Achievements and lessons learned

- *WHO-EURO-CAESAR-*

Marcello Gelormini
Control of Antimicrobial Resistance
WHO European Region

ReLAVRA+ Meeting

13 July 2022, Medellin, Colombia

3 achievements we are proud of

3 things we would like to improve

3 new challenges/projects for the future

Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR)

AMR surveillance in the WHO European Region

National Institute for Public Health and the Environment
Ministry of Health, Welfare and Sport

1998 → EARSS

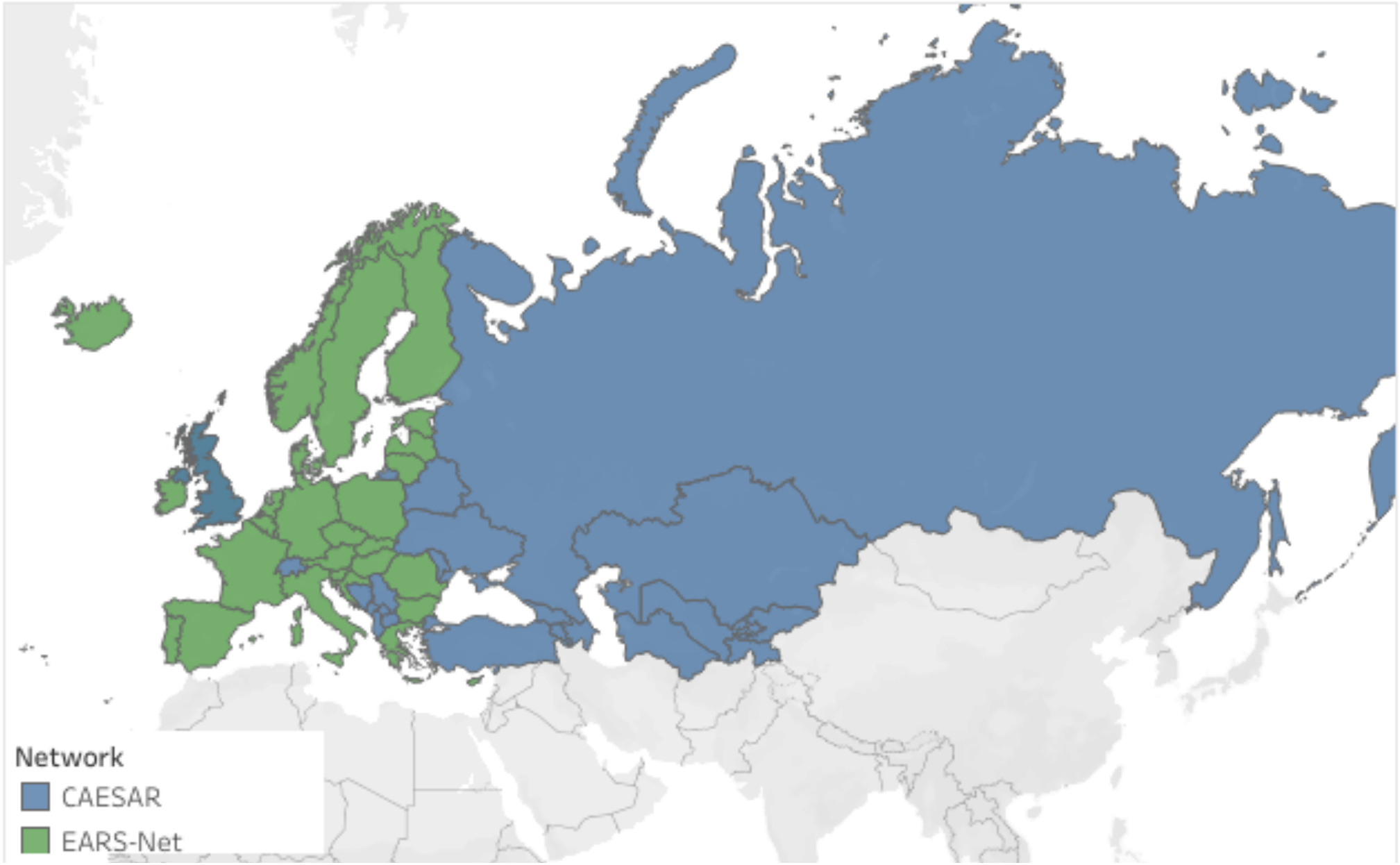
2010 → ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL → EARS-Net

