National Antibiotic Committee Malta

Malta's National Strategy and interventions against Antimicrobial Resistance (AMR)

Prof Michael A. Borg

Chair: National Antibiotic Committee – Malta

Attributable deaths and disability-adjusted life-years caused by infections with antibiotic-resistant bacteria in the EU and the European Economic Area in 2015: a population-level modelling analysis

*Alessandro Cassini, Liselotte Diaz Högberg, Diamantis Plachouras, Annalisa Quattrocchi, Ana Hoxha, Gunnar Skov Simonsen, Mélanie Colomb-Cotinat, Mirjam E Kretzschmar, Brecht Devleesschauwer, Michele Cecchini, Driss Ait Ouakrim, Tiago Cravo Oliveira, Marc J Struelens, Carl Suetens, Dominique L Monnet, and the Burden of AMR Collaborative Group**

www.thelancet.com/infection **Published online November 5, 2018**

National Antibiotic Committee Malta

In Malta, study estimates that antibiotic-resistant bacteria result in approximately (*per 100,000 population*):

- **140 infections**
- **Loss of 145 disability-adjusted life years (DALYs)**
- **8 deaths**

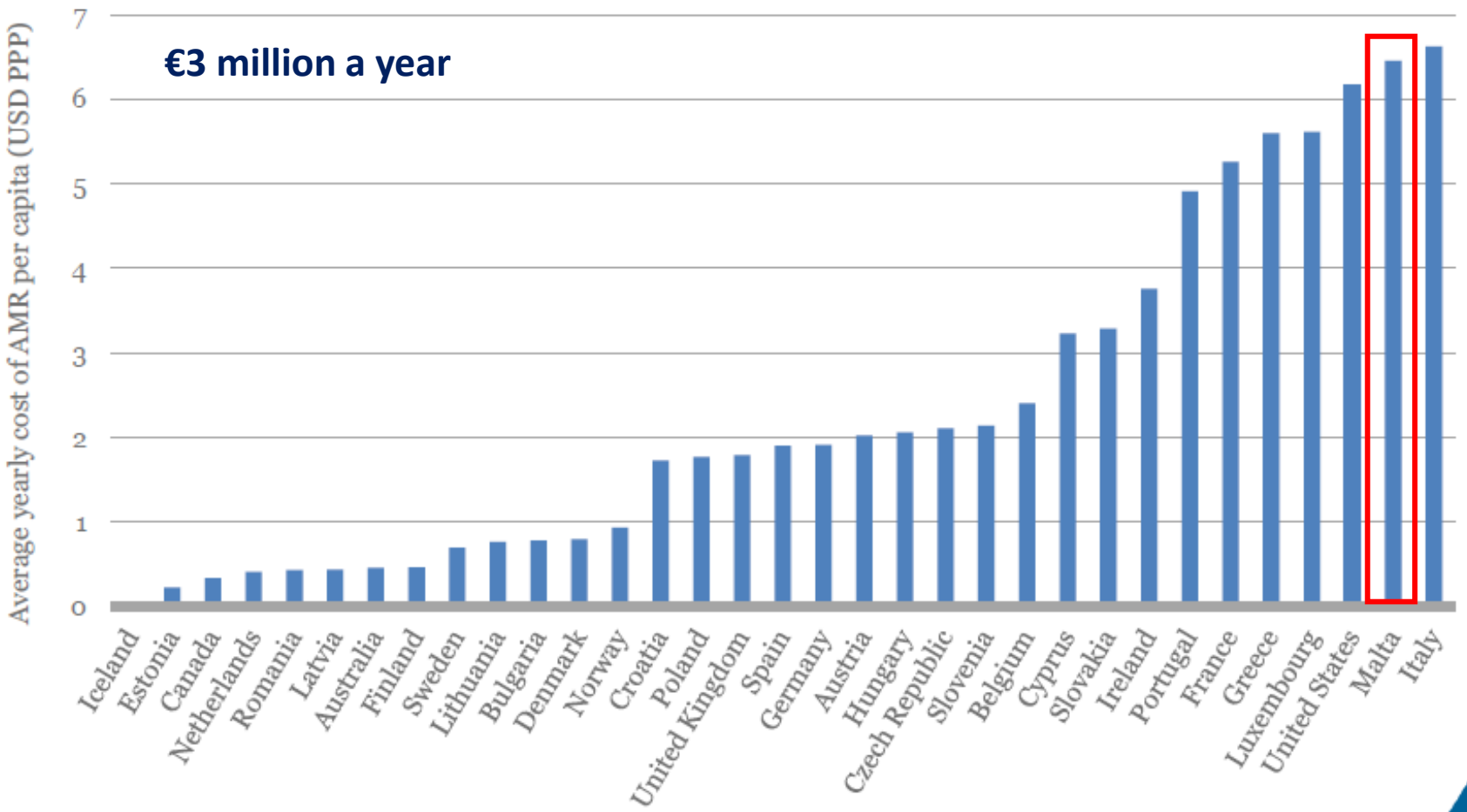
OECD Health Policy Studies

Stemming the Superbug Tide

JUST A FEW DOLLARS MORE

OECD

AMR Costs 3.5B USD PPPs per Year to the Healthcare Systems of OECD and EU Countries



Source: OECD. Stemming the Superbug Tide: just a few dollars more. 2018. oe.cd/amr-2018

AMR challenges in human health

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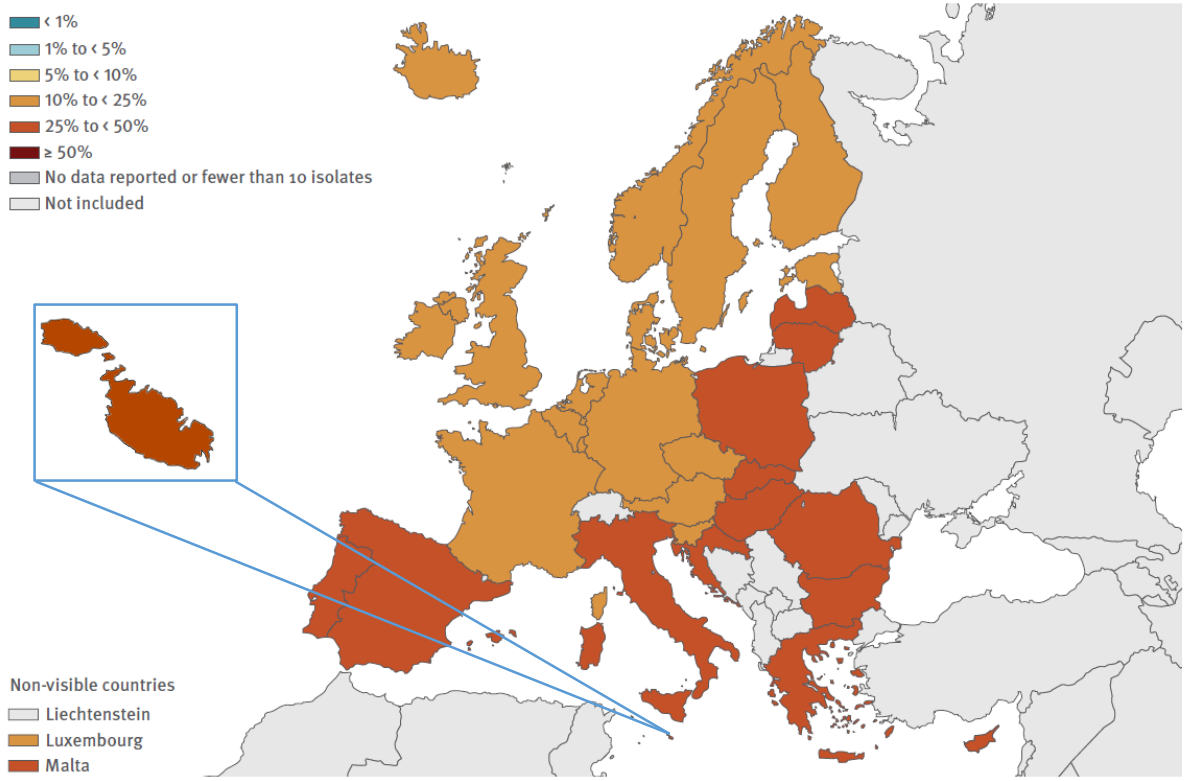
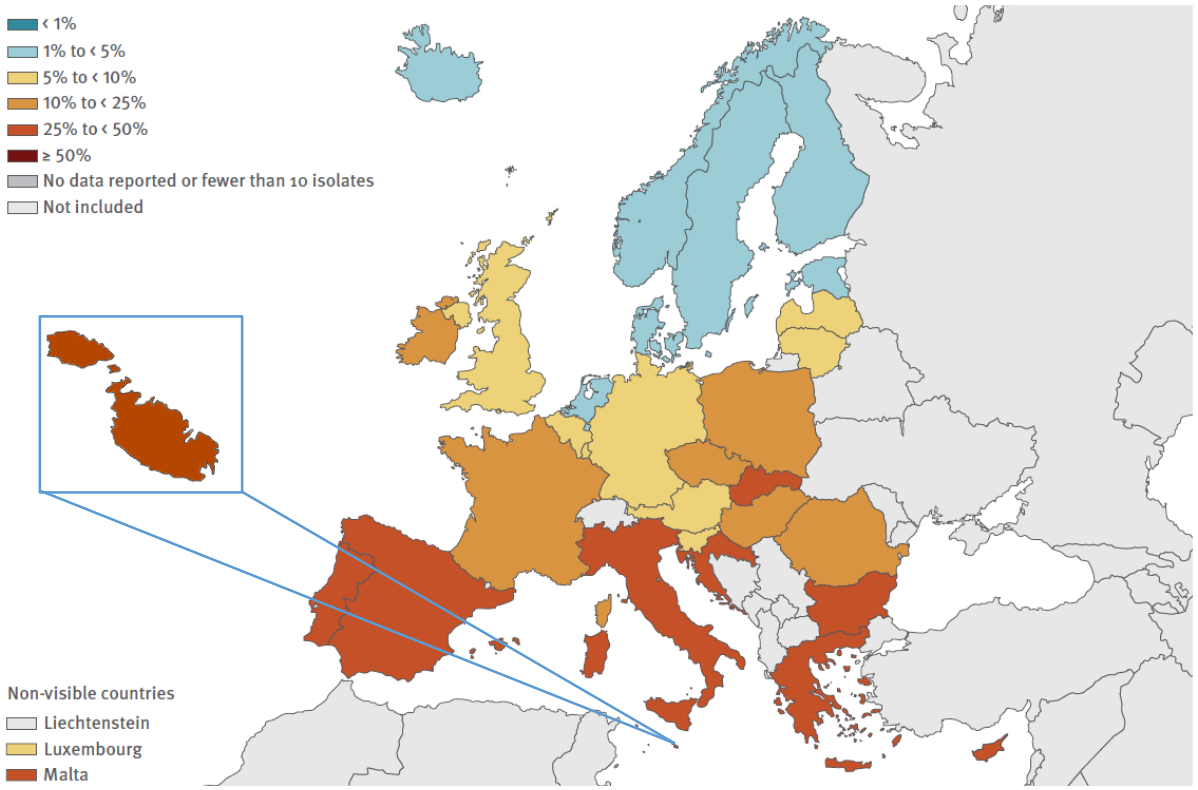
Figure 3.2. *Escherichia coli*. Percentage (%) of invasive isolates with resistance to fluoroquinolones, by country, EU/EEA countries, 2017



