

From strategy to reality

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WHO Global Strategy for Containment of Antimicrobial Resistance



World Health Organization

WHO, 2001



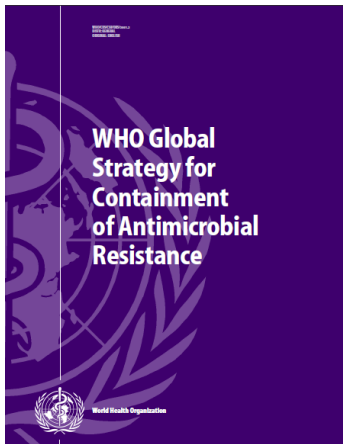
GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE



Strategic objectives

Alert to this crisis, the May 2015 World Health Assembly adopted a global action plan on antimicrobial resistance, which outlines five objectives:

- ▶ to improve awareness and understanding of antimicrobial resistance through effective communication, education and training;
- ▶ to strengthen the knowledge and evidence base through surveillance and research;
- ▶ to reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures;
- ▶ to optimize the use of antimicrobial medicines in human and animal health;
- ▶ to develop the economic case for sustainable investment that takes account of the needs of all countries and to increase investment in new medicines, diagnostic tools, vaccines and other interventions.



Croatian strategy on antimicrobial resistance

Tasks involved



- ✓ Intersectoral Co-ordination Mechanism (ICM)
- ✓ Surveillance
 - Antibiotic resistance surveillance
 - Antibiotic consumption surveillance
- ✓ Prudent use of antibiotics
 - Education
 - Guidelines on antibiotic use
- ✓ Infection control
- ✓ Information technology
- ✓ Research

**If you cannot
measure it,
you cannot
improve it ...**





Croatian Committee for Antibiotic Resistance Surveillance

Croatian Academy of Medical
Sciences



- ▶ Committee for antibiotic resistance surveillance founded in 1996 at the Croatian Academy of Medical Sciences / originally 17 laboratories invited to participate / heads of microbiology laboratories, ID doctors, clinical pharmacologists
- ▶ Today Committee gathers heads of 35 Croatian microbiology laboratories
- ▶ >90% of country coverage
- ▶ On voluntary basis

AMR Surveillance Network



HRVATSKA AKADEMIJA MEDICINSKIH ZNANOSTI
KOLEGIJ JAVNOG ZDRAVSTVA
ODBOR ZA PRAĆENJE REZISTENCIJE BAKTERIJA
NA ANTIBIOTIKE U REPUBLICI HRVATSKOJ

Zapisnik Prvog sastanka Odbora

Sastanak je održan u Zagrebu, 9. svibnja 1997.

Sastanku su prisustvovali: H. Maver, B. Richter, T. Tambić, S. Kalenić, M. Payerl-Pal, D. Vuković, A. Tambić, N. Kuzmanović, N. Tkalec-Makovec, M. Petanović, Lj. Betica-Radić, M. Petrak, V. Gilić, B. Krakar i A. Sokal.

Sastanku su opravdano bili spriječeni prisustvovati: I. Francetić, S. Milutinović, I. Ritterman, V. Punda-Polić, Lj. Radolović

DNEVNI RED:

1. Biranje predsjednika, dopredsjednika i tajnika
2. Utvrđivanje članova Odbora prema pismenim prijavnicama
3. Plan i program rada Odbora
4. Dogovor o sakupljanju i slanju rezistentnih sojeva i korištenje test sojeva u kontroli kvalitete pri izradi antibiograma
5. Izvješće o prispjelim odgovorima na pitanje u svezi izrade antibiograma
6. Dogovor o oznakama za pojedine laboratorije, kako ne bi došlo do zamjene sojeva iz pojedinih regija

Zagreb, 12. svibanj 1997.

Dr. Tambić

Dr.mr.sc. Arjana Tambić
Tajnica Odbora

Tambić

Prim.dr. Tera Tambić
Predsjednica Odbora



Predsjednica Prva dopredsjednica Drugi dopredsjednik Glavna tajnica Druga tajnica
Financijski tajnik
Jasna Lipozenčić Melita Valentić Peruzović Davor Štimac Inge Heim Svjetlana Čala
Ilija Kuzman

AKADEMIJA MEDICINSKIH ZNANOSTI HRVATSKE
KOLEGIJ JAVNOG ZDRAVSTVA
ODBOR ZA PRACENJE REZISTENCIJE BAKTERIJA NA ANTIBIOTIKE U
REPUBLICI HRVATSKOJ
APUA CROATIA

Zapisnik XL. sastanka Odbora

Sastanak je održan 11.12.2015 u velikoj predavaoni Klinike za infektivne bolesti „Dr. Fran Mihaljević“, Zagreb, Mirogojska 8

Sastanku su prisustvovali:

A. Tambić-Andrašević, M. Payerl-Pal, V. Stamenić, V. Katalinić-Janković, E. Sušić, S. Šestan Crnek, D. Bejuk, S. Hejtmerek, M. Tonkić, K. Nemer, I. Jajić, A. Mlinarić-Džepina, I. Leroić, M. Vranić-Ladavac, M. Vodnica Martucci, S. Bukovski, A. Lukić Grlić, I. Butić, S. Šoprek, J. Magdić, S. Nad, S. Sardelić, K. Šiško Kraljević, I. Mareković, M. Tomić Paradžik, I. Koščak, Lj. Betica Radić, A. Rajević- Baradić, B. Humjak, B. Matica, I. Skrobonja, M. Zdravec, Bogdan