National Institute for Public Health and the Environment
Ministry of Health, Welfare and Sport

2012 → World Health Organization European Region →

CAESAR network

ESCMID EUROPEAN SOCIETY OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES

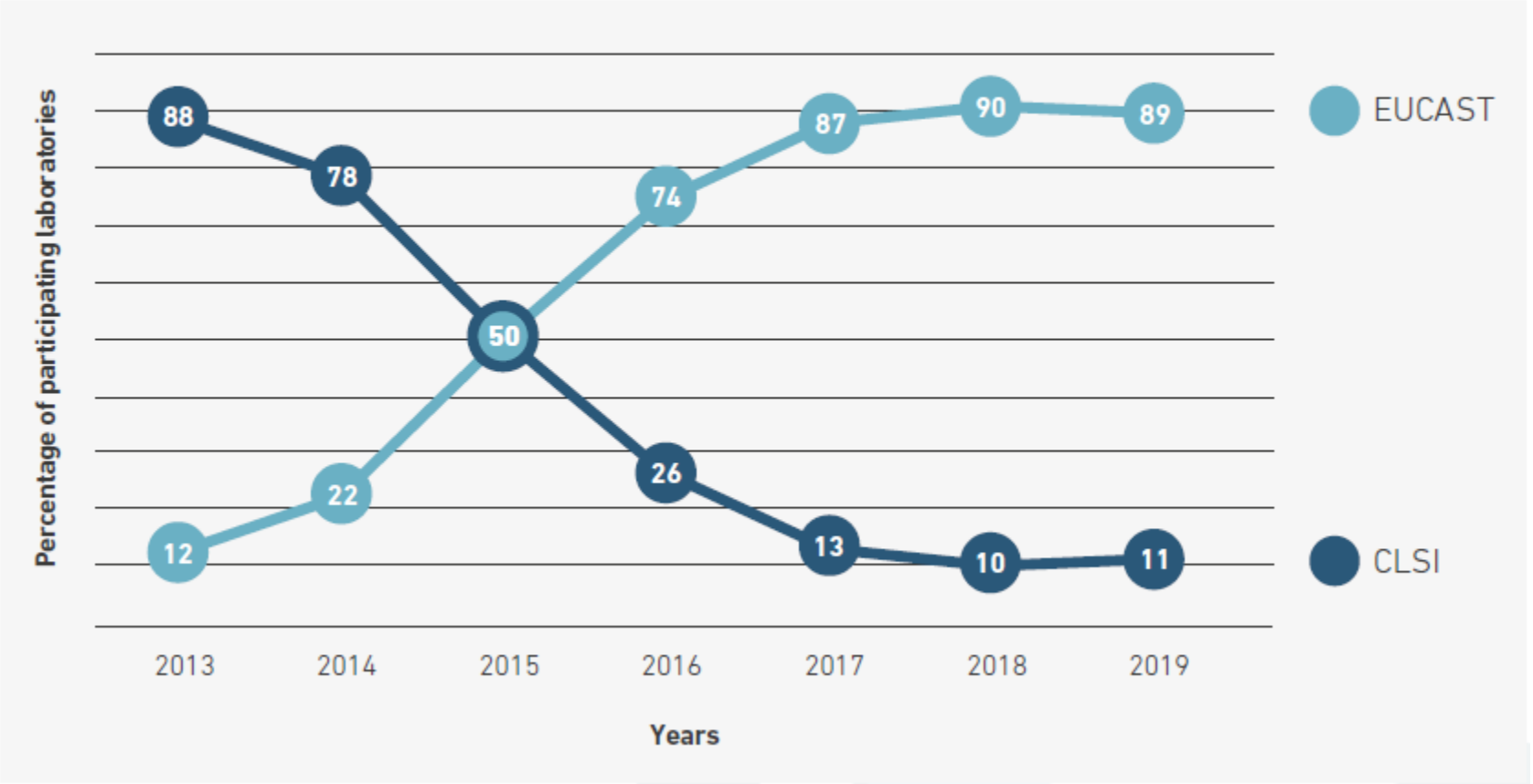

Network
CAESAR
EARS-Net


Increase membership
