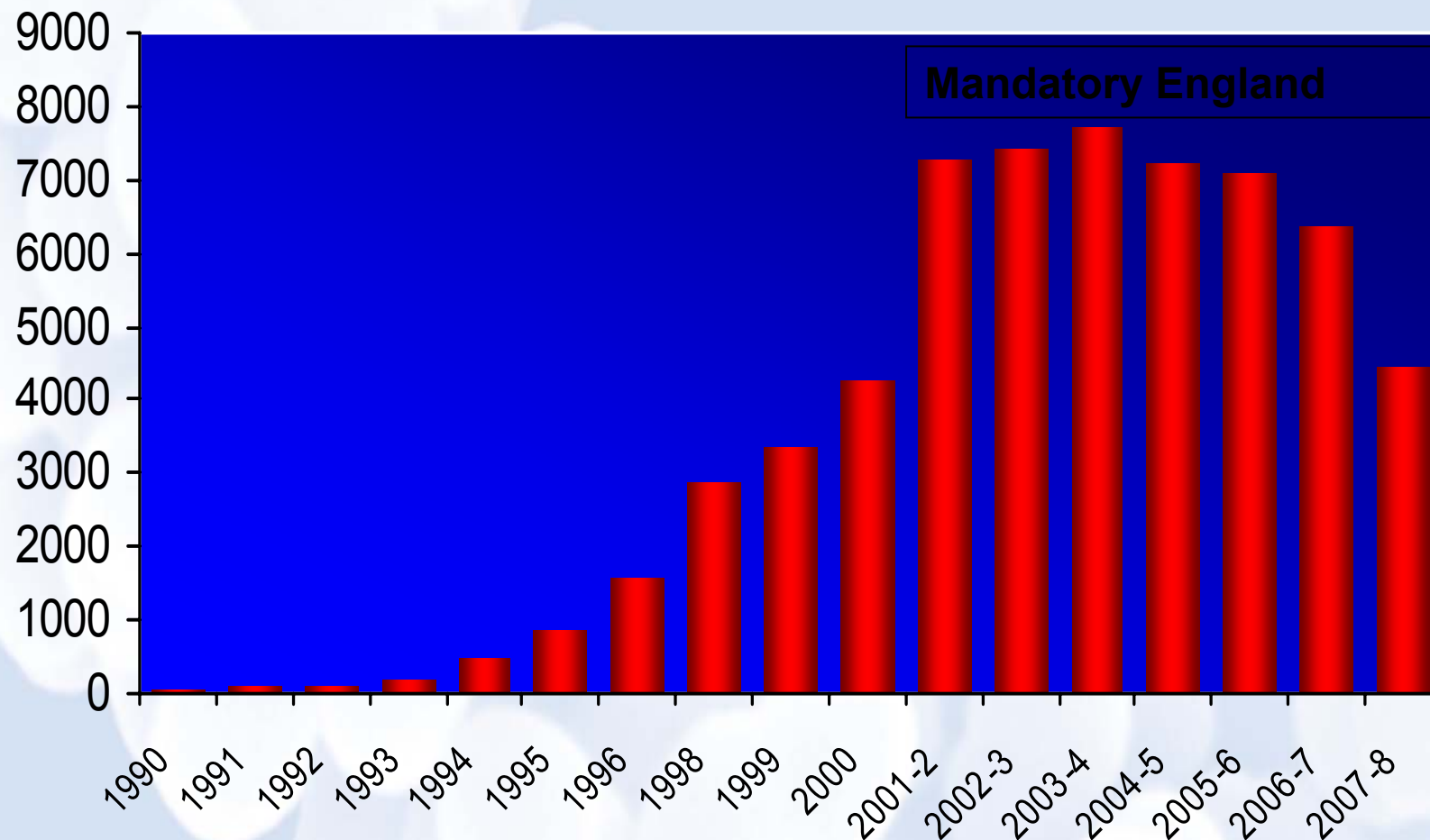
Figure 5.8. *Staphylococcus aureus*: proportion of invasive isolates resistant to oxacillin (MRSA) in 2008.
* These countries did not report any data or reported less than 10 isolates.

MRSA Bacteraemia Episodes: England, 2001-2008 (HPA website)

April-March	MRSA Bacteraemia Episodes	Rate per 10,000 OBDs
2001-2	7291	1.71
2002-3	7426	1.78
2003-4	7700	1.83
2004-5	7233	1.76
2005-6	7096	1.78
2006-7	6383	1.67
2007-8	4448	1.16
Fall since 2003	- 2978 - 40.1%	- 0.62 - 34.8%

Number of MRSA Bacteraemia Isolates Reported to the HPA

England and Wales, 1990-2008 (HPA website)



THE Sun
FREE INSIDE
8-PAGE CELEB PULLOUT
WITH JAMELIA POSTER

Evening Times
WIN £2000 KITCHEN
MRSA KILLED MY BABY
JONATHAN CAIRN

THE INDEPENDENT
NEWSPAPER OF THE YEAR
RED HOT & GREEN
Infection expert resigned over hospital's failure to control new superbug
Protests mount after 12 die and 300 infected at Stoke Mandeville

Daily Mail
20% OFF WITH DELIVERIES
CAMILLA & MRS SIMPSON
Their intriguing similarities ... and the lessons Charles could learn from history

THE PLAGUE 2004
Filthy NHS wards kill 5,000 a year

SUPERBUG CRISIS WORSE THAN FEARED
Government report reveals up to seven times as many patients than thought pick up hospital infections

DAILY EXPRESS
FANTASTIC FREE ICE CREAM for every reader
Why 21st century grannies are the new superwomen
KILLER BUGS GRIP BRITAIN
Alert as health of thousands is put at risk

MRSA DEATHS DOUBLE IN FOUR YEARS
Maxine Carr wins anonymity for life

The Daily Telegraph
THE BIG MATCH THE BEST PREMIER
Henry Winter on the
MRSA: they were warned last year and did nothing
Now girls think the

Evening Times
Early date for title decider
Glasgow's best guide to going out
Heart ops cancelled after four patients hit by MRSA

The new superbug threatening Britain's hospitals
12 killed in outbreak at leading spinal injuries unit
EXCLUSIVE INVESTIGATION By Jeremy Lindsay

NEW NHS SUPERBUG IS WORSE THAN MRSA
die at leading hospital
We think Jacko did it, say jurors