Quinolone resistant *E. coli*

Figure 3.25. *Staphylococcus aureus*. Percentage (%) of invasive isolates with resistance to meticillin (MRSA), by country, EU/EEA countries, 2017



Meticillin resistant *S. aureus*

Source: ECDC

Carbapenem Resistant Enterobacterieacae (CRE)

National Antibiotic Committee Malta

Table 3.12. *Klebsiella pneumoniae*. Total number of invasive isolates tested (N) and percentage with resistance to carbapenems (%R), including 95 % confidence intervals (95 % CI), EU/EEA countries, 2014 to 2017

Country	2014			2015			2016			2017			Trend 2014-2017*
	N	%R	(95%CI)	N	%R	(95%CI)	N	%R	(95%CI)	N	%R	(95%CI)	
EU/EEA (population-weighted mean)	19 617	7.3	(7-8)	21 808	6.8	(6-7)	30 148	7.4	(7-8)	32 461	7.2	(7-7)	
Portugal	1701	1.8	(1-3)	2085	3.4	(3-4)	2340	5.2	(4-6)	2720	8.6	(8-10)	↑
Malta	99	9.1	(4-17)	88	4.5	(1-11)	102	5.9	(2-12)	117	10.3	(5-17)	
Bulgaria	139	7.2	(4-13)	95	3.2	(1-9)	159	4.4	(2-9)	169	12.4	(8-18)	
Cyprus	80	5.0	(1-12)	62	12.9	(6-24)	75	10.7	(5-20)	71	15.5	(8-26)	
Romania	257	31.5	(26-38)	271	24.7	(20-30)	334	31.4	(26-37)	334	22.5	(18-27)	
Italy	1315	32.9	(30-36)	1999	33.5	(31-36)	2307	33.9	(32-36)	2634	29.7	(28-31)	↓
Greece	1088	62.3	(59-65)	1185	61.9	(59-65)	1180	66.9	(64-70)	1363	64.7	(62-67)	

AMR challenges in animal health

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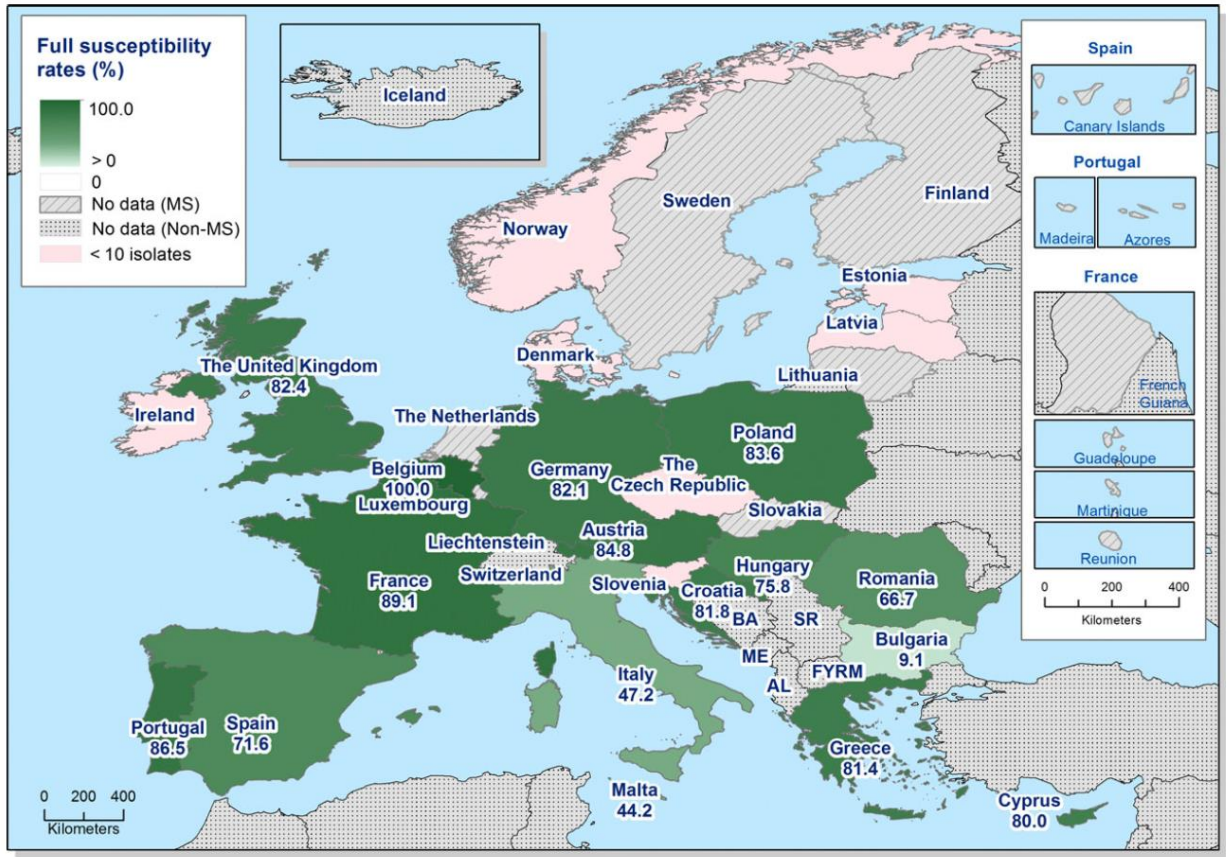
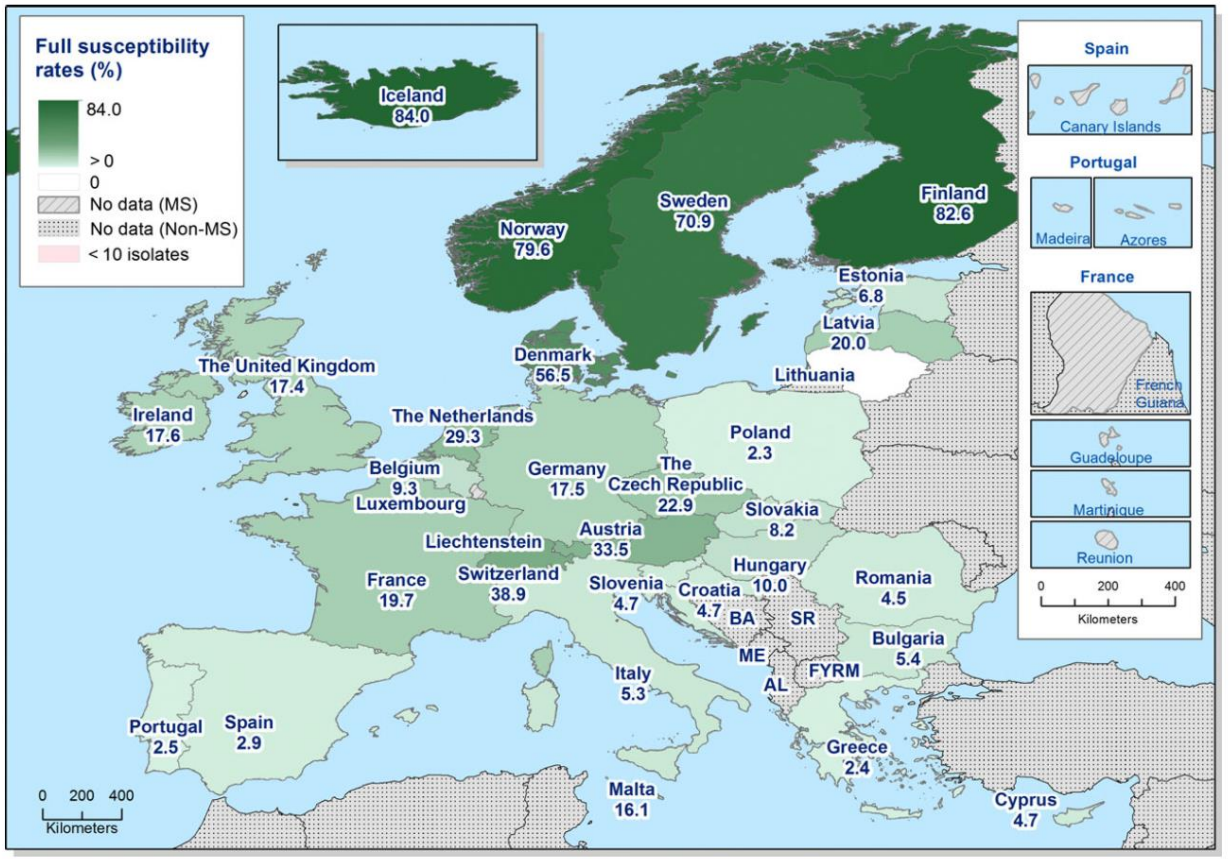
Proportion fully susceptible:



Salmonella



E. coli

Source: EFSA

European Centre for Disease Prevention and Control
An agency of the European Union

National Antibiotic Committee Malta

All topics: A to Z | News & events | Publications & data | Tools | About us

Home > Publications & data > ECDC country visit to Malta to discuss antimicrobial resistance issues, 3-7 July 2017

< Publications & data

ECDC country visit to Malta to discuss antimicrobial resistance issues, 3-7 July 2017

mission report
15 Nov 2018

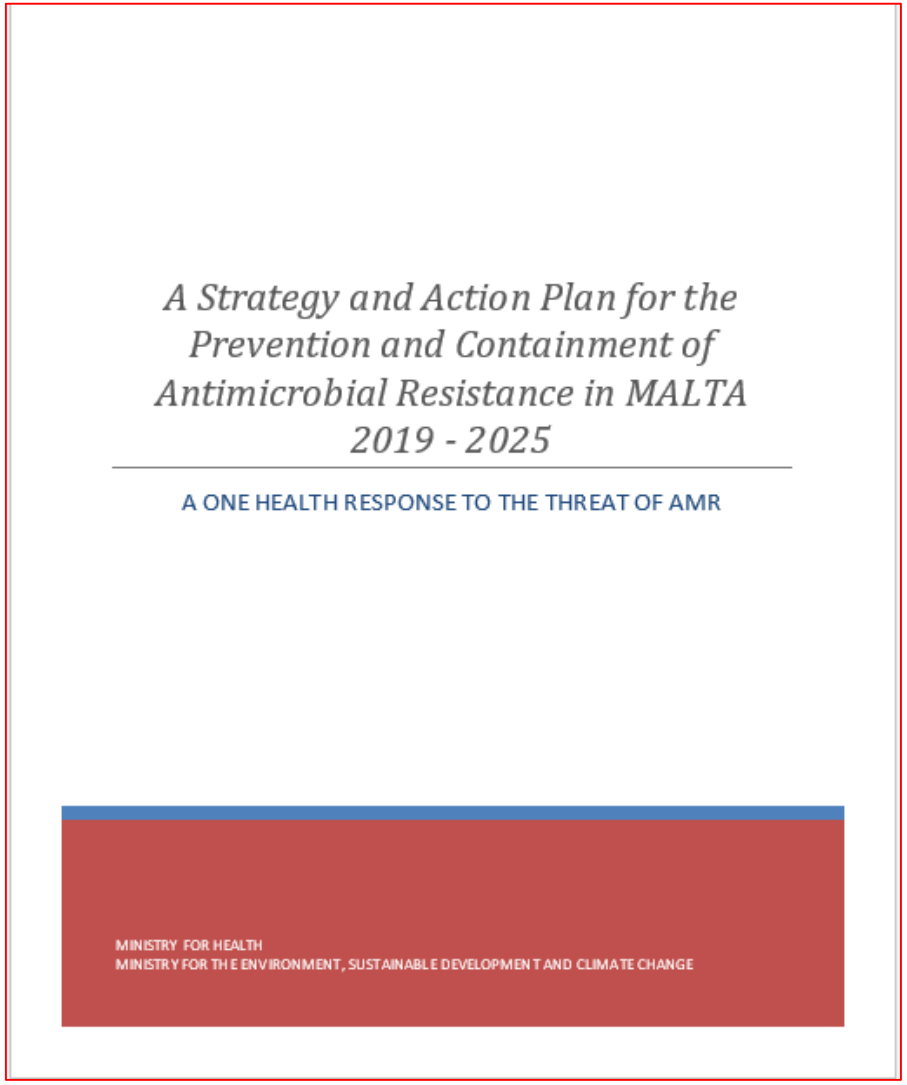
The European Centre for Disease Prevention and Control (ECDC) and the European Commission's Directorate-General for Health and Food Safety, at the invitation of the Maltese authorities, jointly carried out a country visit from 3 to 7 July 2017. The overall aim of the visit was to assist them in the further development and implementation of their

One Health AMR country visit

AMR Strategy & Action Plan

National Antibiotic Committee Malta

- Follows a “One Health” approach
  - Human health
  - Animal health
  - Environment
- Developed by a multi-disciplinary working group
- Extensive consultation with national stakeholders
- Approved by the Maltese Cabinet



Downloadable from: www.nac.gov.mt

A 4-Pronged Approach is Needed to Stem the Superbug Tide

A Strategy and Action Plan for the Prevention and Containment of Antimicrobial Resistance in MALTA 2019 - 2025

A ONE HEALTH RESPONSE TO THE THREAT OF AMR

MINISTRY FOR HEALTH
MINISTRY FOR THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE

Stewardship programmes to promote prudent use of antibiotics and end decades of over-prescription

Enhanced hygiene in healthcare settings to minimize cross-patient transmission of resistant and susceptible infections

'mixed-intervention' package

Mass media campaigns to make people aware of the risks associated with imprudent use of antibiotics

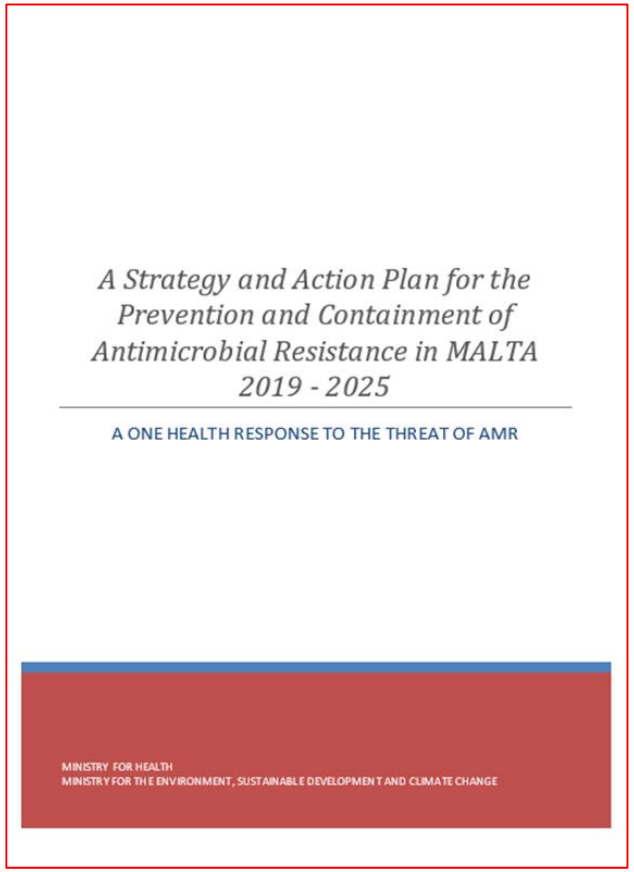
Rapid diagnostic tests to detect whether an infection requires antibiotics or not, in primary care settings

Source: OECD. Stemming the Superbug Tide: just a few dollars more. 2018. oe.cd/amr-2018

Strategy Priority Areas for Action

62 priority actions related to:

i. Legislation and infrastructure
ii. Antibiotic stewardship
iii. AMR Surveillance
iv. Infection Prevention and Control
v. Training & Education
vi. Research and Performance Measurement
vii. International partnerships and collaboration



Immediate action – animal health

- Infrastructure & legislation
  - Expand National Antibiotic Committee (Intersectorial Coordinating Mechanism) to include more animal health representative
  - Strengthen regulations
    - Antibiotic use in Animal Health
      - Address non-prescribed use
      - Mandate involvement of veterinarians on farms & accountability for practices
- Improve current surveillance systems,
  - Antibiotic resistance
  - Antibiotic use