Increase data quality

3 achievements we are proud of

Adoption of EUCAST methodology

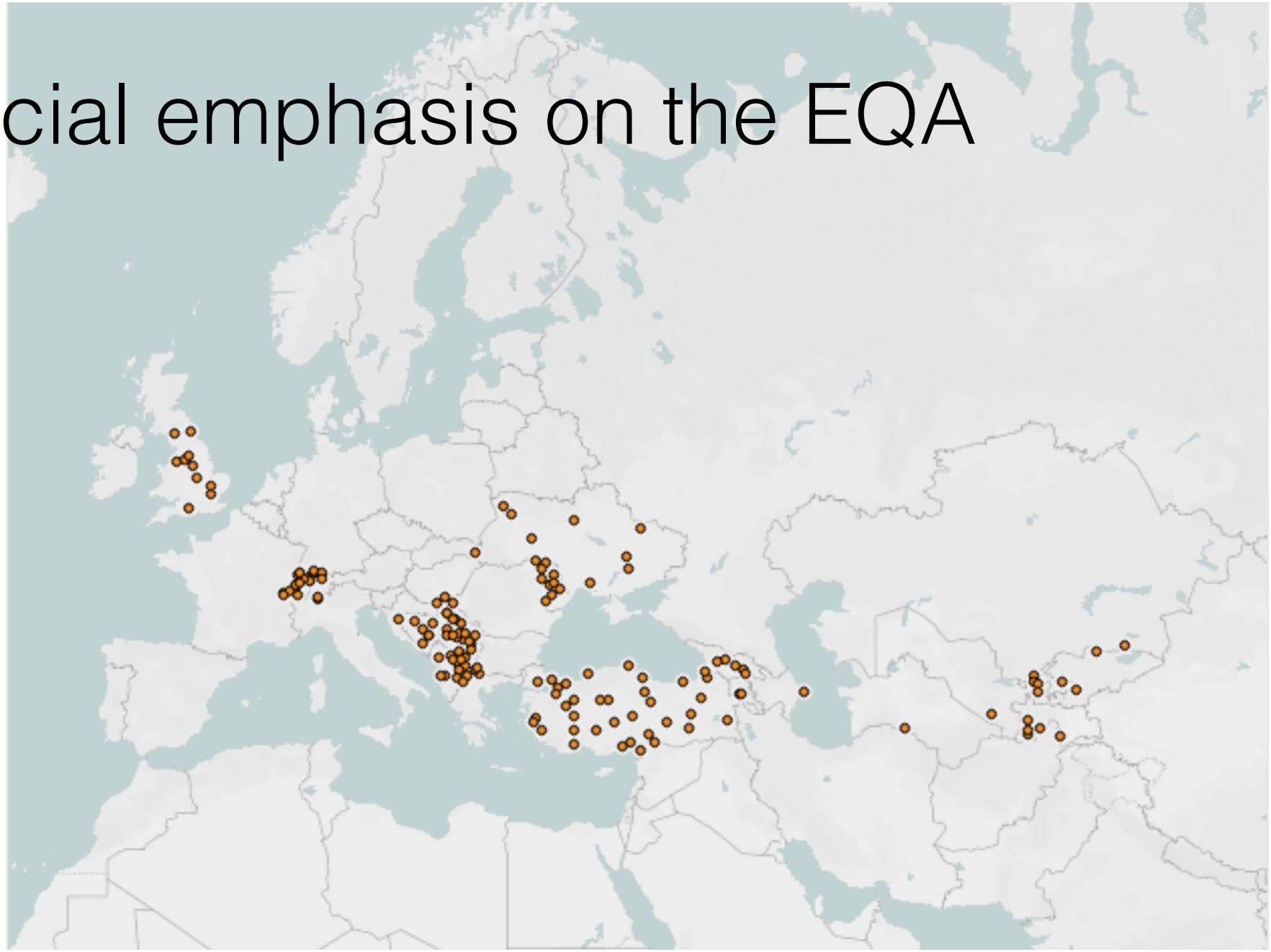
Fig. 8.3 Trends in AST guidelines used by CAESAR EQA participating laboratories, 2013–2019



Source: Central Asian and European Surveillance of Antimicrobial Resistance, Annual report 2020