Izostanak su ispričali: T. Tambić, J. Šubić Škrlin, B. Krakar, V. Vlahović-Palčevski, I. Štepinac, D. Vuković, M. Stipetić, J. Vraneš, S. Baranjec, B. Tićac, E. Missoni Mlinarić, V. Janeš-Poje, Z. Matić, V. Mađarić, M. Abram Linić, S. Krešić, I. Franolić

Dnevni red sastanka:

1. Usvajanje zapisnika prethodnog sastanka
2. Osvrtna podatke praćenja u 2014. godini
3. Praćenje rezistencije u 2015. godini
4. EUCAST standardi za 2016. godinu
5. Karbapenem rezistentna *K. pneumoniae*
6. Vanjska kontrola kvalitete
7. APUA Croatia - praćenje potrošnje antibiotika u bolnicama i izvanbolnička potrošnja antibiotika
8. Osvrtna EAAD i javnu kampanju



Zagreb, 21. prosinca 2015.

Prof.dr.sc. Arjana Tambić Andrašević, v.r.
Predsjednica Odbora

Dr. Marina Payerl Pal, v.r.
Tajnica Odbora

Croatian Committee for Antibiotic Resistance Surveillance

Croatian Academy of Medical Sciences



▶ Education:

- Detection of new resistance mechanisms
- standardization of laboratory procedures and AST interpretation
 - regular spring and autumn Committee meetings
 - training courses (**1999**, 2001, 2004, 2007, **2010**, 2013, 2016)
 - external quality control (CDC/WHO, EARS-Net EQAS)
 - scientific meetings
 - Croatian symposium on antibiotic resistance (1994, 1997, 2000, 2003, 2006, 2009, 2012, 2015)

AST Course, Zagreb, 2010







Croatian Committee for Antibiotic Resistance Surveillance

Croatian Academy of Medical Sciences, 1996-2006

➤ Colaboration:

- ✓ with international organizations
 - World Health Organization
 - ESCMID, EUCAST
 - EARSS / EARS-Net, ESAC / ESAC-Net
 - APUA
 - CLSI (NCCLS)