MRSA:
The youngest victim

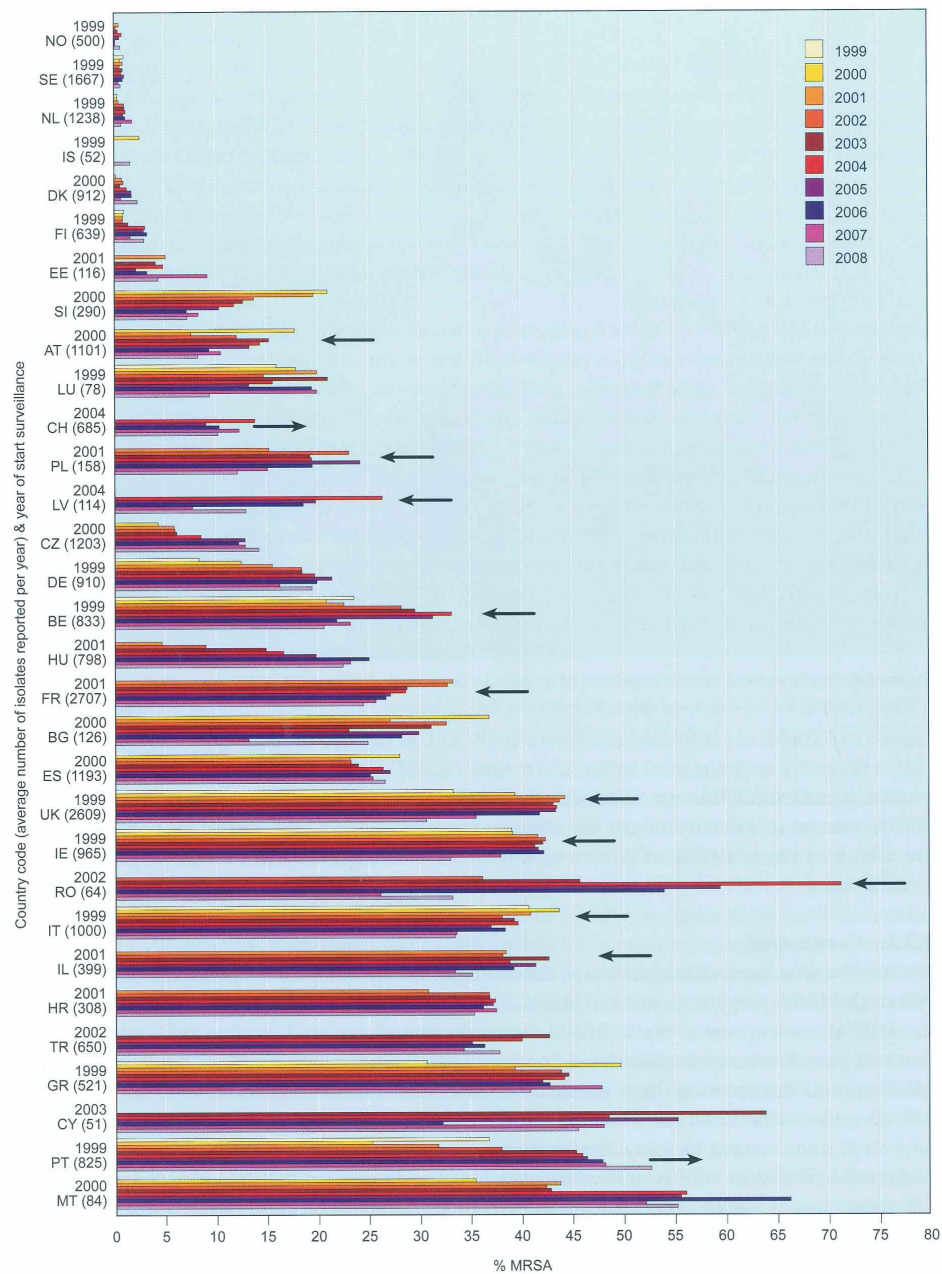


Figure 5.9. *Staphylococcus aureus*: trends of methicillin-resistance by country, 1999-2008. Only the countries that reported 20 isolates or more per year for at least four consecutive years were included. The arrows indicate significant trends in the last four years of surveillance.

Either the first year of surveillance or the first year with 20 or more isolates reported.