CLSI: 15 laboratories
EUCAST: 262 laboratories

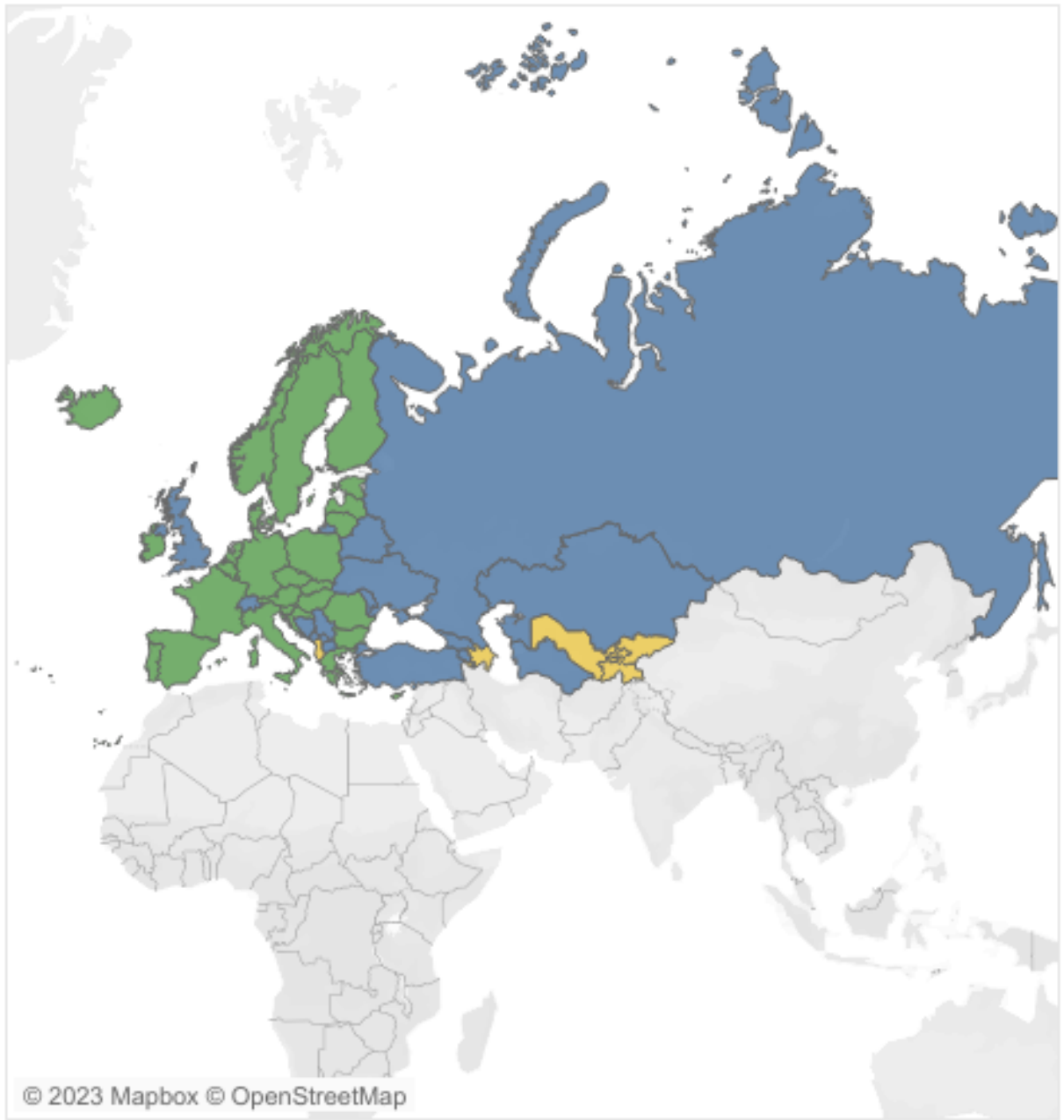
Special emphasis on the EQA



An international network of microbiologists

3 things we would like to improve

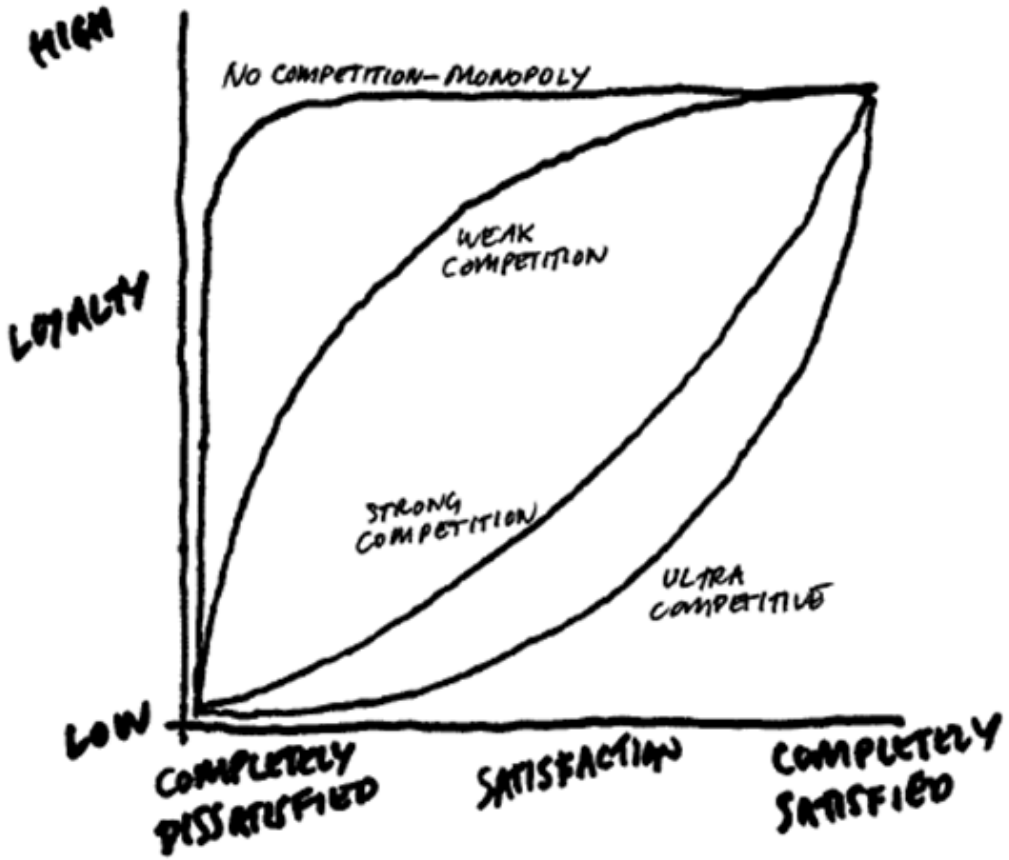
2022



Focus on data quality

Routine exercise

Move away from linear thinking