Immediate action – human health

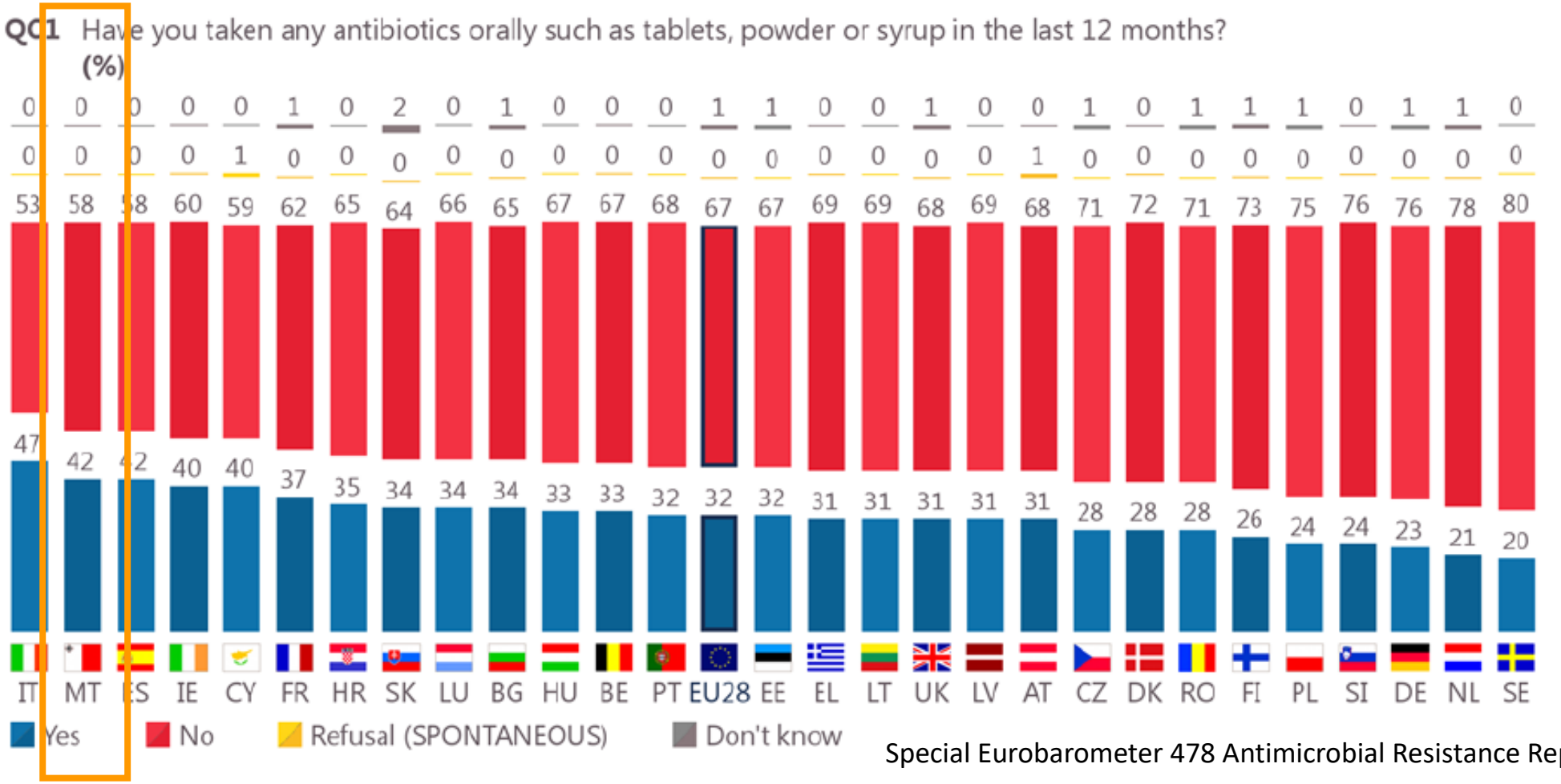
National Antibiotic Committee Malta

Makes prevention and control of CRE a national priority

- Renewed organisational CRE control strategy
  - Front line staff ownership of and accountability for the control of CRE
  - Mandatory training for all hospital staff
- Ambitious expansion of CRE screening
  - Contact tracing
  - Admission and prevalence screening
- Increased capacity needed.
  - Laboratory
  - Isolation

High use in the community

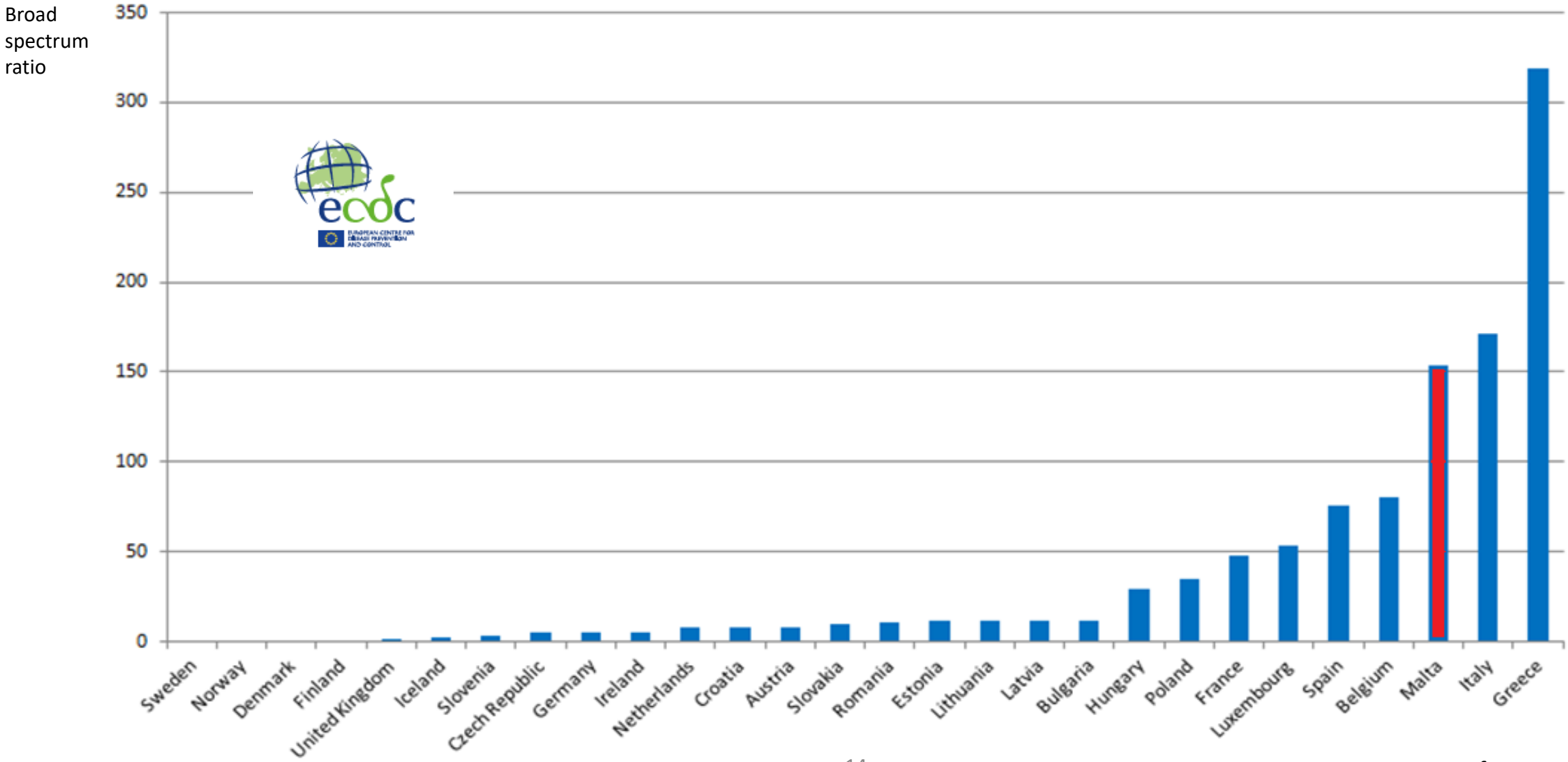
42% of respondents took antibiotics in previous 12 months



Special Eurobarometer 478 Antimicrobial Resistance Report (2018)