EARSS 2008

Staphylococcus aureus
Trends of methicillin-resistance
by country

EARSS, 2008

K. pneumoniae 3rd generation cephalosporin resistance

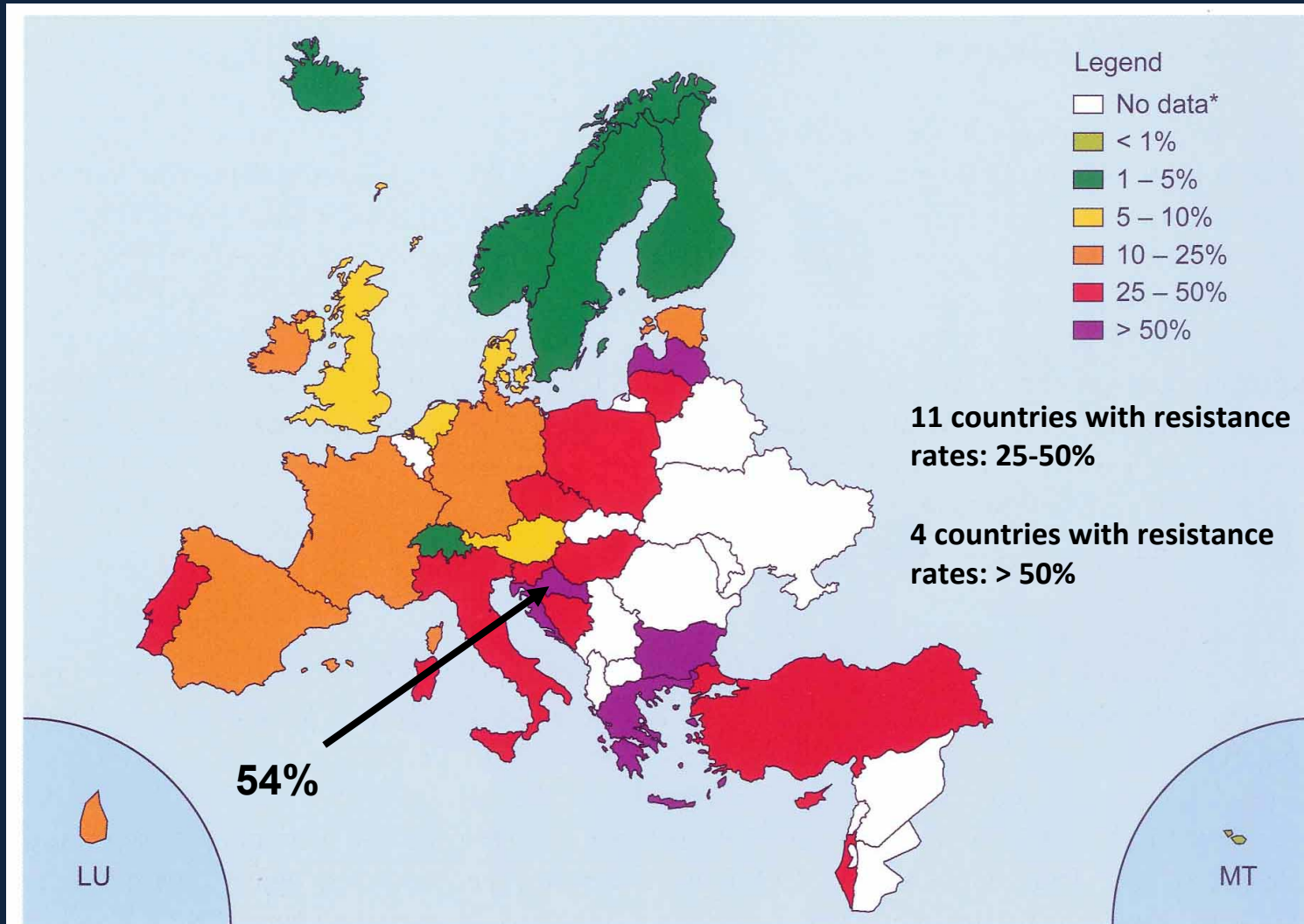


Figure 5.22. *Klebsiella pneumoniae*: proportion of invasive isolates resistant to 3rd generation cephalosporins in 2008.

* These countries did not report any data or reported less than 10 isolates.

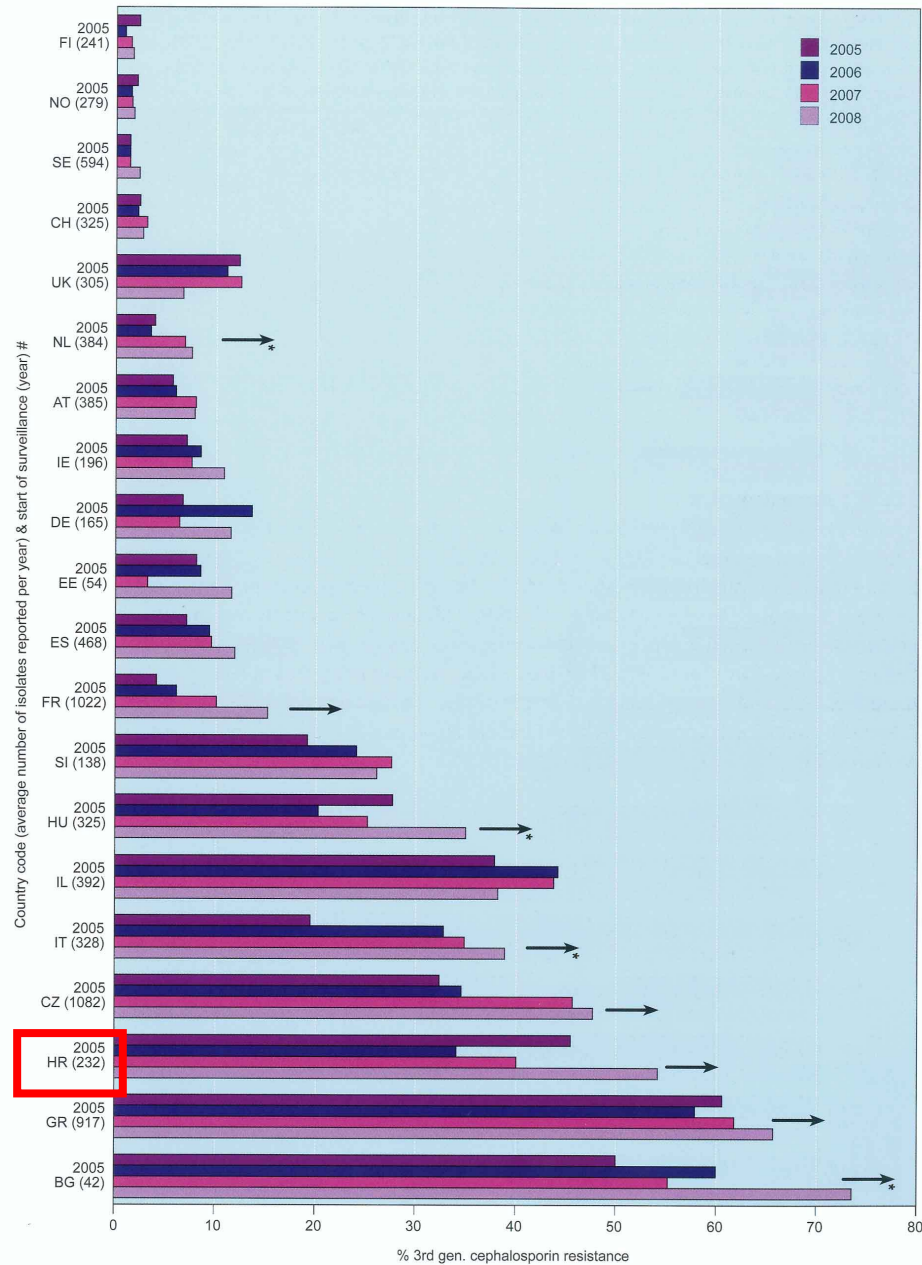


Figure 5.26. *Klebsiella pneumoniae*: trends of third generation cephalosporin resistance by country, 2005-2008. Only the countries that reported 20 isolates or more per year for at least four consecutive years were included. The arrows indicate significant trends in the last four years of surveillance. The asterisks indicate significant trends in the overall national data that were not supported by data from laboratories consistently reporting for all four years.
Either the first year of surveillance or the first year with 20 or more isolates reported.