Source: http://markets2mountains.com/basics-of-mastery/

Source: **Linear Thinking in a Nonlinear World, HBR, 2017**

3 new challenges/projects for the future

Beyond common pathogens

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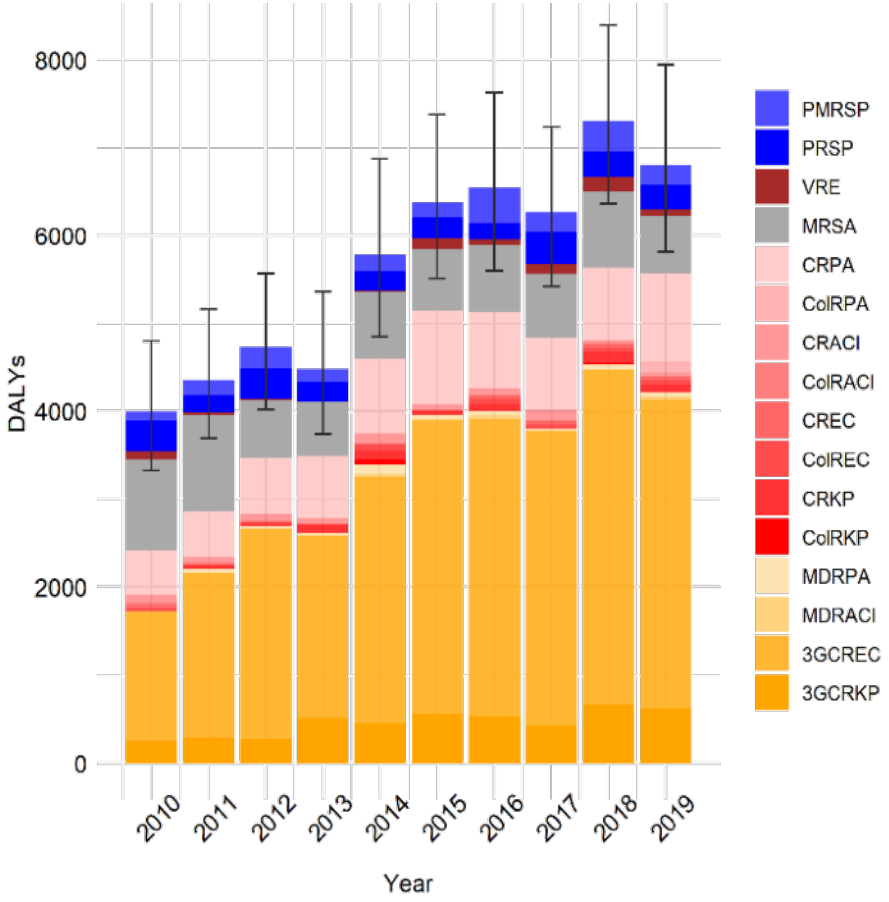
Highly multidrug-resistant Gram-negative bacterial infections in war victims in Ukraine, 2022