Use of broad spectrum antibiotics

National Antibiotic Committee Malta

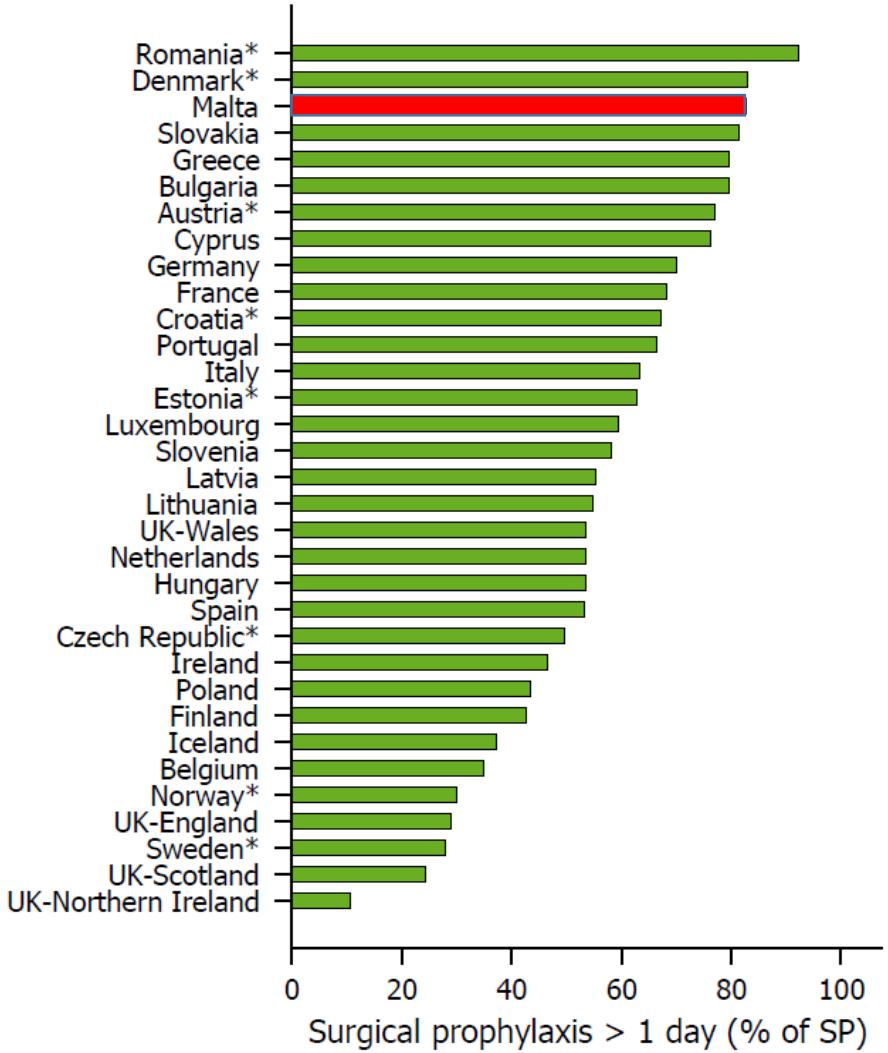


Source: European Centre for Disease Control)

Surgical prophylaxis

National Antibiotic Committee Malta

Figure 69. Surgical prophylaxis given for more than one day as a percentage of the total antimicrobials prescribed for surgical prophylaxis, by country, ECDC PPS 2011–2012



Inappropriate prescribing for colds, flu & sore throat

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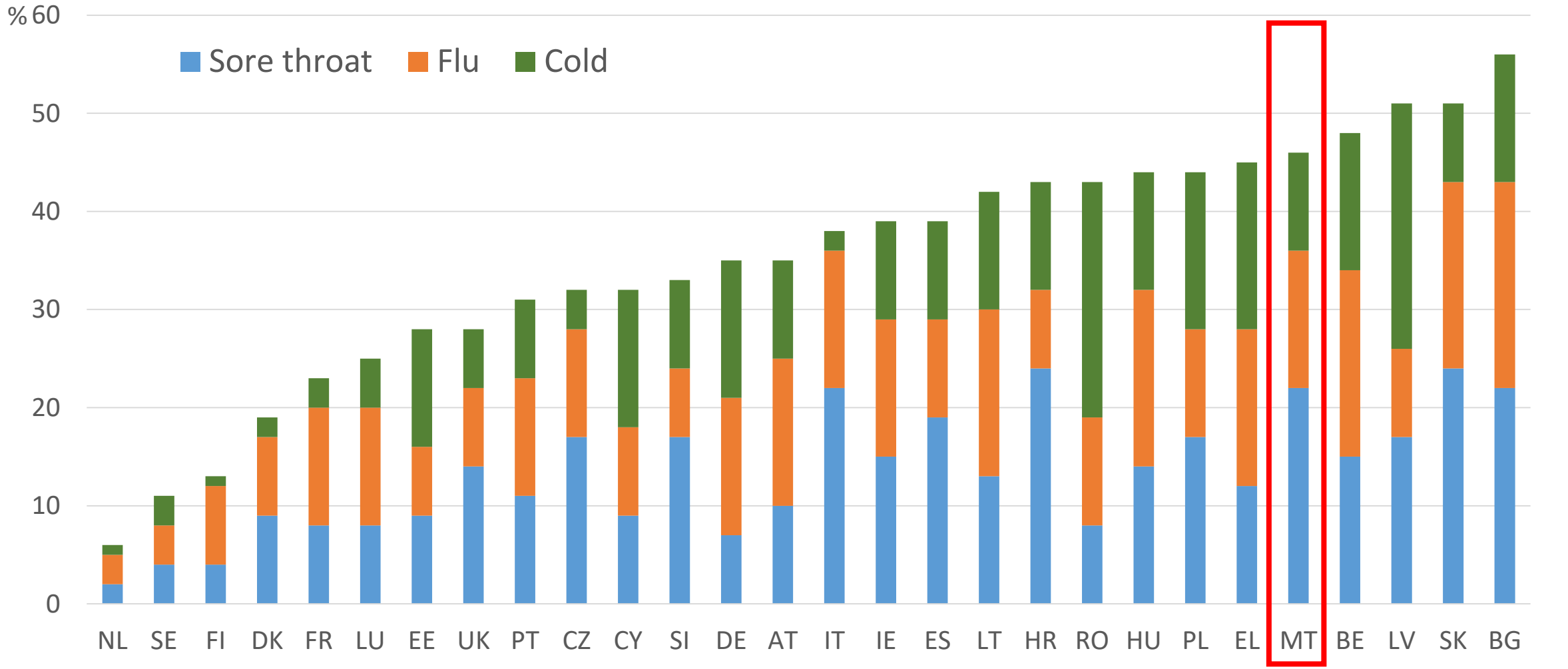
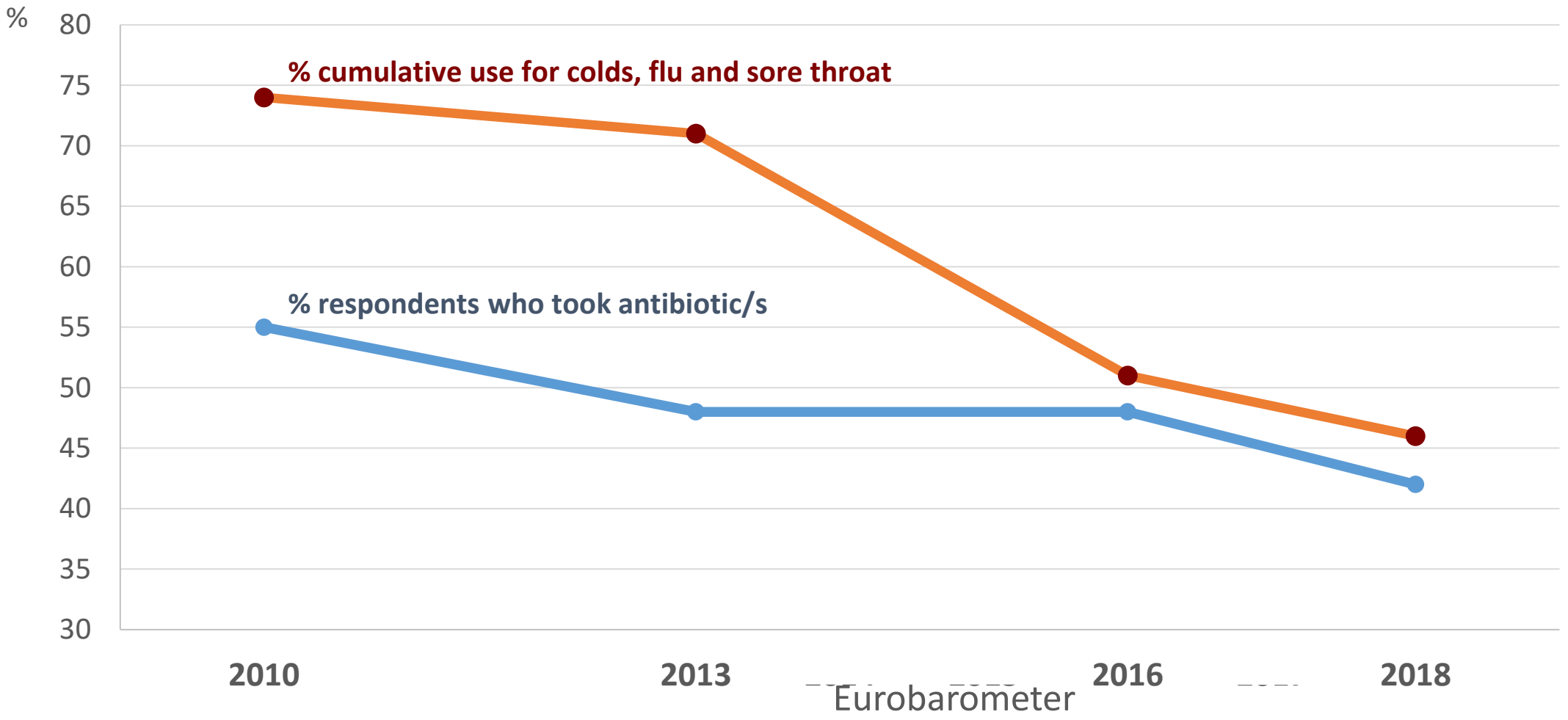


Special Eurobarometer 478 Antimicrobial Resistance Report (2018)

Eurobarometer results



J Antimicrob Chemother
doi:10.1093/jac/dkr541

Journal of Antimicrobial Chemotherapy

National cultural dimensions as drivers of inappropriate ambulatory care consumption of antibiotics in Europe and their relevance to awareness campaigns

Michael A. Borg*

J Antimicrob Chemother
doi:10.1093/jac/dkt461

Journal of Antimicrobial Chemotherapy

Prolonged perioperative surgical prophylaxis within European hospitals: an exercise in uncertainty avoidance?

Touboul-Lundgren *et al. BMC Public Health* (2015) 15:908
DOI 10.1186/s12889-015-2254-8

Journal of Hospital Infection 81 (2012) 251–256

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Understanding the epidemiology of MRSA in Europe: do we need to think outside the box?