EARSS 2008

Klebsiella pneumoniae
Trends of 3rd generation
cephalosporin resistance
by country

EARSS, 2008

Klebsiella pneumoniae Carbapenem resistance

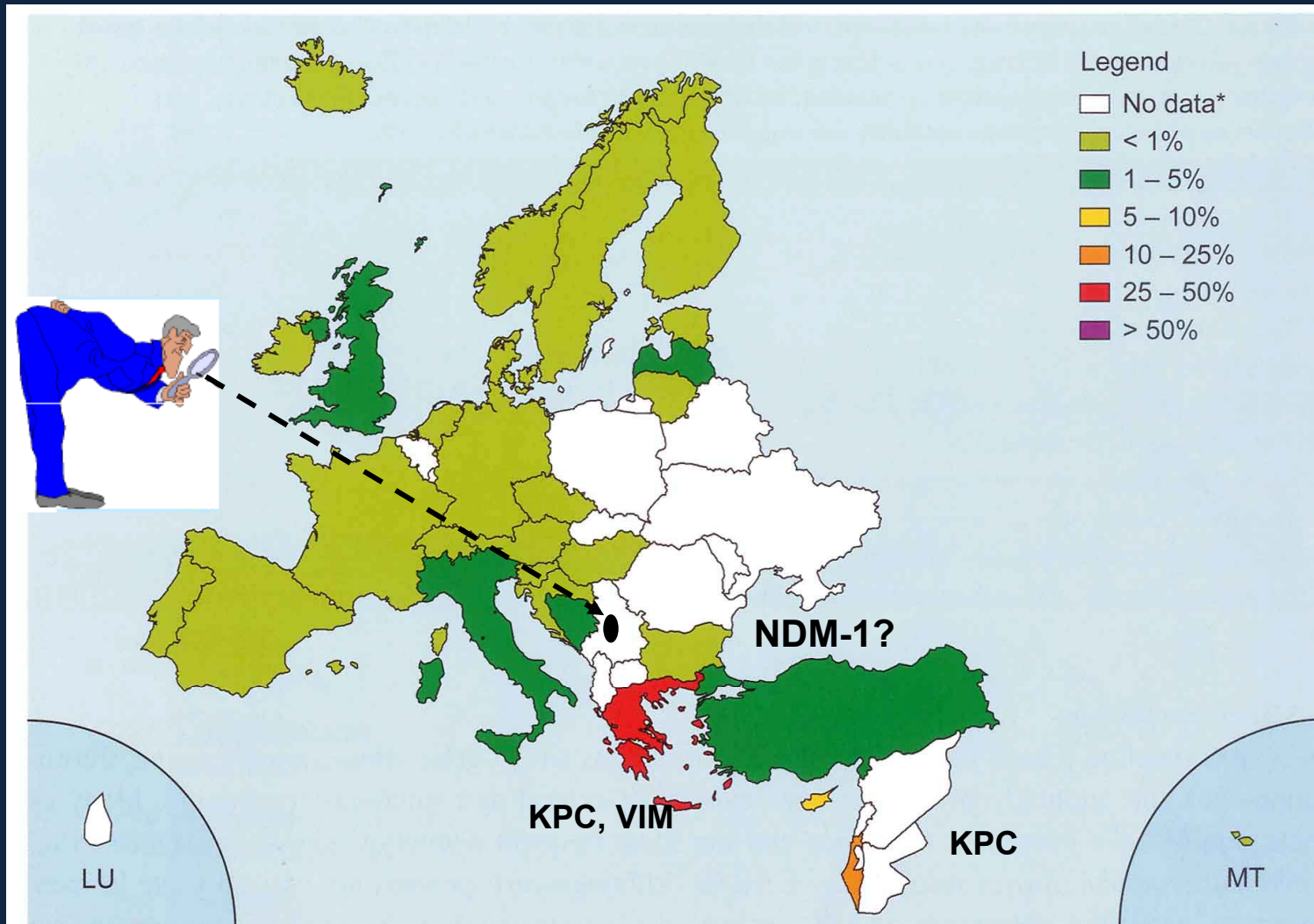


Figure 5.25. *Klebsiella pneumoniae*: proportion of invasive isolates resistant to carbapenems in 2008.

* These countries did not report any data or reported less than 10 isolates.

KPC1 North Carolina - KPC2 in Baltimore – KPC3 in New York (2001 – 2005)
All can be found in Israel (2006-2007), **ST 258**