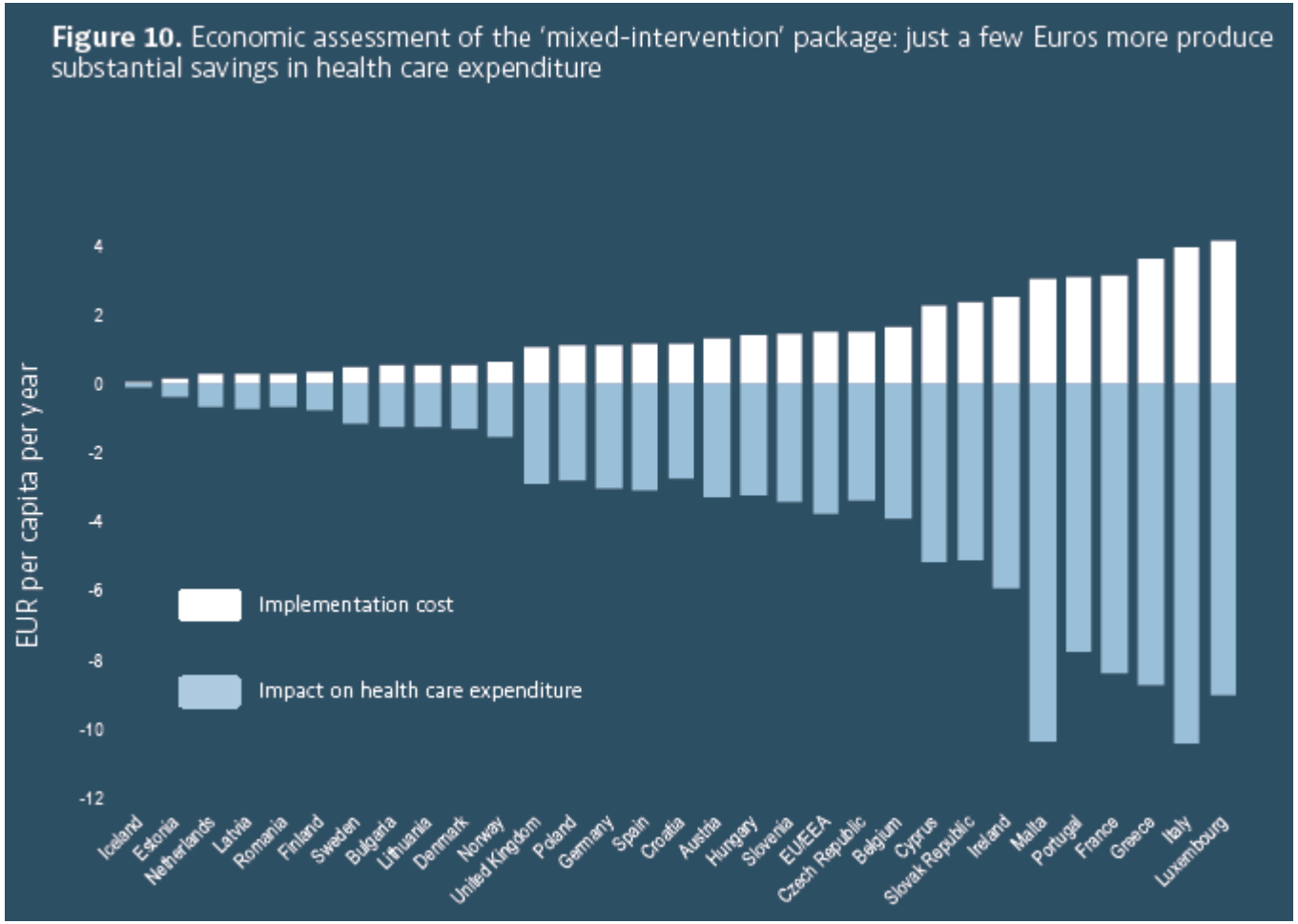
Oskar Ljungquist • Oleksandr Nazarchuk • Gunnar Kahlmeter • Vigith Andrews • Thalea Koithan • Lisa Wasserstrom • et al. Show all authors

