

NOS CONNAISSANCES SUR L'IMPACT DES IAS ET DE LA PCI POUR LES PRÉVENIR

FORUM HYGIÈNE HOSPITALIÈRE – 7 NOVEMBRE 2023

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MERCI À L'UNITÉ HPCI VAUD



Office du médecin cantonal

HPCI | hygiène, prévention et
contrôle de l'infection

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Date 0711/2023

IMPACT DES IAS

GLOBAL BURDEN OF HAI

- Globally, hundreds of millions of people every year are affected by health care-associated infections (HAIs), many of which are completely avoidable
 - No country or health system, even the most developed or sophisticated, can claim to be free of HAIs
 - out of every 100 patients, 7 in high- and 15 in low-/middle-income countries (LMIC) will acquire at least one HAI, in acute care hospitals
 - 1 in every 10 affected patients dies of HAI
 - 8.9 million HAIs occur every year in acute and long-term care facilities in EU/EEA



Higher risk populations are the hospitalized, those in ICUs, infants and other fragile

Sources:

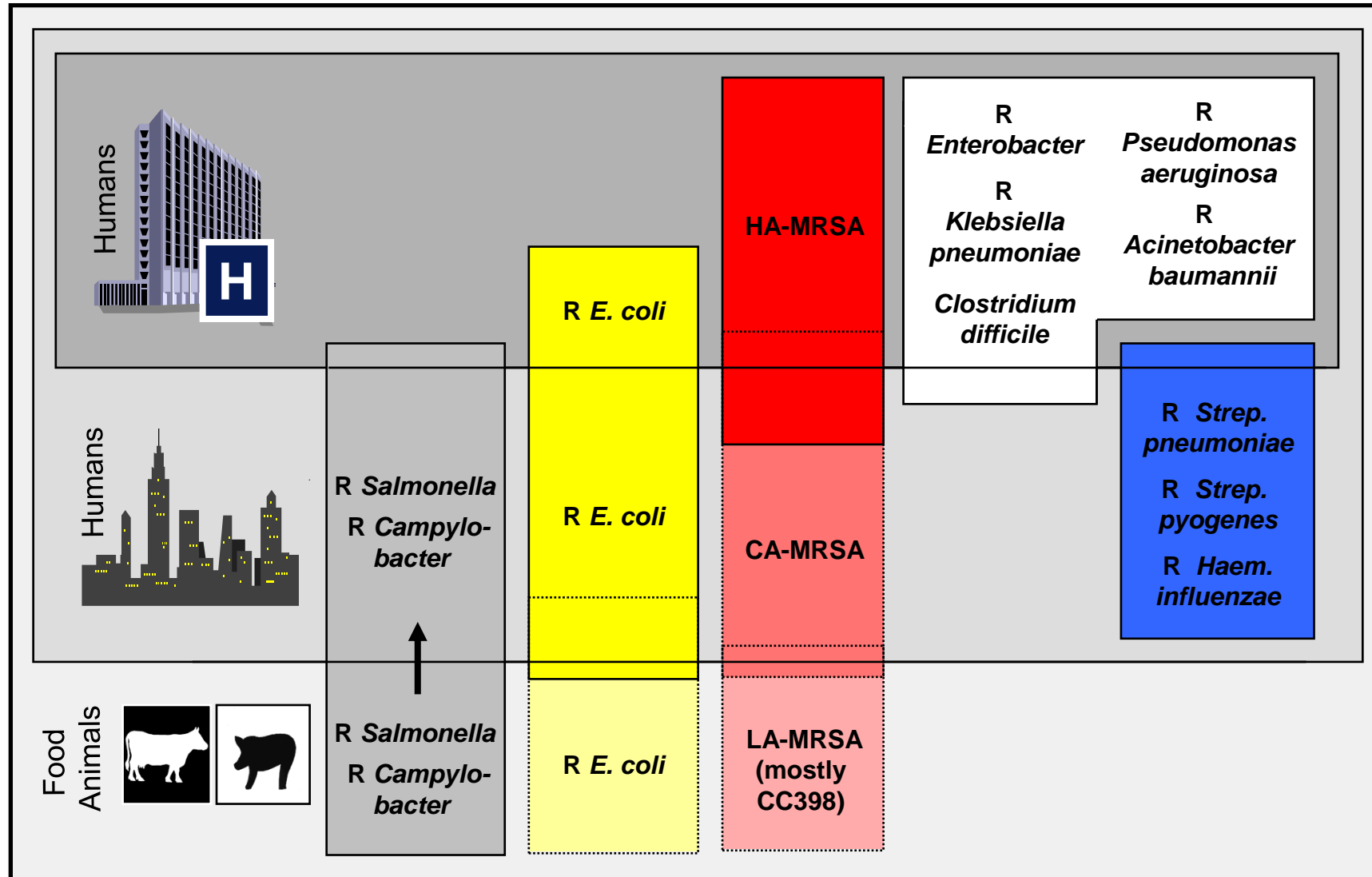
- Report on the burden of endemic health care-associated infection worldwide. Geneva: World Health Organization; 2011. <https://apps.who.int/iris/handle/10665/80135>
- Allegranzi B, et al. Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis. *Lancet* 2011;377(9761):228-41.
- Suetens et al. Prevalence of healthcare-associated infections, estimated incidence and composite antimicrobial resistance index in acute care hospitals and long-term care facilities: results from two European point prevalence surveys, 2016 to 2017. *Euro Surveill.* 2018;23(46):pii=1800516. <https://doi.org/10.2807/1560-7917.ES.2018.23.46.1800516>