- ✓ with Croatian Ministry of Health

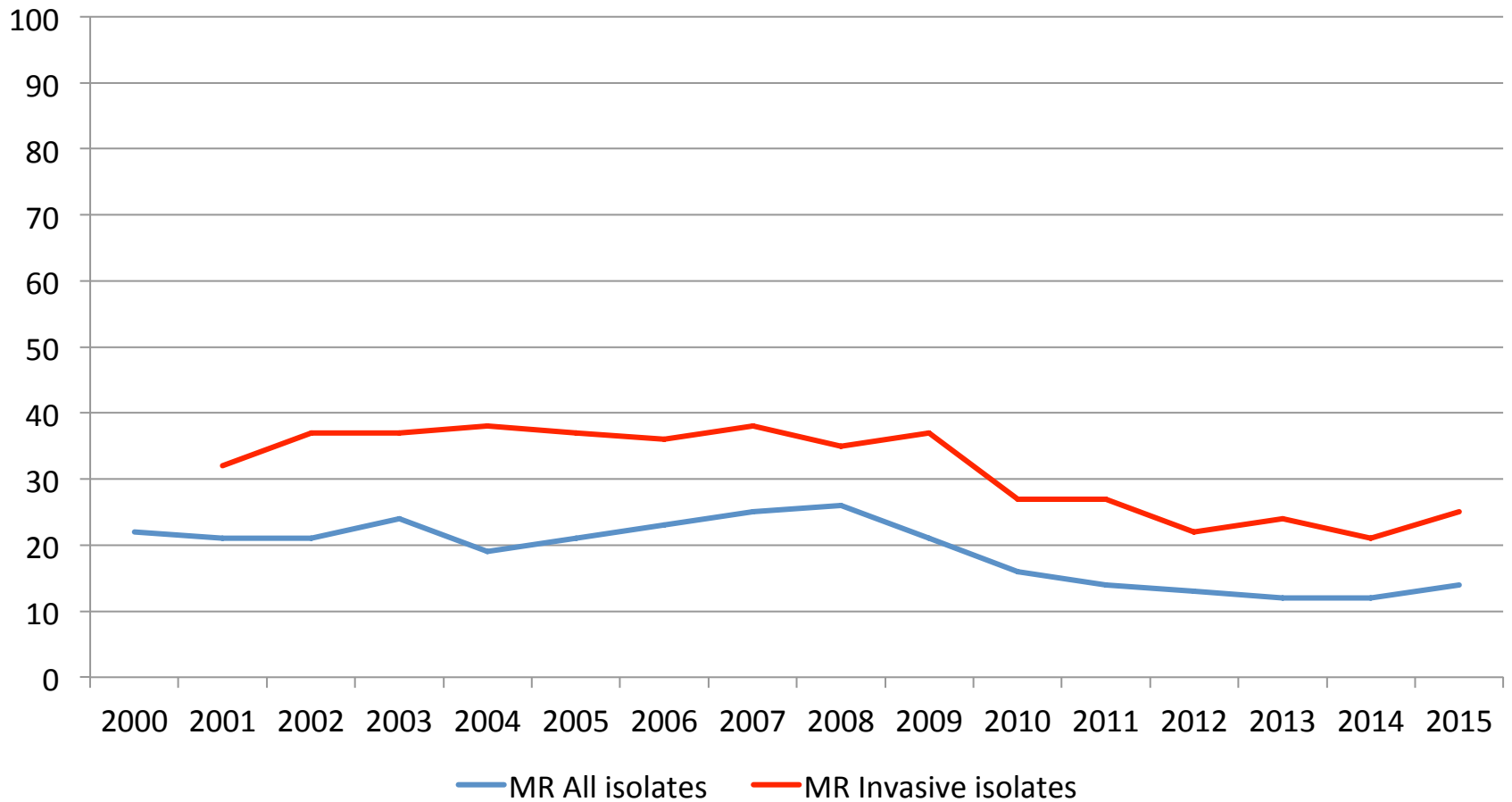


Organization of national surveillance network

- **1996: Croatian Committee for Antibiotic Resistance Surveillance (CARS)** at the Croatian Academy for Medical Sciences / activities: establishment of the national antibiotic resistance surveillance network, since 2002 antibiotic consumption surveillance within ESAC, education on rational antibiotic use
 - EARSS
 - ESAC
 - APUA Croatia Chapter
- **2003: Reference Center for Antibiotic Resistance Surveillance** of the Ministry of Health / provides laboratory service and QC for CCARS surveillance
- **2006: ISKRA, the Intersectoral Coordination Mechanism (ICM) at the Ministry of Health** / coordinates all the activities, for the first time government financially supports AMR control activities (part of national budget dedicated to antibiotic resistance control)
 - 2006: Interdisciplinary Section for Antibiotic Resistance Control, ISKRA (ICM)
 - Ministry of health and social welfare, Ministry of science, education and sports, Ministry of agriculture, Croatian academy of medical sciences, Medical societies for microbiology, ID, clin. pharmacology, chemotherapy, general practice, epidemiology, Croatian society of pharmacists, Health insurance institute
 - **2008: National strategy for antibiotic resistance control 2009 – 2014**
 - ✓ Surveillance
 - Antibiotic resistance surveillance
 - Antibiotic consumption surveillance
 - ✓ Prudent use of antibiotics
 - Education
 - Guidelines on antibiotic use
 - ✓ Infection control
 - ✓ Information technology
 - ✓ Research