Published: May 23, 2023 • DOI: https://doi.org/10.1016/S1473-3099(23)00291-8

Burden of AMR



Source: Gasser M., "Associated deaths and disability-adjusted life-years caused by infections with antibiotic-resistant bacteria in Switzerland 2010-2019" presentation at CAESAR Network Meeting 2022



Source: ECDC and OECD (2019), Antimicrobial Resistance Tackling the Burden in the European Union

Disease	Cases (95% C.I.)		Deaths (95% C.I.)		DALY per 100 k (95% C.I.)		DALY (%)
Third-generation cephalosporin-resistant *E. Coli*	42,978.2	(41463.3 - 44498.2)	2,128.8	(1979.6 - 2301.0)	80.3	(75.6 - 85.2)	17.6
Third-generation cephalosporin-resistant *K. pneumoniae*	17,835.6	(17277.1 - 18401.9)	1,215.3	(1160.0 - 1271.3)	69.0	(65.0 - 73.2)	15.1
Carbapenem-resistant *E. coli*	2,338.4	(2257.0 - 2427.9)	226.4	(204.3 - 248.0)	9.7	(8.9 - 10.6)	2.1
Carbapenem-resistant *K. pneumoniae*	11,185.8	(10769 - 11617.4)	1,882.1	(1685.9 - 2077.6)	71.0	(64.6 - 77.6)	15.5
Multidrug-resistant *Acinetobacter* spp.	53,968.8	(52134.6 - 55750.6)	2,979.2	(2656.8 - 3312.1)	131.6	(119.9 - 143.4)	28.8
Multidrug-resistant *P. aeruginosa*	6,554.3	(6328.2 - 6779.8)	704.0	(602.0 - 803.5)	30.9	(27.0 - 34.8)	6.8
MRSA	1,2631	(12258.9 - 13032.0)	917.2	(880.2 - 957.6)	44.4	(42.4 - 46.5)	9.7
Penicillin-resistant and macrolide-resistant *S. pneumoniae*	804.7	(763.0 - 844.5)	62.3	(58.5 - 66.4)	3.1	(2.9 - 3.4)	0.7
Penicillin-resistant *S. pneumoniae*	662.7	(631.8 - 696.1)	51.4	(48.3 - 54.6)	2.9	(2.6 – 3.0)	0.6
Vancomycin-resistant *E. faecalis* and *E. faecium*	5,380.1	(5215.3 - 5551.4)	274.7	(264.9 - 284.1)	14.4	(13.8 – 15.0)	3.1
	154,339.6		**10,441.4**		**457.3**		**100**

EQA: focus on NRLs and new scoring system

- **Severity of the Error** (Major error/Very major error):

- **Level of Difficulty** (High/Low): this depends on how close the MIC is to the breakpoint (purely mathematical)

  Include also all drug-bug combinations with ATU also “High”?

- **Level of Complexity** (High/Low): this is related to AST methodological issues

  Colistin (which requires BMD)

  S. aureus and vancomycin (which requires MIC determination)

  AST of *S. pneumoniae* in general (which requires MH-F)

  S. pneumoniae and penicillin, cefotaxime and ceftriaxone (which require MIC determination)

  Basically any other test than disk diffusion?

Thank you