LITTLE HAS CHANGED BETWEEN PPS1 AND PPS2

	PPS in acute care hospitals 2011-12	PPS in acute care hospitals 2016-17
Number of facilities, EU/EEA countries	947 hospitals, 30 countries	1209 hospitals, 28 countries
Number of included patients/residents	231 459	310 755
Patients with at least one HAI on any given day	5.7% (4.5-7.4%) 1 in 18 patients	5.5% (4.5–6.7%) 1 in 15 patients
Estimated total number of HAIs <u>each year</u> in EU/EEA	3.5 million (1.9-8.2)	3.2 million (2.2-4.8)*

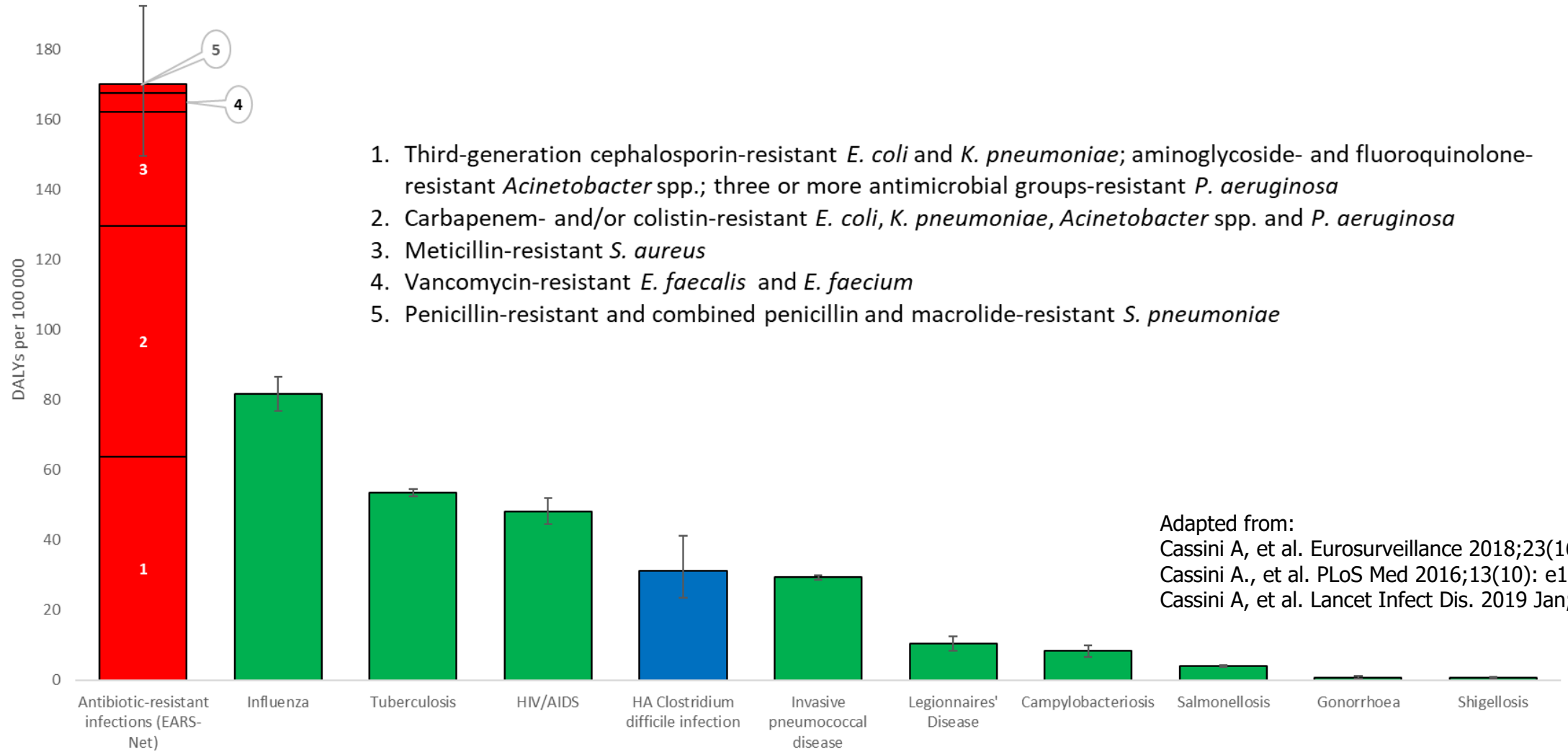
*4.5 million (2.6–7.6) after correction for validation