MRSA rates

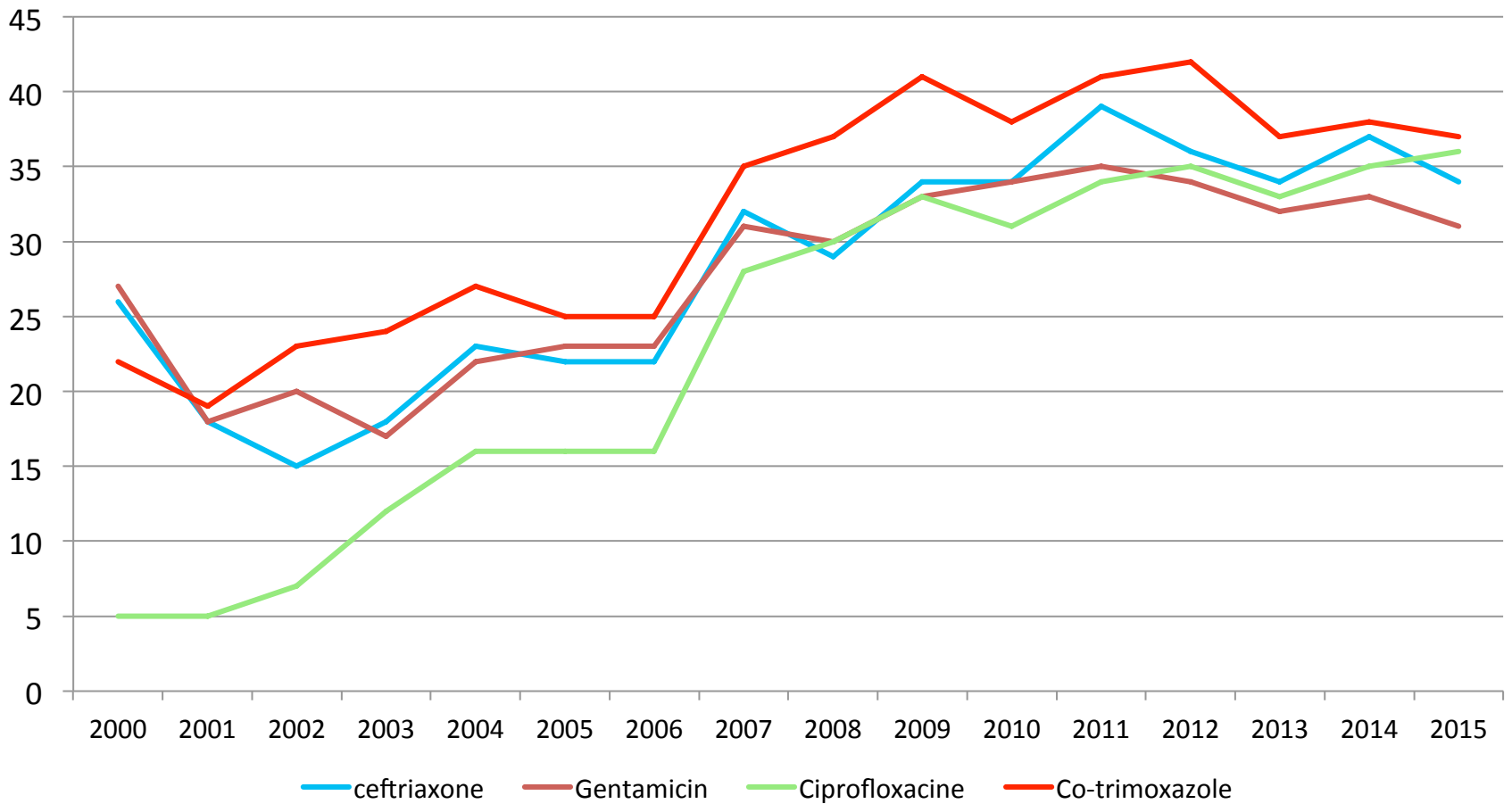
Croatia, 2000 - 2015



K.pneumoniae

antibiotic resistance

Croatia 2000 - 2015



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

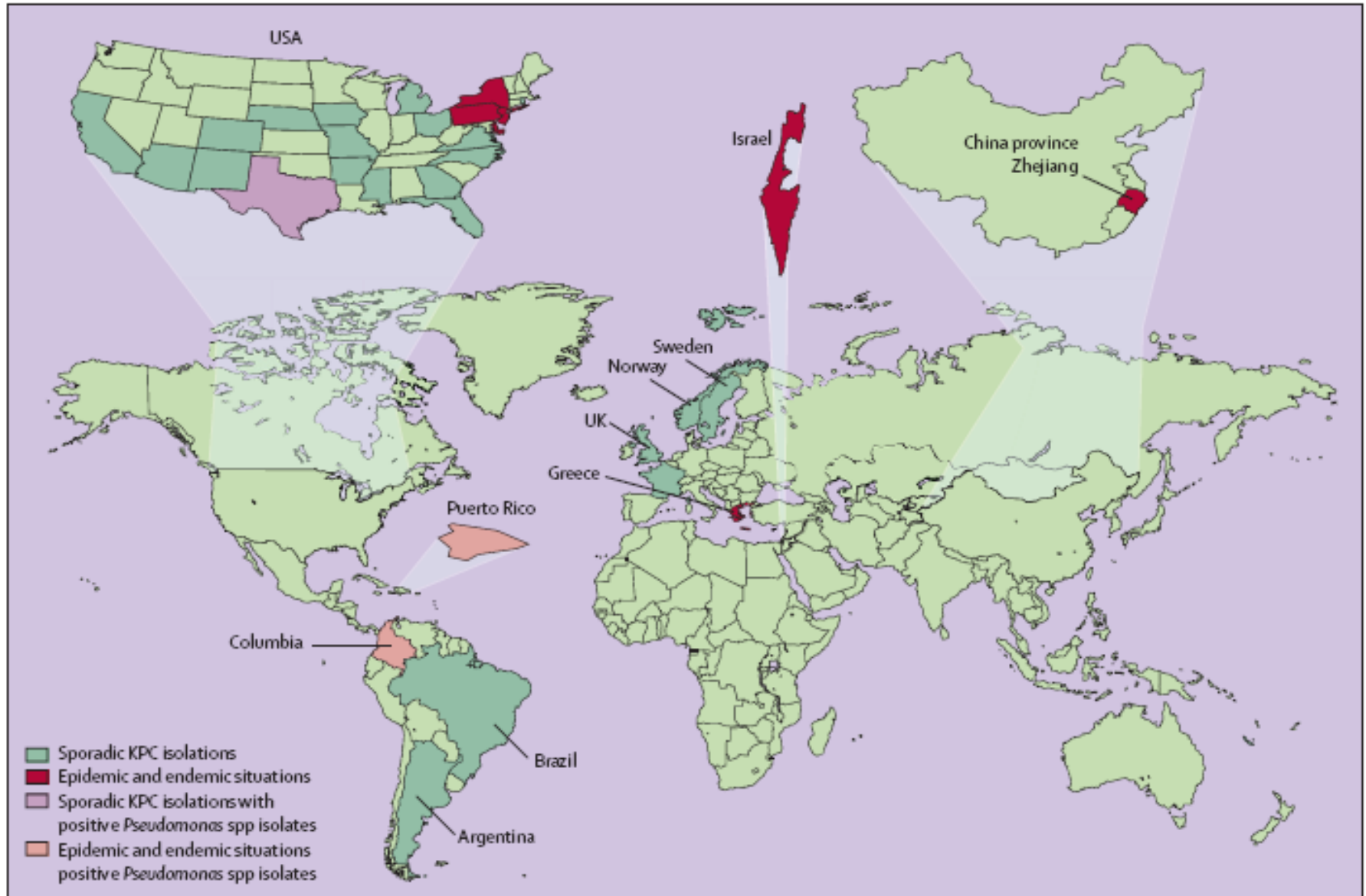
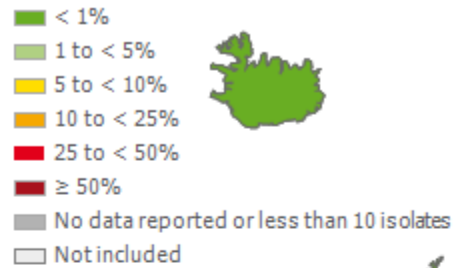