M.A. Borg [a,*], L. Camilleri [b], B. Waisfisz [c]

Contents lists available at ScienceDirect

Journal of Infection and Public Health

journal homepage: http://www.elsevier.com/locate/jiph

Socio-economic factors, cultural values, national personality and antibiotics use: A cross-cultural study among European countries

Ümmügülsüm Gaygısız [a], Timo Lajunen [b,*], Esma Gaygısız [c]

Public Health

RESEARCH ARTICLE Open Access

Identification of cultural determinants of antibiotic use cited in primary care in Europe: a mixed research synthesis study of integrated design "Culture is all around us"

Pia Touboul-Lundgren[1,2*], Siri Jensen[3,4], Johann Drai[1,2] and Morten Lindbæk[3,4]

BMC Health Services Research

BioMed Central

Research article

Open Access

Are cultural dimensions relevant for explaining cross-national differences in antibiotic use in Europe?

Reginald Deschepper[1], Larissa Grigoryan[2], Cecilia Stålsby Lundborg[3], Geert Hofstede[4], Joachim Cohen[1], Greta Van Der Kelen[1], Luc Deliens[1] and Flora M Haaijer-Ruskamp*[2]

Address: [1]Department of Medical Sociology and Health Sciences, Vrije Universiteit Brussel, Brussels, Belgium, [2]Department of Clinical Pharmacology, University Medical Center Groningen, University of Groningen, The Netherlands, [3]Division of International Health (IHCAR), Department of Public Health Sciences, Karolinska Institutet, Stockholm and Nordic School of Public Health and Apoteket AB, Göteborg, Sweden and [4]CentER for Economic Research, University of Tilburg, The Netherlands

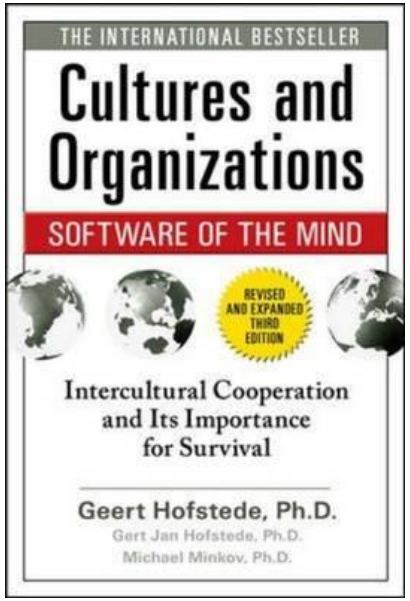
Uncertainty Avoidance

Societies differ in their ability to handle daily uncertainties of life and adapt to ambiguous situations

In high uncertainty avoidance countries, antibiotic prescribing is often used to reduce ambiguity for clinician & patient:

- Given even in dubious clinical presentations
  - "started antibiotics... just in case"
- Excessive use of wide spectrum formulations
  - "need the widest possible cover…. to be safe"
- Unnecessarily long treatment duration
  - "need to ensure treatment has been sufficient"

despite the increased and unnecessary risk of AMR



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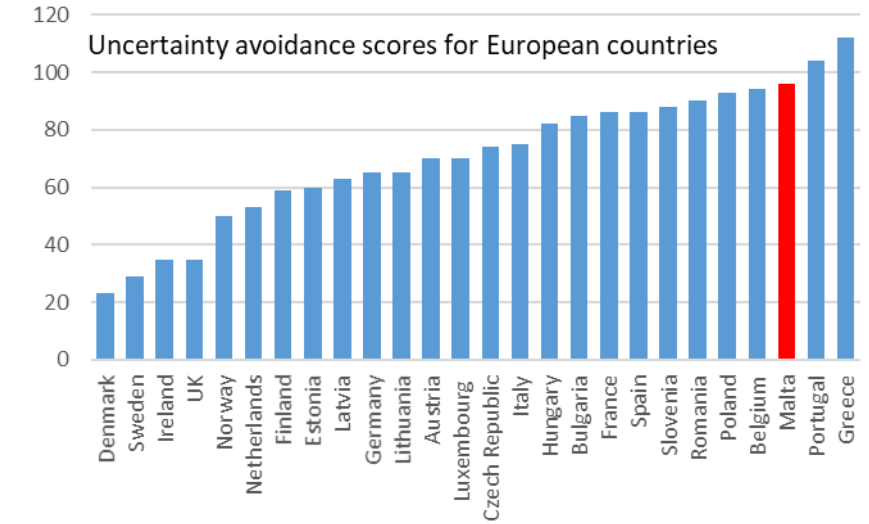
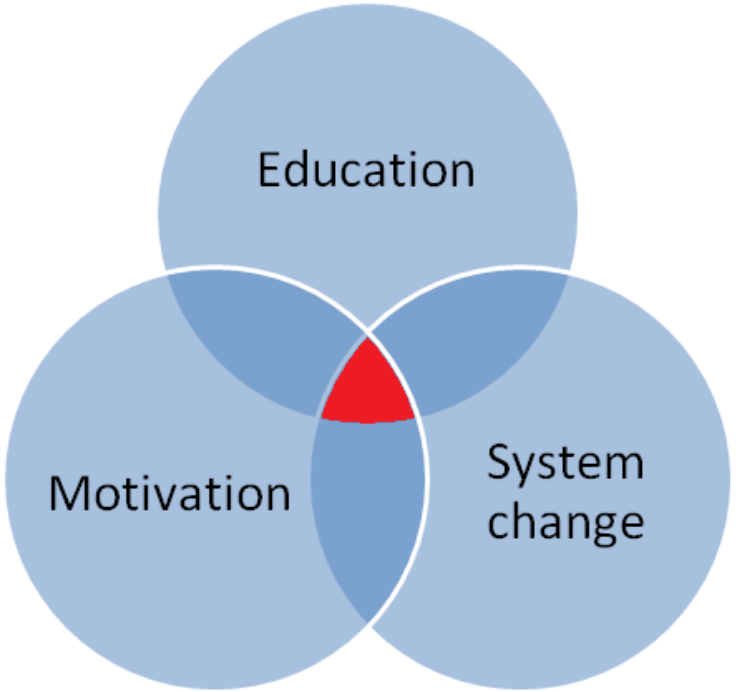


despite the increased and unnecessary risk of AMR

Behaviour change

- AMR drivers (antibiotic mis-use & infection prevention practices) are significantly influenced by anthropological & behavioural factors
- Initiatives that are purely “medical” in nature (e.g. guidelines) are unlikely to succeed on their own
- “*Culture eats strategy for breakfast*” Drucker
  - Copy & paste solutions are doomed to fail
- Need to learn from behaviour and implementation sciences to properly inform and plan our AMR interventions
  - Multimodal approaches essential