KPC-1; *Klebsiella pneumoniae*, USA



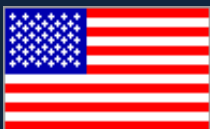
KPC-2; *Klebsiella pneumoniae*, USA



Klebsiella oxytoca, USA



Salmonella enterica, USA



Enterobacter cloacae, USA



KPC-3; *Klebsiella pneumoniae*, USA



Escherichia coli, USA

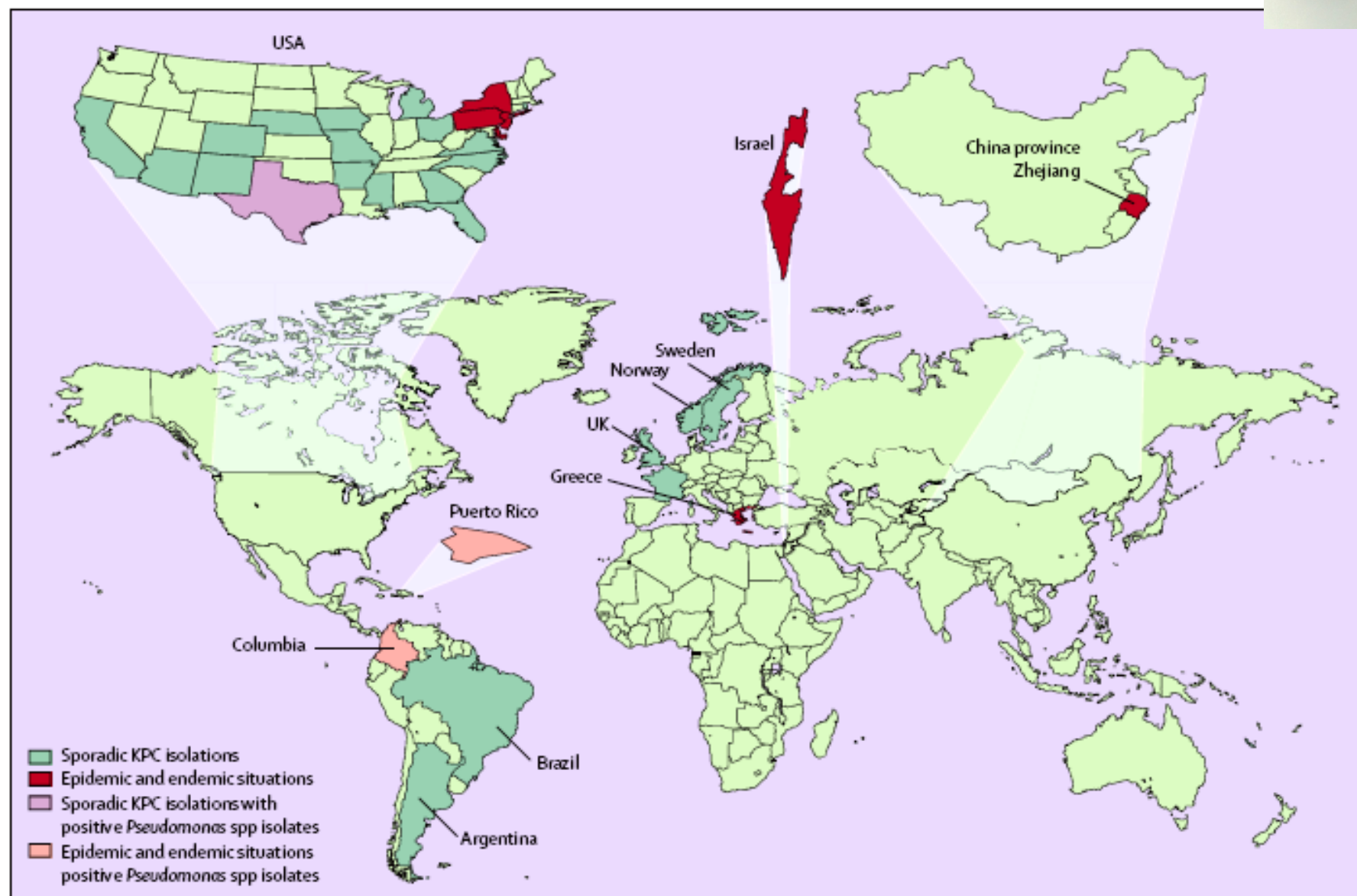


Figure 2 Geographic distribution of KPC worldwide

Epidemiology of carbapenemases

- Greece

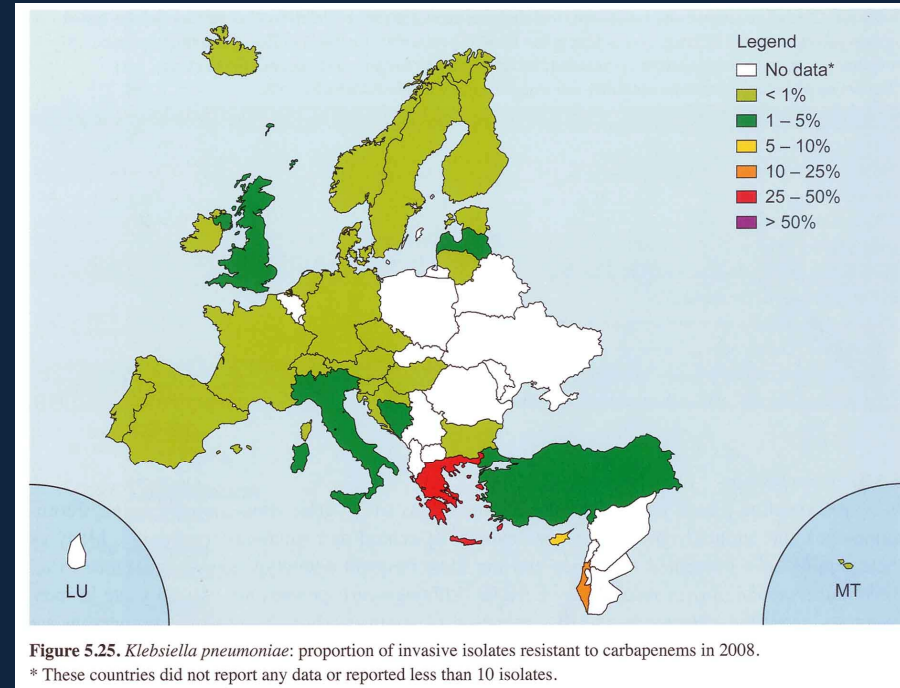
- 2003: VIMs, low MICs outbreaks
- 2007: KPC (ST 258), low MICs outbreaks

- Israel

- 2004: sporadic KPC
- 2006: KPC (ST 258) outbreaks, logarithmic increase in KPC in all hospitals
- Tel Aviv SMC: March 2007 – 180 new cases / month
2010 – 30 new cases / month

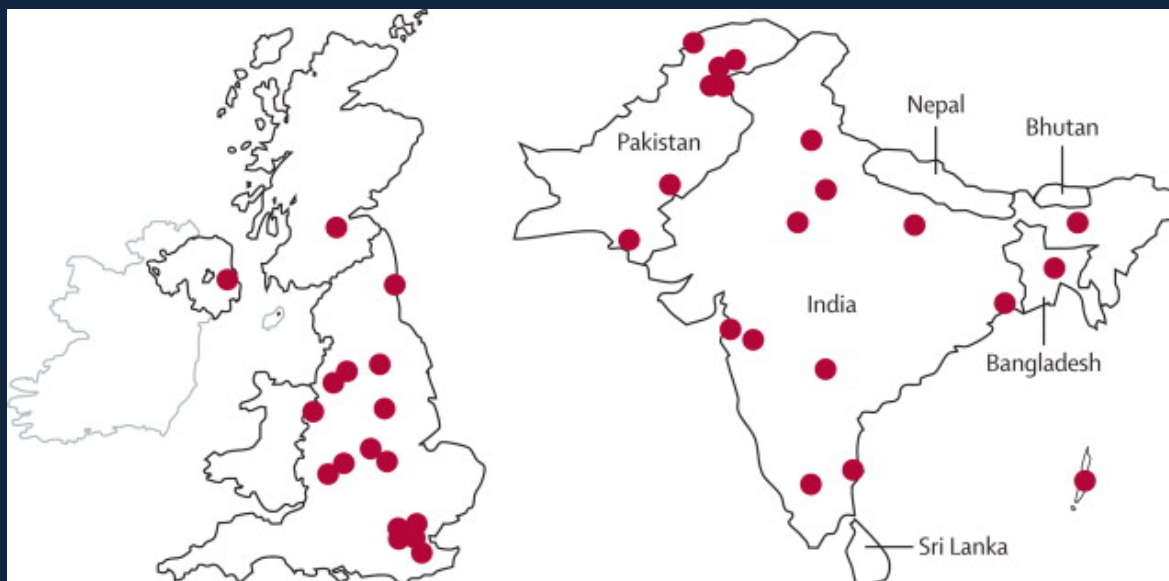
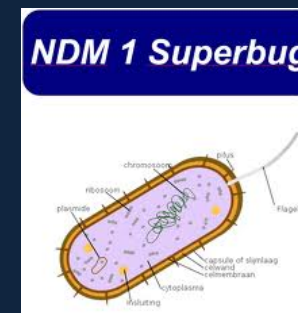
- Poland