Figure 1. Geographic distribution of KPC worldwide

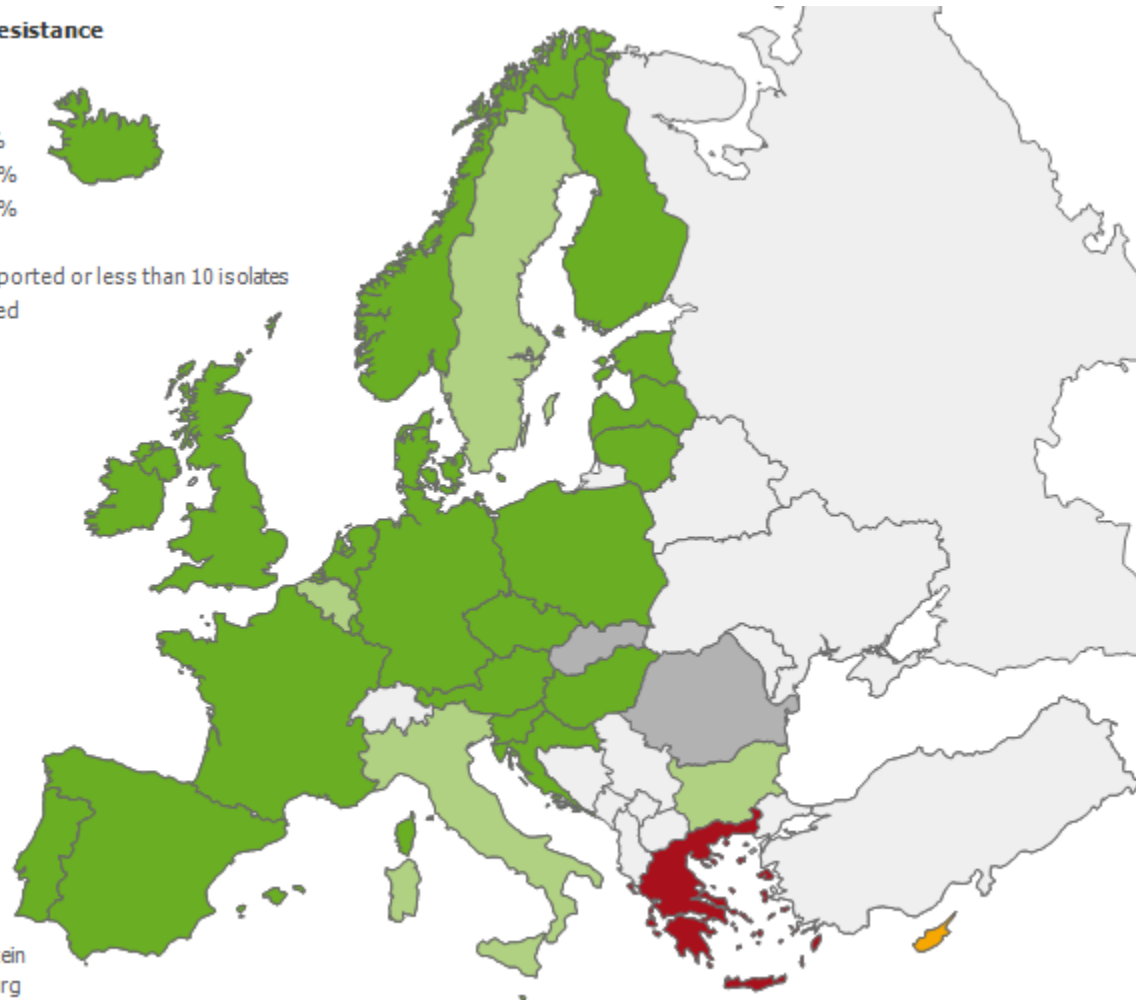
K.pneumoniae – carbapenem resistance

EARS-Net, invasive isolates, 2009

Percentage resistance



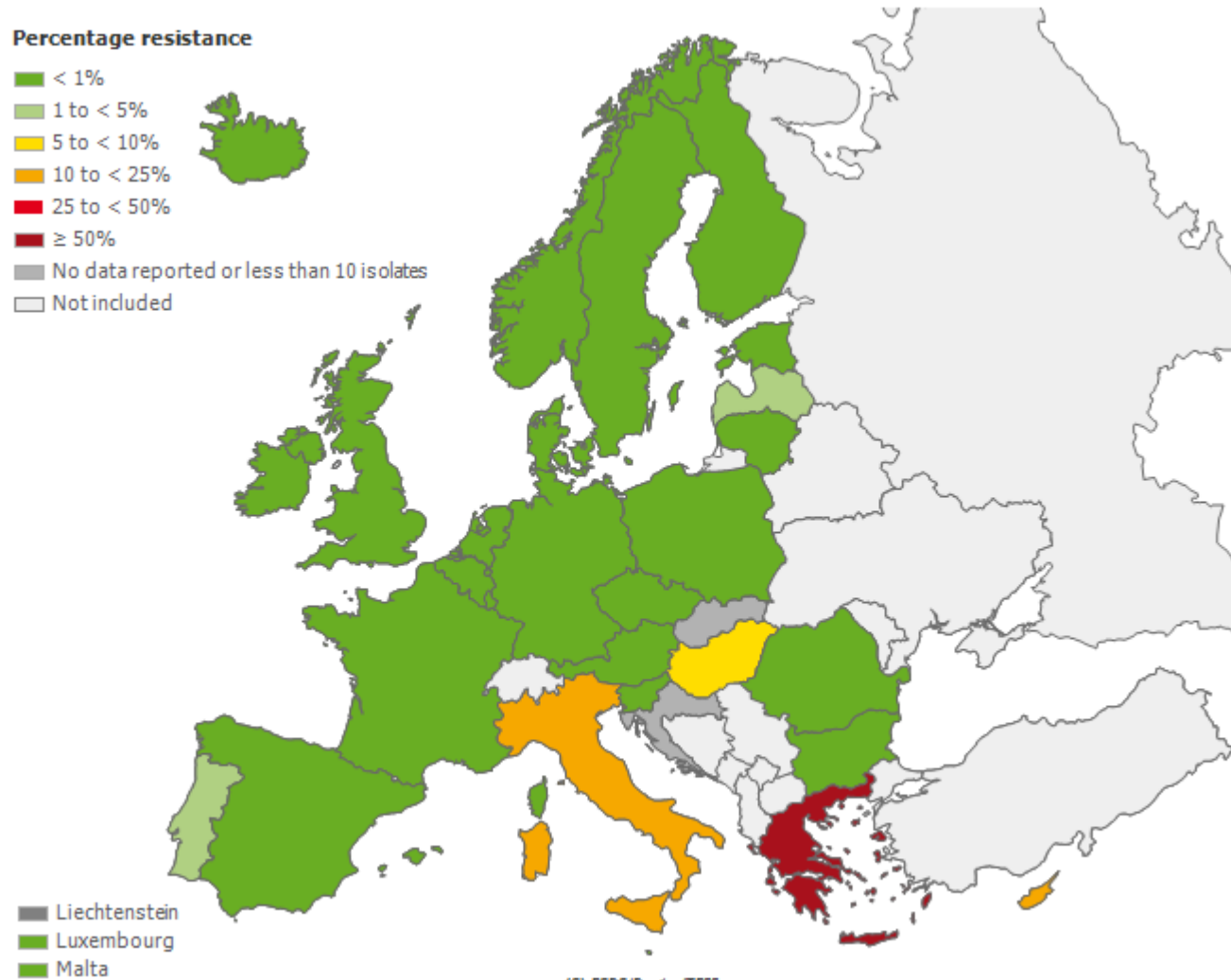
■ Liechtenstein
■ Luxembourg
■ Malta



(C) ECDC/Dundas/TESSy

K.pneumoniae – carbapenem resistance

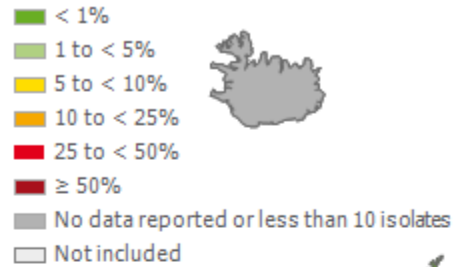
EARS-Net, invasive isolates, 2010



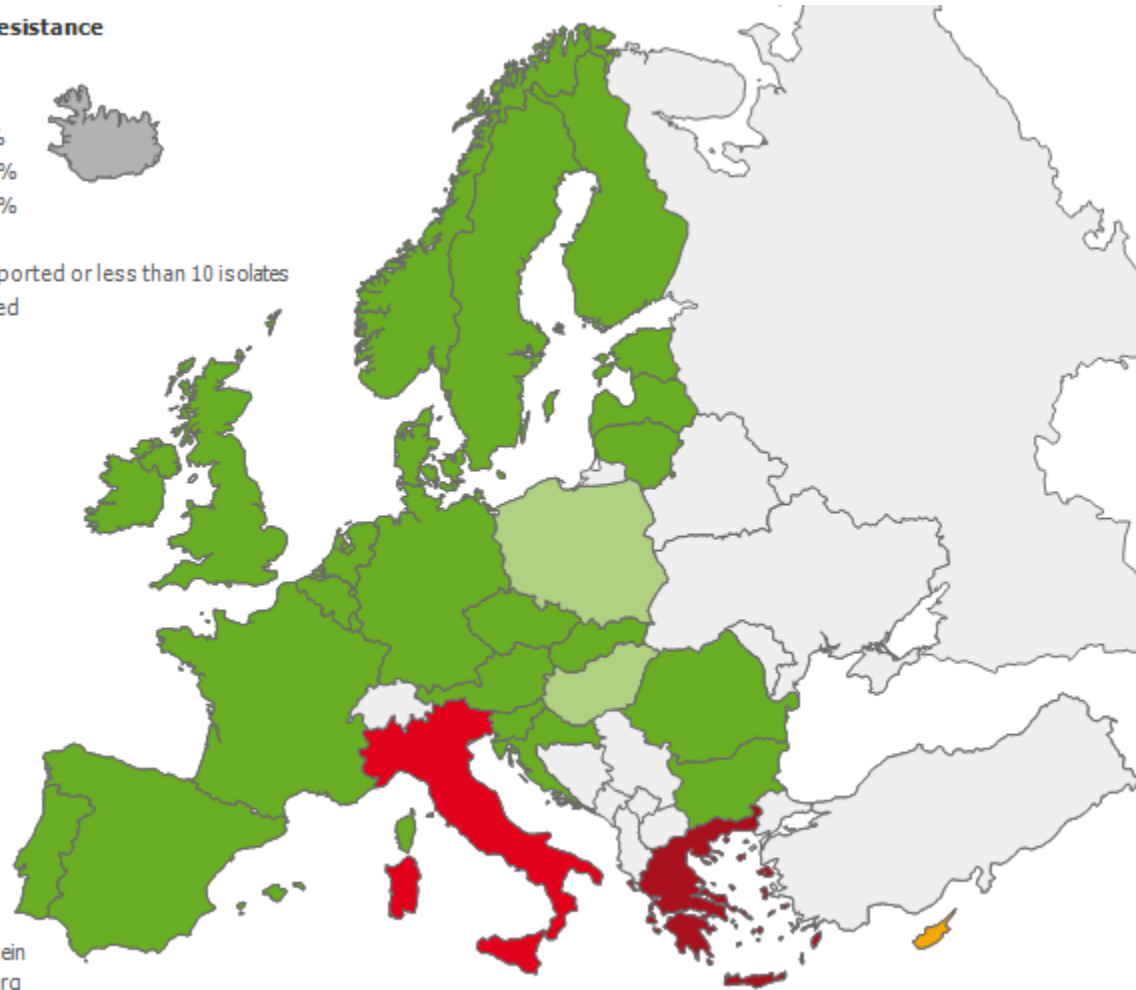
K.pneumoniae – carbapenem resistance

EARS-Net, invasive isolates, 2011

Percentage resistance



■ Liechtenstein
■ Luxembourg
■ Malta



KPC *Klebsiella pneumoniae*, Croatia, 2011



ZG KBC, Feb, Nov 2011

KPC *Klebsiella pneumoniae*, Croatia 2012

SB Krapinske Toplice

SB Novi Marof, Sep 2012

OB Zabok,
May 2012

ZG KBC, Feb, Nov 2011,

ZG SM, June 2012



KPC *Klebsiella pneumoniae*, Croatia, 2013

Čakovec, June 2013

SB Novi Marof, Sep 2012

SB Krapinske Toplice

OB Zabok,
May 2012



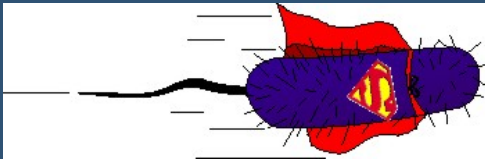
ZG KBC, Feb, Nov 2011,
March, May ... 2013

ZG SM, June 2012, April
2013

ZG SD, January, March
2013

ZG HID, July 2013

ZG KBM, June 2013



KPC *K. pneumoniae*



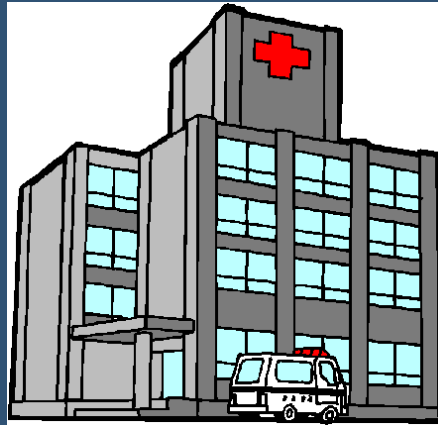
Ministry of Health



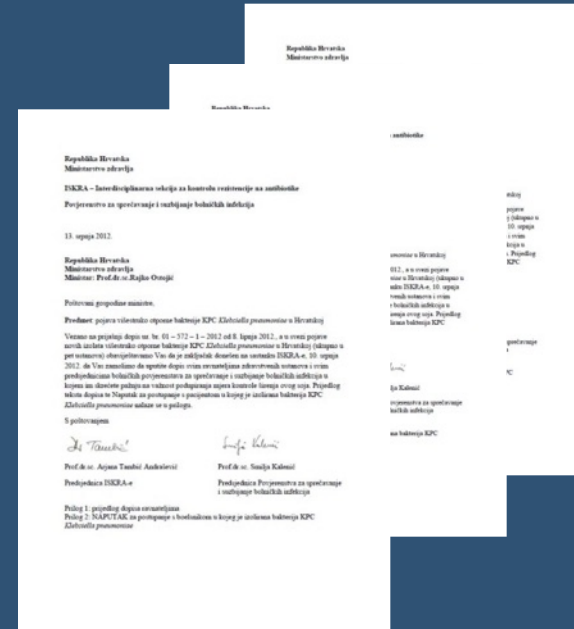
IC Committee

RC AMR

RC IC



Manager