Non-prescribed antibiotic use

National Antibiotic Committee Malta

International Journal of Antimicrobial Agents 20 (2002) 253–257

INTERNATIONAL JOURNAL OF Antimicrobial Agents

www.isochem.org

Original article

Over-the-counter acquisition of antibiotics in the Maltese general population

Michael A. Borg *, Elizabeth Anne Scicluna

Infection Control Unit, St. Luke's Hospital, Guardamangia MSD 07, Malta

Received 28 January 2002; accepted 17 April 2002

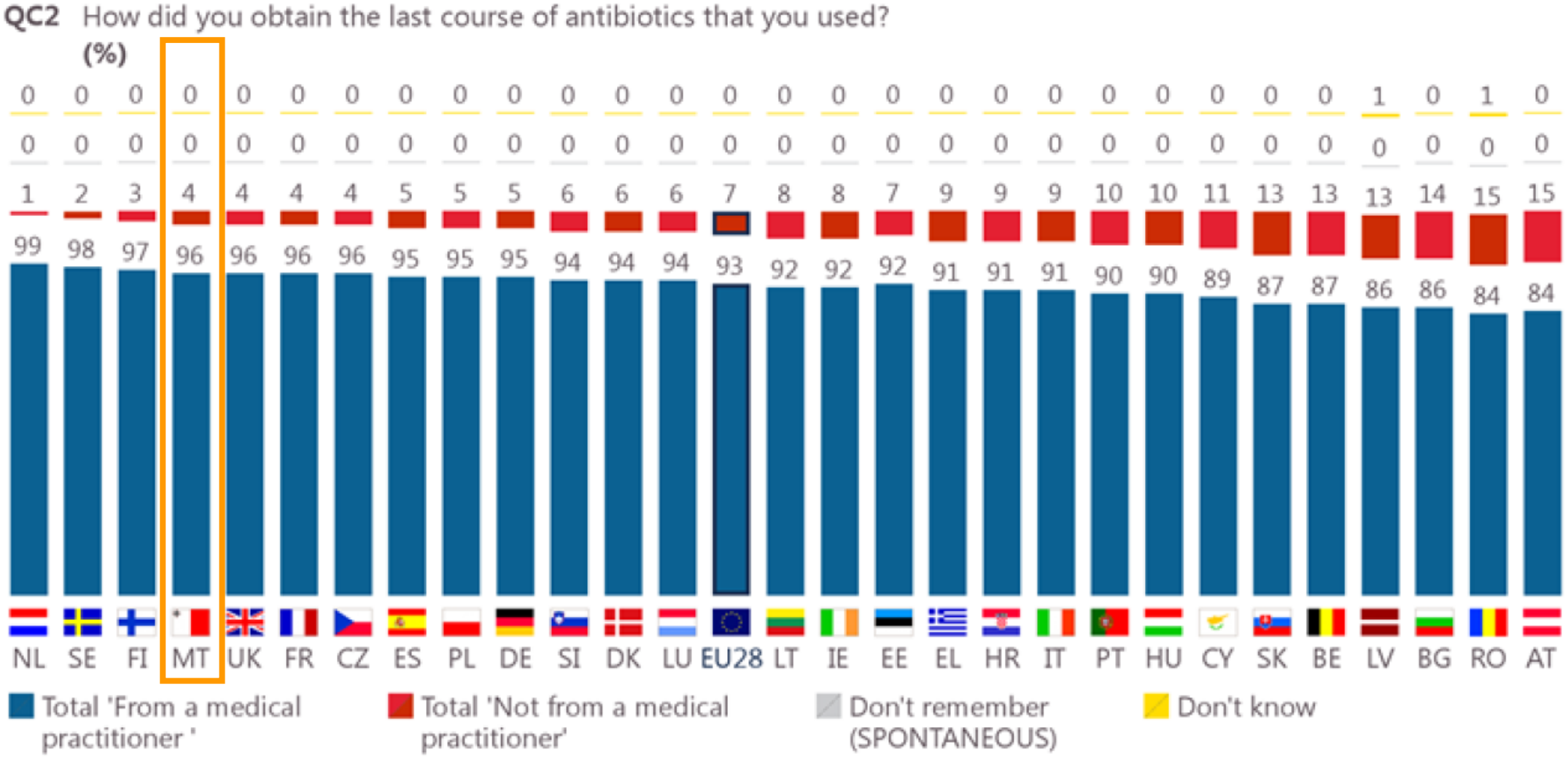
Non-prescribed antibiotic use

National Antibiotic Committee Malta

Proportion of Maltese respondents who stated that they had obtained antibiotics from a pharmacy or other sources without a doctor's prescription.

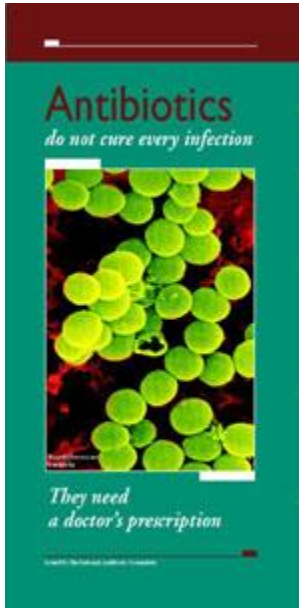
Non-prescribed antibiotic use

National Antibiotic Committee Malta



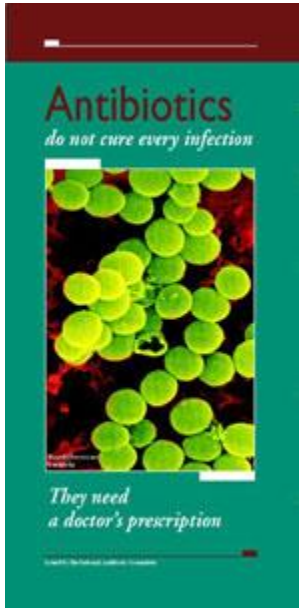
Addressing non-prescribed use

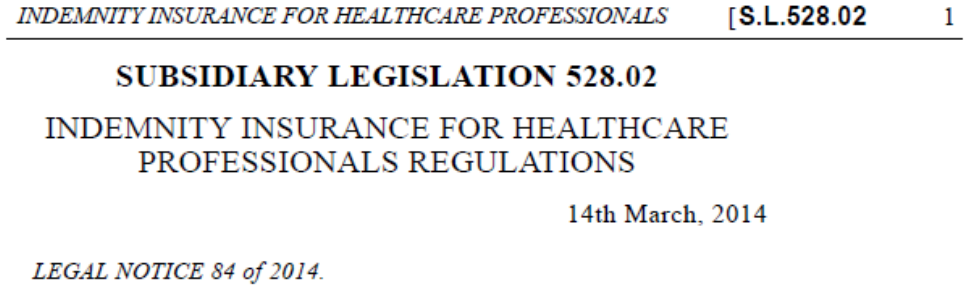
- Education
  - Public campaign highlighting that antibiotics are prescription only medicines and harm from self-use
- Motivation
  - Intensified regulatory inspections of private pharmacies to identify over-the-counter dispensing



Addressing non-prescribed use

- Education
  - Public campaign highlighting that antibiotics are prescription only medicines and harm from self-use
- Motivation
  - Intensified regulatory inspections of private pharmacies to identify any over-the-counter dispensing
- System change
  - Requirement for indemnity insurance
    - Excluded cover for POM medicines dispensed without a doctor's prescription




INDEMNITY INSURANCE FOR HEALTHCARE PROFESSIONALS [S.L.528.02 1

SUBSIDIARY LEGISLATION 528.02

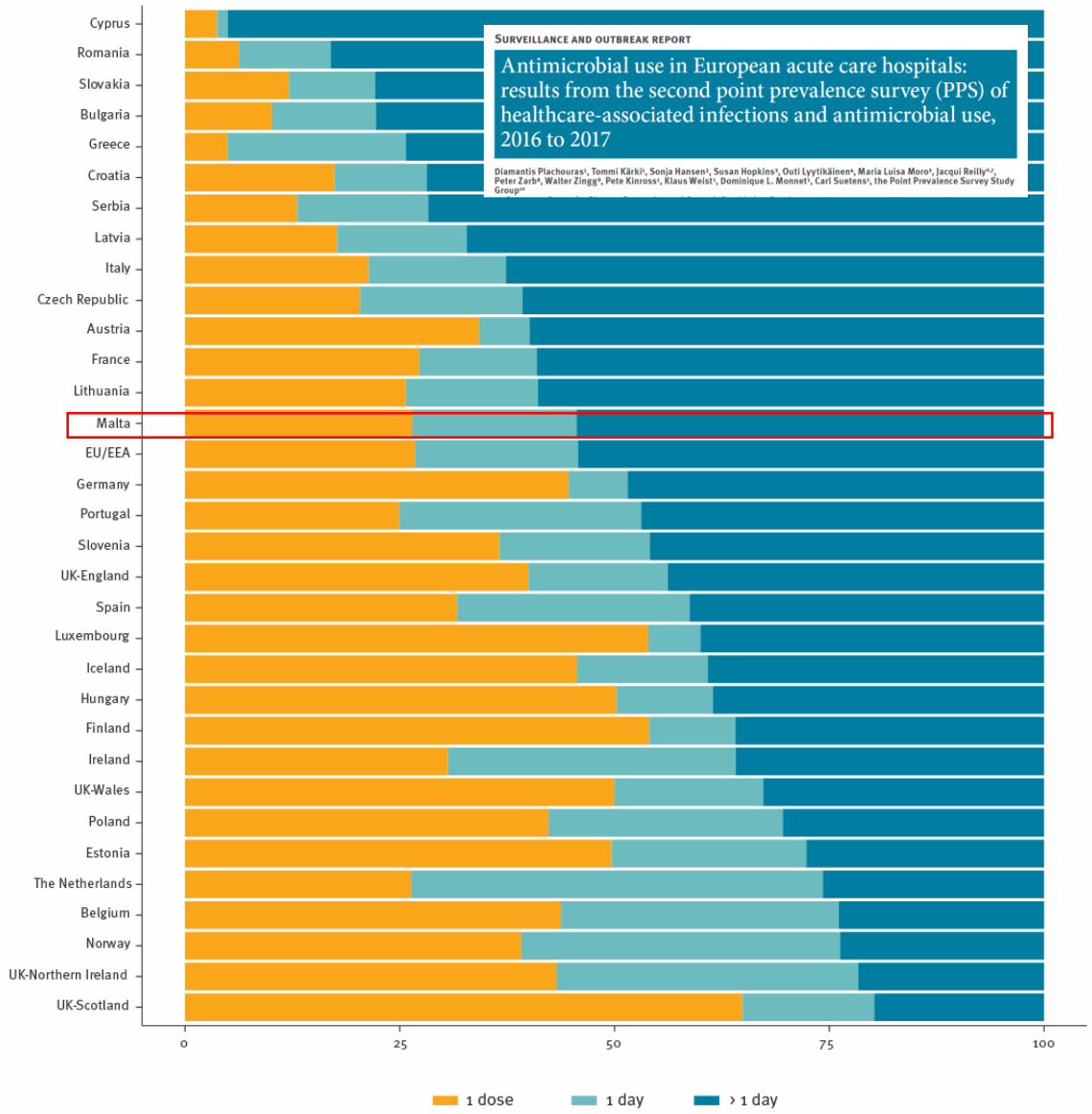
INDEMNITY INSURANCE FOR HEALTHCARE PROFESSIONALS REGULATIONS

14th March, 2014

LEGAL NOTICE 84 of 2014.