- 2003: MBLs, sporadic
- 2008: KPC (ST 258), 6 hospitals endemic situation



NDM-1 karbapenemaze

- Metalo-beta-laktamaza (klasa B)
- Najčešće u enterobakterija (*K.pneumoniae*, *E.coli*)
- Prvi put opisana 2008. g. u Švedskoj (pacijent indijskog porijekla)
- Indija, Pakistan, UK
- EU: Švedska, UK, Belgija, Francuska, Njemačka, Nizozemska (do 25.8.2010.)
- Rezistencija na sve antibiotike osim na kolistin i tigeciklin



The Lancet
Infectious
Diseases 2010

P. aeruginosa Carbapenem resistance

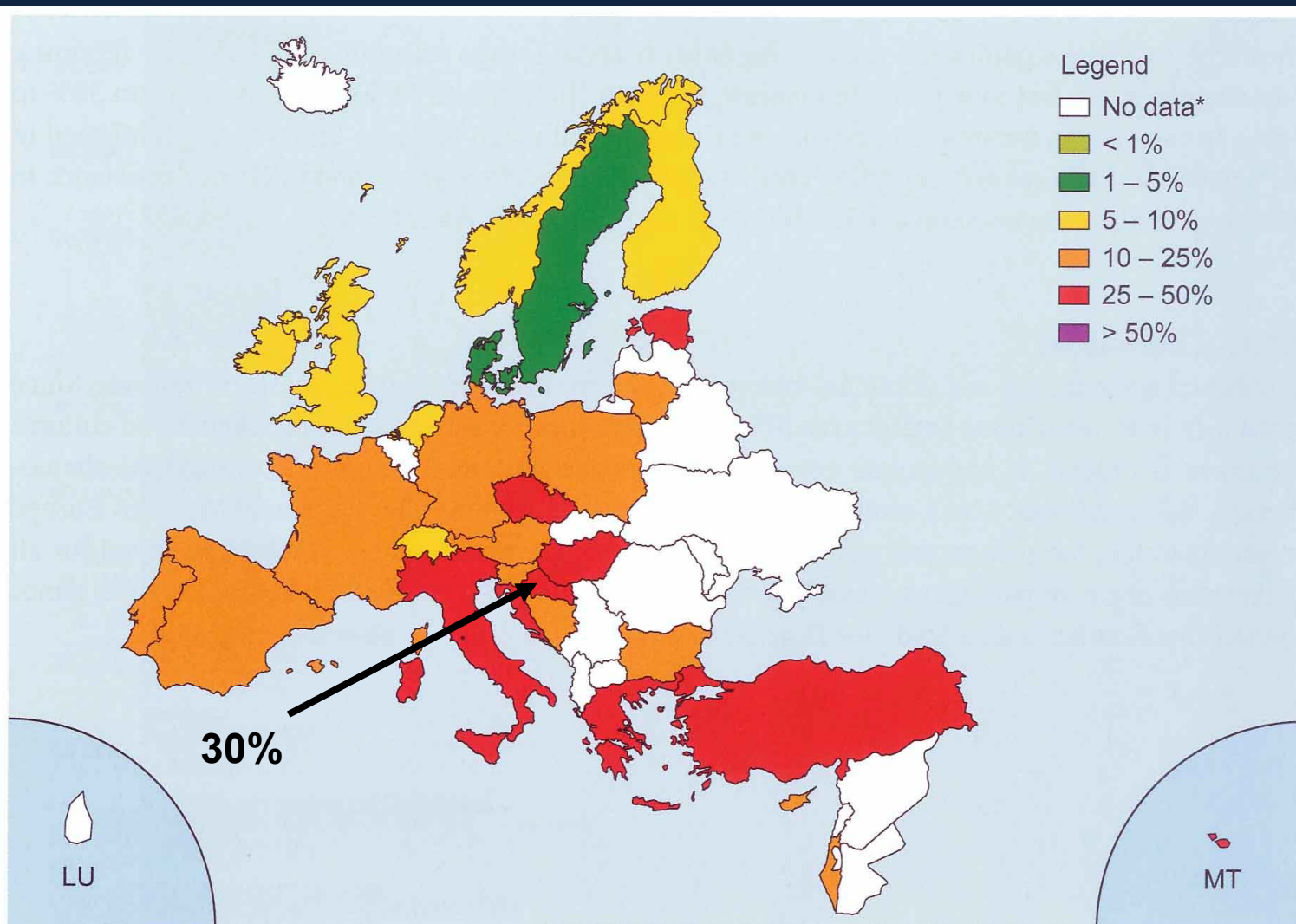
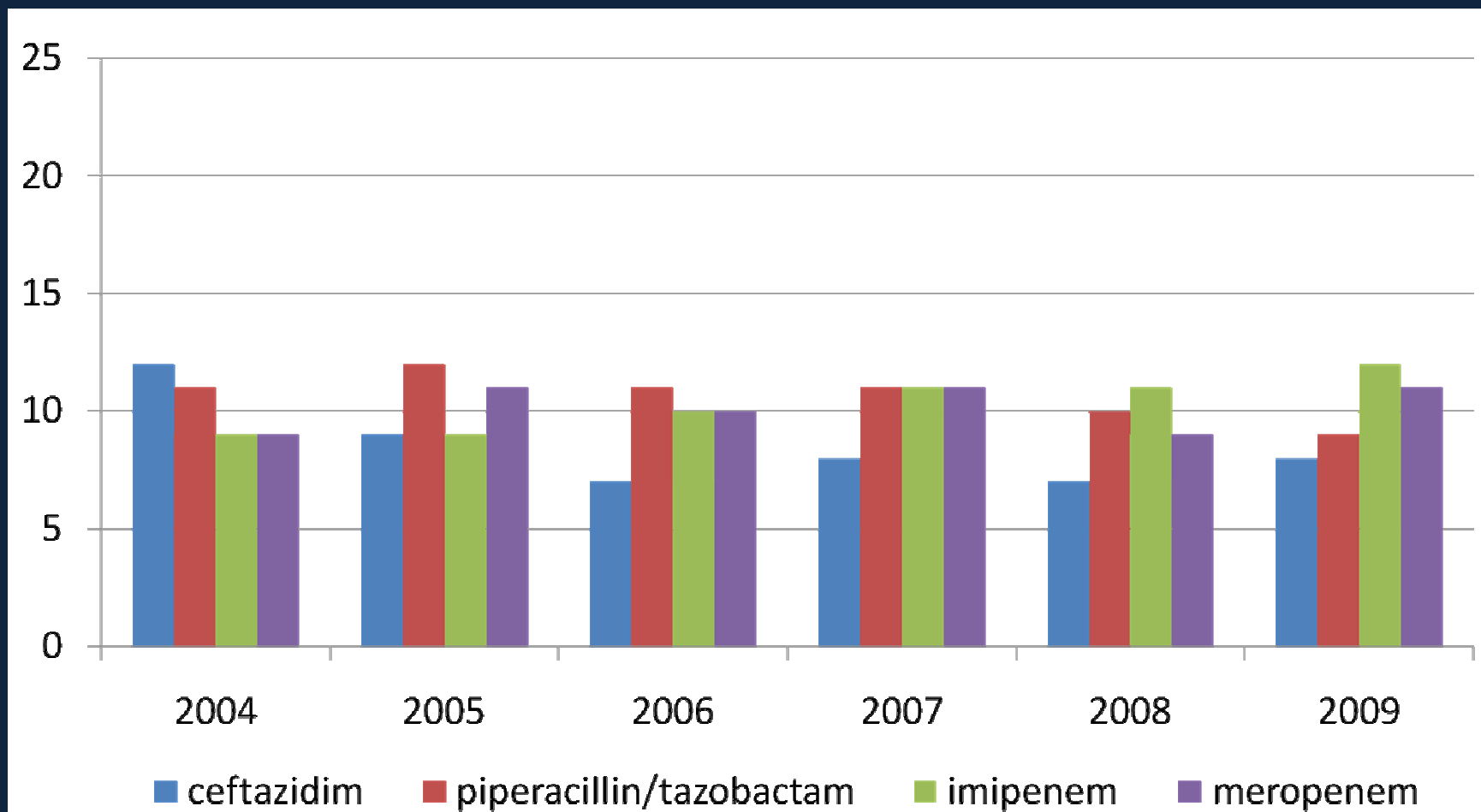