Microbiologist
IC team



CHECKLIST for KPC *Klebsiella pneumoniae* / infected / colonized patient

| Activity | Y / N | Reason for non compliance / comments |
|---|--------------|---|
| Does the micro lab report contain “contact isolation” | | |
| Did a microbiologist directly contact IC team about the KPC isolate | | |
| Did the micro lab send the isolate to the RC for AMR surveillance | | |

CHECKLIST for KPC *Klebsiella pneumoniae* / infected / colonized patient

| | | |
|--|--|--|
| Was the patient placed in contact isolation / single room or cohorting | | |
| Did the patient use a separate sanitary facility | | |
| Were HCWs cohorted | | |

CHECKLIST for KPC *Klebsiella pneumoniae* / infected / colonized patient

| | | |
|--|--|--|
| Was education on hand hygiene (HH) and contact isolation precautions reinforced - <u>state % of staff included</u> | | |
| Was HH compliance observed (<u>% compliance for each HH moment</u>) | | |
| Are there written guidelines on contact isolation available on the ward | | |

CHECKLIST for KPC *Klebsiella pneumoniae* / infected / colonized patient

| | | |
|---|--|--|
| Was there a structured audit at the affected ward – if so, <u>what was the score %</u> | | |
| If the patient had to leave the room were HCWs providing care out of the ward informed about the need for contact isolation precautions | | |