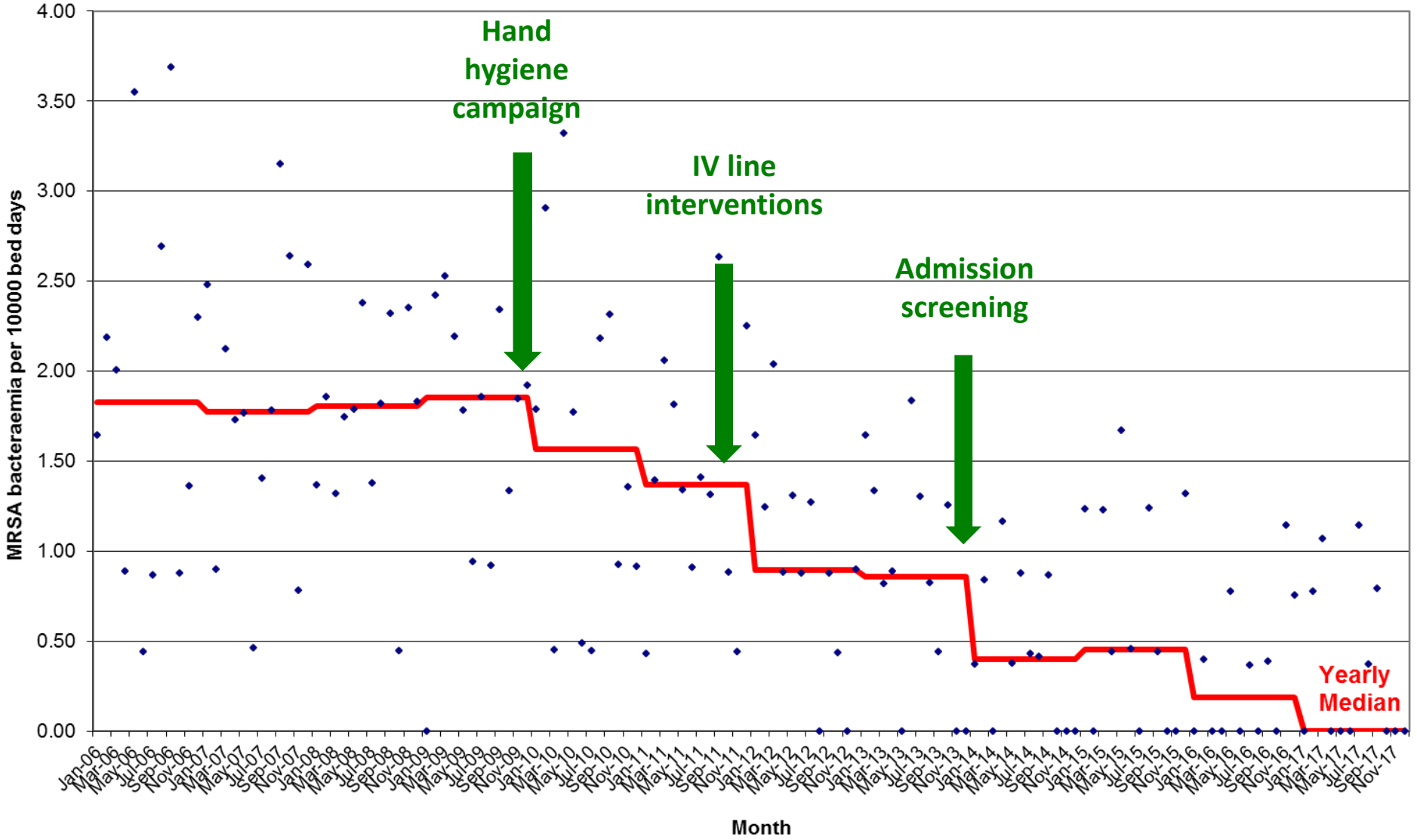
Antibiotic prophylaxis

- Education
  - Guidelines simplified
    - Widely disseminated in hospitals
- Motivation
  - Yearly audits
  - Feedback to surgeons
- System change
  - Prophylaxis included in mandatory pre-operative assessment clinics
    - Choice, dose and duration need to be stated
    - Stop-orders to be included in operation documentation



Healthcare associated MRSA bacteraemia: a multimodal approach

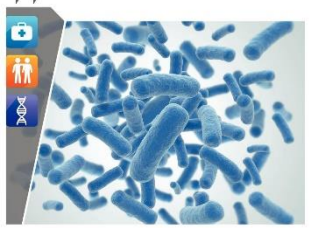
National Antibiotic Committee Malta



Conclusion

National Antibiotic Committee Malta

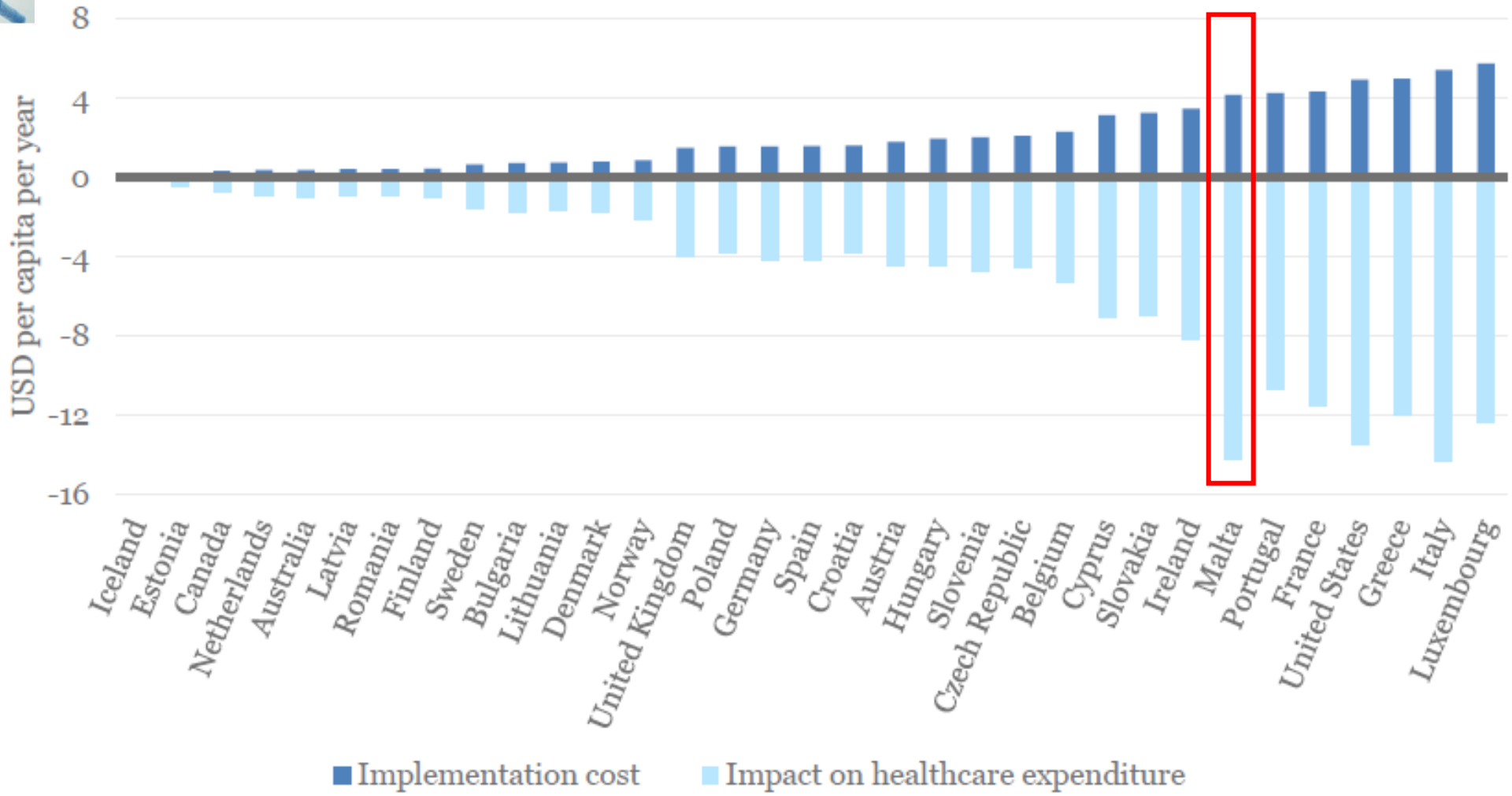
- Like other high prevalence countries in south/east Europe, we face numerous AMR challenges in both human and animal health
- AMR is ultimately the end product of systems…
    - *"…. these high levels of AMR appear to be accepted by stakeholders throughout the healthcare system, as if they were an unavoidable state of affairs."*
- Our strategy and action plan will be essential to approach system change in a comprehensive and effective manner
    - Instil urgency; provide institutional support; foster leadership and coordination
- Our goal will be a tangible and consistent improvement in processes
    - Antibiotic prescribing; infection prevention & control; MDRO screening; educational activities
- Neither easy nor straightforward!
    - It will require significant investment but…



OECD

National Antibiotic Committee Malta

Economic assessment of the 'mixed-intervention' package: just a few dollars more lead to substantial savings in healthcare expenditure



Note: * Including effect on susceptible infections

Source: OECD. Stemming the Superbug Tide: just a few dollars more. 2018. oe.cd/amr-2018

Thank you

Contributors to the National AMR strategy:

Dr. Gunther P. Abela

Dr. Roberto Andrea Balbo

Dr. Paul Caruana

Prof. Maria Cordina

Ms. Claire Farrugia

Ms Dolores Gauci

Dr. David Pace

Dr. Maya Podesta

Mr. Stephen Spiteri

Dr. Anthony Azzopardi

Dr. Annalise Buttigieg

Dr. Susan Chircop

Dr. Beatrice Farrugia

Dr. Charmaine Gauci

Dr. Tanya Melillo

Dr. Tonio Piscopo

Ms. Elizabeth Scicluna

Dr. Peter Zarb