Figure 5.34. *Pseudomonas aeruginosa*: proportion of invasive isolates resistant to carbapenems in 2008.

* These countries did not report any data or reported less than 10 isolates.

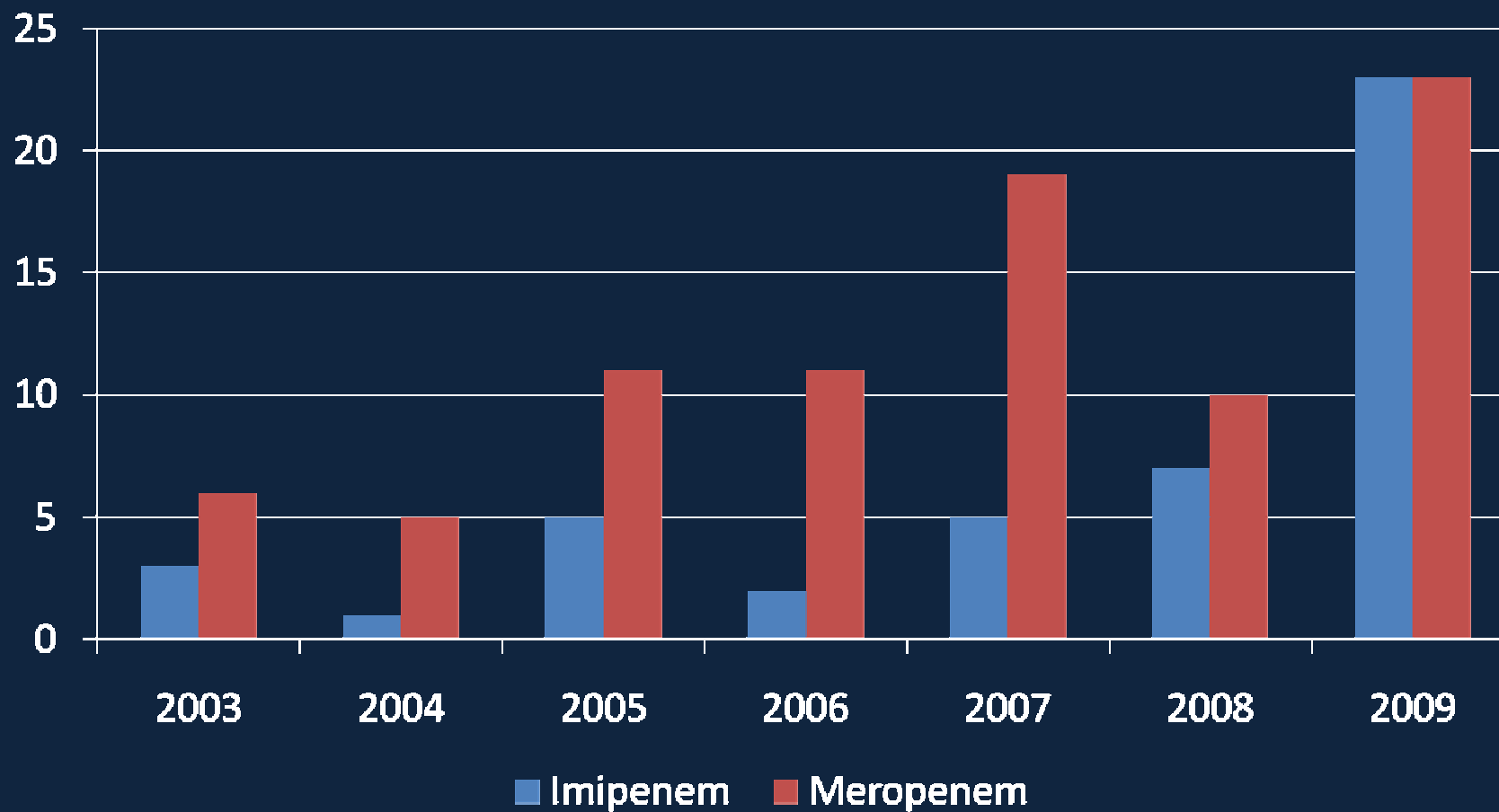
Pseudomonas aeruginosa rezistencija na karbapeneme