| Was carriage status stated in patient documentation including discharge letter | | |
| If the patient was transferred to another institution was the receiving institution warned | | |

| | | |
|---|----|------------------------|
| Jesu li osigurani dezinficijens za ruke i zaštitna sredstva (rukavice, pregače) | DA | |
| Je li na odjelu proveden izvid o pridržavanju standardnih mjera i mjera kontaktne izolacije – ako je, koliki je % zadovoljavajućih nalaza | NE | |
| Ako je pacijent morao napuštati odjel jesu li o potrebi primjene mjera kontaktne izolacije obaviješteni djelatnici koji s pacijentom dolaze u kontakt | DA | |
| Je li u otpusnom pismu navedeno da je pacijent bio ili još uvijek je kliconoša KPC <i>K.pneumoniae</i> | NE | |
| Ako se pacijent premještao u drugu ustanovu / dom za umirovljenike je li o premještaju obaviješten tim za kontrolu bolničkih infekcija te ustanove | | Pacijent otpušten kući |



Otpusno pismo

[Redacted]
Otpusna dijagnoza: I61.1 - Intracerebralno krvarenje u hemisferi, kortikalno
MBOO: 144096865

boravio je u našoj Ustanovi od **25.08.2016** do **27.09.2016** Matični list: **2016 / 007514 - 2**

Nadopuna

Pristigli dodatni nalazi traženi kod otpuštenog pacijenta, učinjeni na dan otpusta.

Urin: Enterococcus faecium, Aconetobacter baumannii, Klebseiella pnemoniae KPC soj.

S obzirom na KPC soj potrebna je kontaktna izolacija.
Bris rektuma neg.

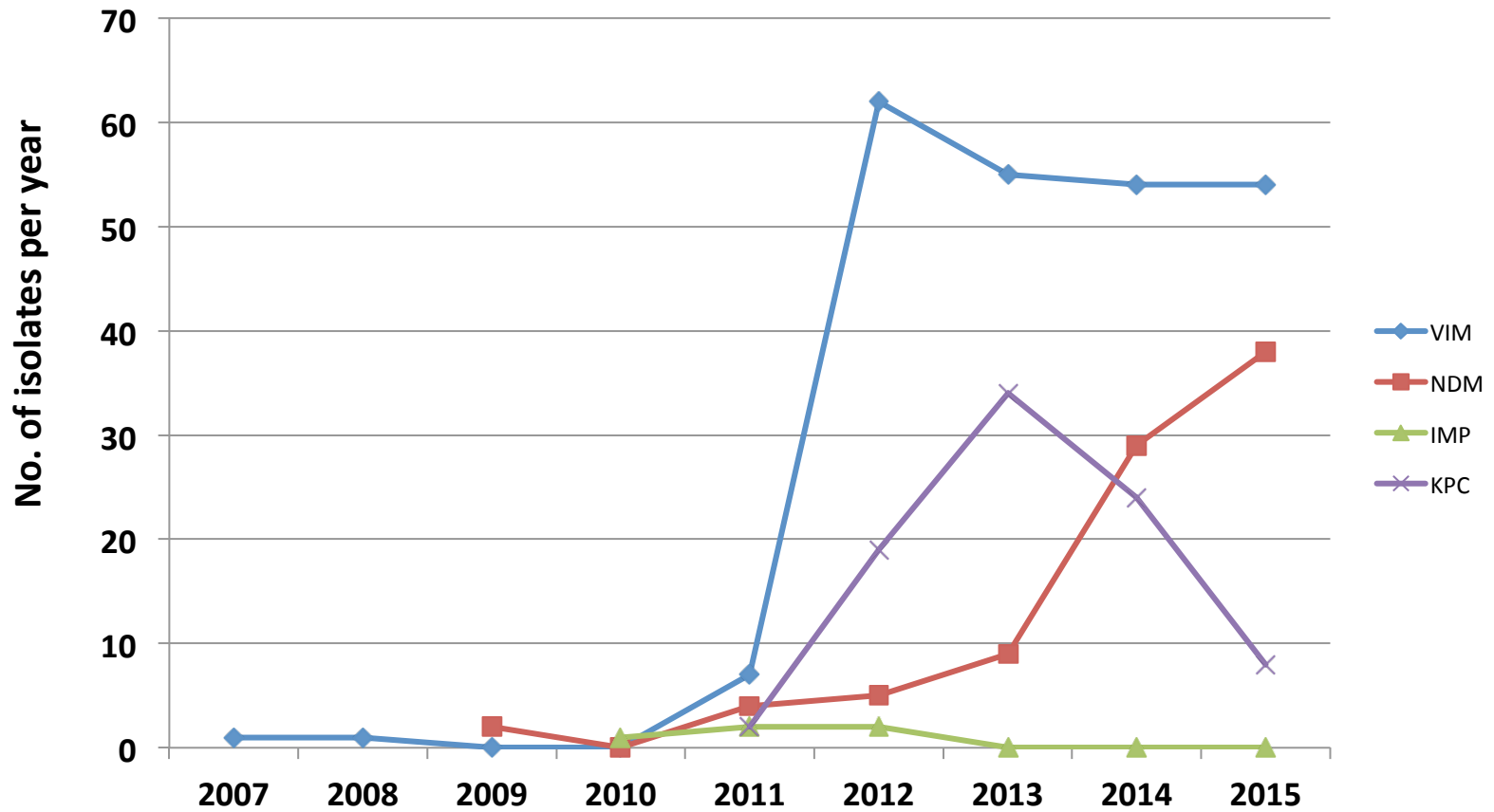
Dogovorno s službom za intrahospitalne infekcije i infektologijom potrebno je učiniti za mjesec dana kontrolni urin uz UK na KPC te tri uzastopna brisa rektuma na KPC uz kontrolu obiteljskog liječnika, te ovinso o nalazu pregled inektologa.

[Redacted]

[Redacted]

MBL and KPC producing enterobacteriaceae in Croatia, 2007-2015

Croatian Academy of Medical Sciences, Committee for Antibiotic Resistance Surveillance
Croatian Reference Center for Antibiotic Resistance Surveillance



Strategy coming to life

➤ IC Infrastructure

- space, design
- power, water, hygiene and sanitation requirements
- equipment requirements
- personel resources, education and training of healthcare workers



Inpatient "Smart Room" - Victoria Hospital - London Health Sciences Centre



IT support

- managing critical data and information
 - collecting data
 - data analysis
 - timely feedback / early warning system
- IT assisted decision making in atb prescribing





"Didn't you get my e-mail?"

Strategy coming to life

- Personal engagement
- Motivation





Thank you