AMZH, Odbor za praćenje rezistencije bakterija na antibiotike u RH



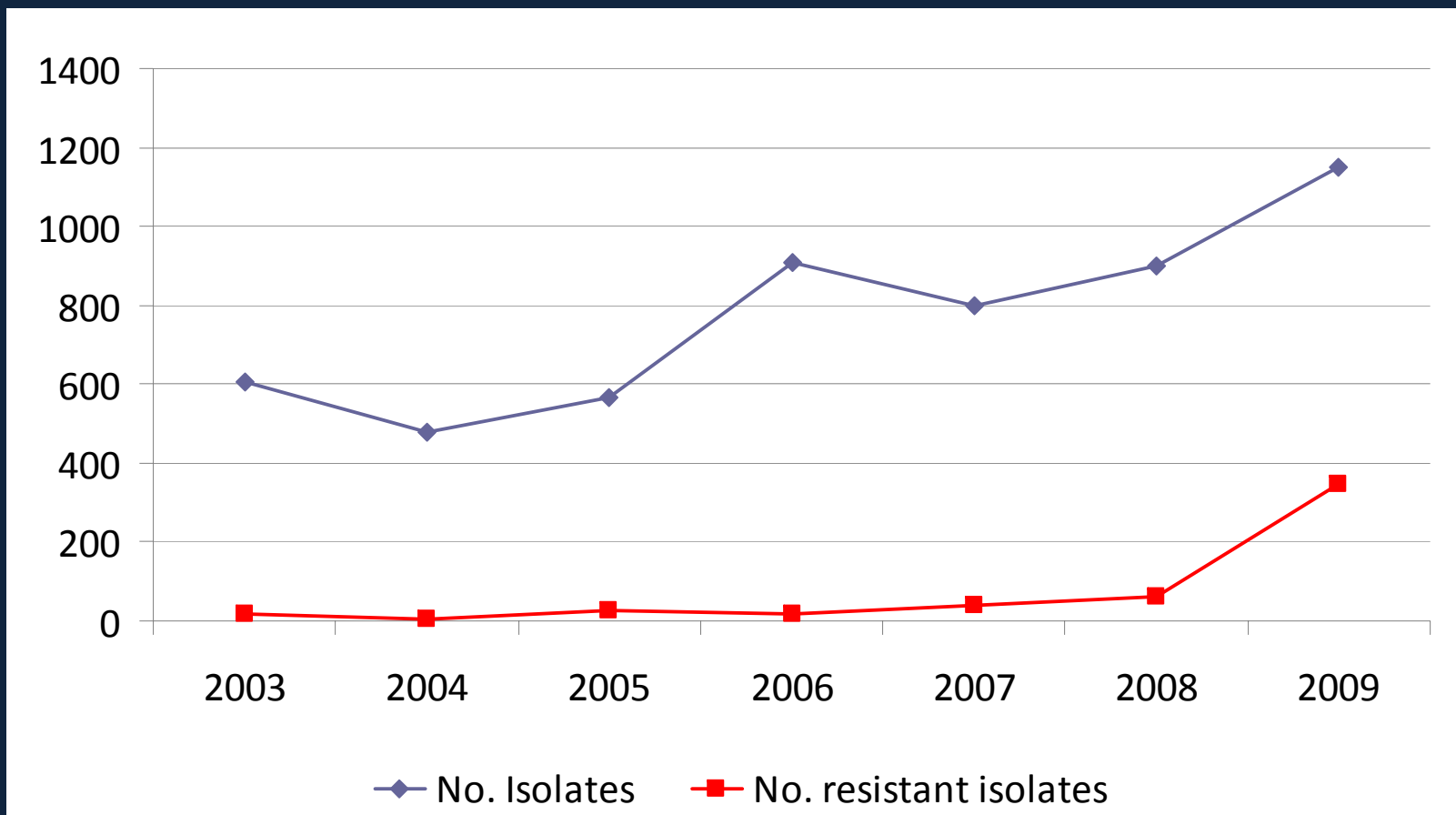
Acinetobacter baumannii rezistencija na karbapeneme

AMZH, Odbor za praćenje rezistencije bakterija na antibiotike u RH



Acinetobacter baumannii rezistencija na karbapeneme

AMZH, Odbor za praćenje rezistencije bakterija na antibiotike u RH



Kontrola širenja rezistencije u bolnicama

➤ Racionalna primjena antibiotika

- ciljana antibiotska terapija
- empirijska terapija osmišljena s obzirom na očekivane uzročnike i njihovu osjetljivost na antibiotike / specifično za lokalne sredine
- kontinuirano praćenje osjetljivosti bakterijskih izolata u lokalnim sredinama
- Smjernice o racionalnoj primjeni antibiotika
- Timski pristup liječenja bolesnika s infekcijom



➤ Kontrola bolničkih infekcija

- Donošenje preporuka
- Pridržavanje preporuka
- Kontaktna izolacija



Antibiotics

– Misuse leads to antibiotic resistance

HANDLE
WITH
CARE!



Checklist!



POSTUPATI
S
OPREZOM!

ANTIBIOTICI

– Zlouporaba vodi u rezistenciju

Podsjetnik

- ☒ Jeste li uzeli odgovarajuće uzorke za mikrobiološku obradu prije započinjanja antibiotske terapije?
- ☒ Je li mikrobiološki nalaz u skladu s kliničkom slikom ili izolirani uzročnik predstavlja kolonizaciju?
- ☒ Jeste li prilagodili antibiotsku terapiju bakteriološkom nalazu?
- ☒ Koja je odgovarajuća doza antibiotika i optimalno trajanje terapije za ovu vrstu infekcije kod ovog pacijenta?
- ☒ Je li odabir antibiotika u skladu s osjetljivošću lokalnih patogena?
- ☒ Jeste li konzultirali svojeg infektologa, mikrobiologa ili kliničkog farmakologa?



Europski
dan
svjesnosti o
antibioticima