COMPARTMENTS OF ANTIMICROBIAL RESISTANCE



Courtesy of Dominique L. Monnet, ECDC

BURDEN IS COMPARABLE TO THE COMBINED BURDEN OF INFLUENZA, TB & HIV/AIDS



1. Third-generation cephalosporin-resistant *E. coli* and *K. pneumoniae*; aminoglycoside- and fluoroquinolone-resistant *Acinetobacter* spp.; three or more antimicrobial groups-resistant *P. aeruginosa*
2. Carbapenem- and/or colistin-resistant *E. coli*, *K. pneumoniae*, *Acinetobacter* spp. and *P. aeruginosa*
3. Meticillin-resistant *S. aureus*
4. Vancomycin-resistant *E. faecalis* and *E. faecium*
5. Penicillin-resistant and combined penicillin and macrolide-resistant *S. pneumoniae*

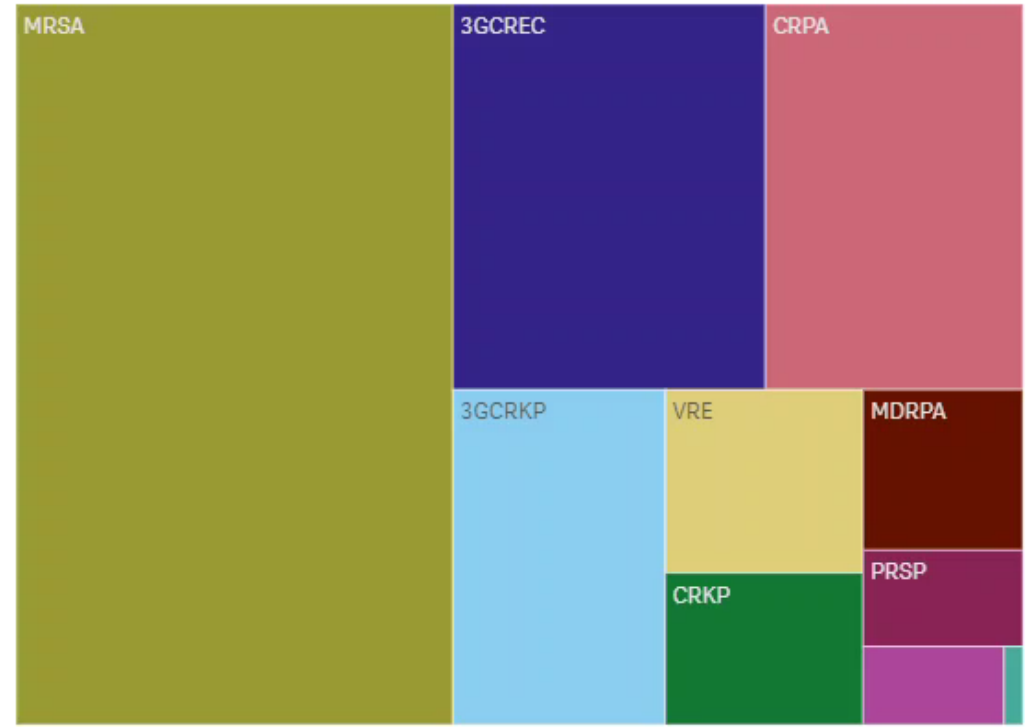
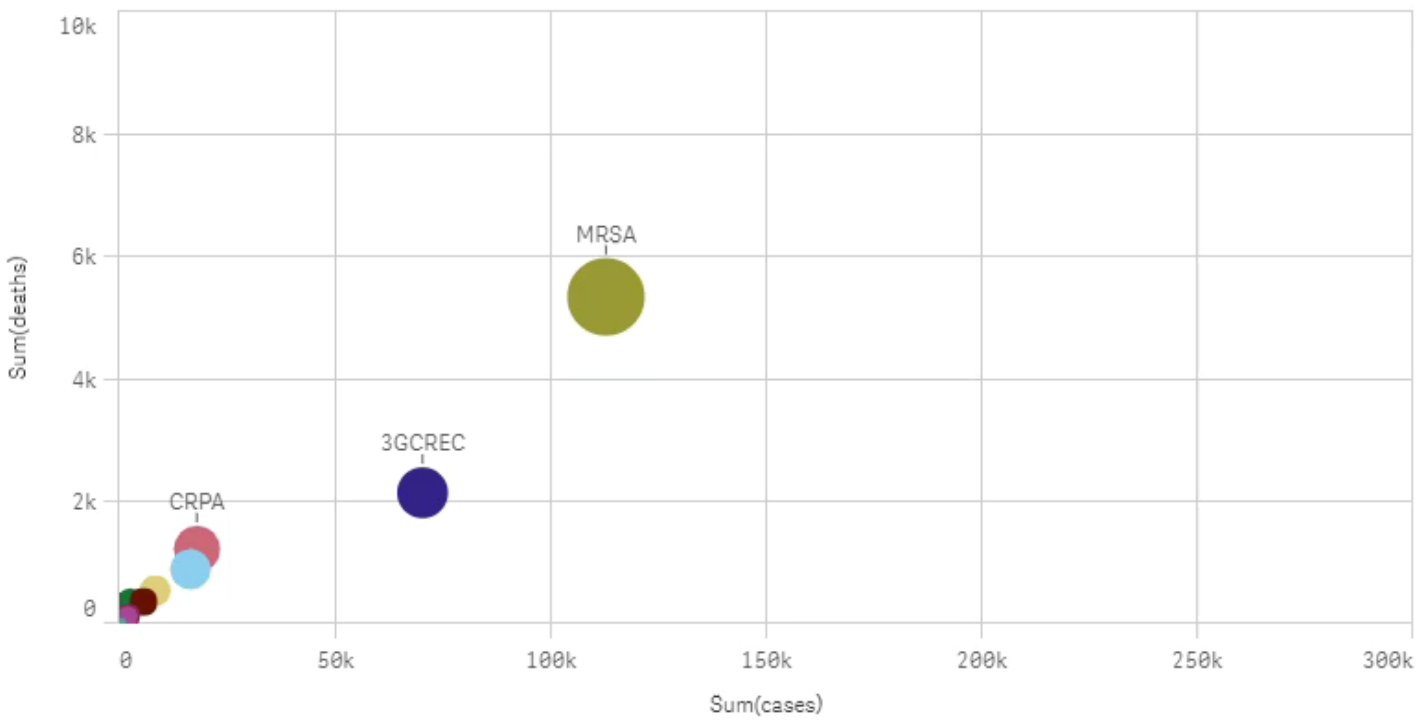
Adapted from:
 Cassini A, et al. Eurosurveillance 2018;23(16):pii=17-00454
 Cassini A., et al. PLoS Med 2016;13(10): e1002150.
 Cassini A, et al. Lancet Infect Dis. 2019 Jan;19(1):56-66.

FROM 2007 TO 2015

Total number of deaths more than doubled
Increase in number of deaths due to:

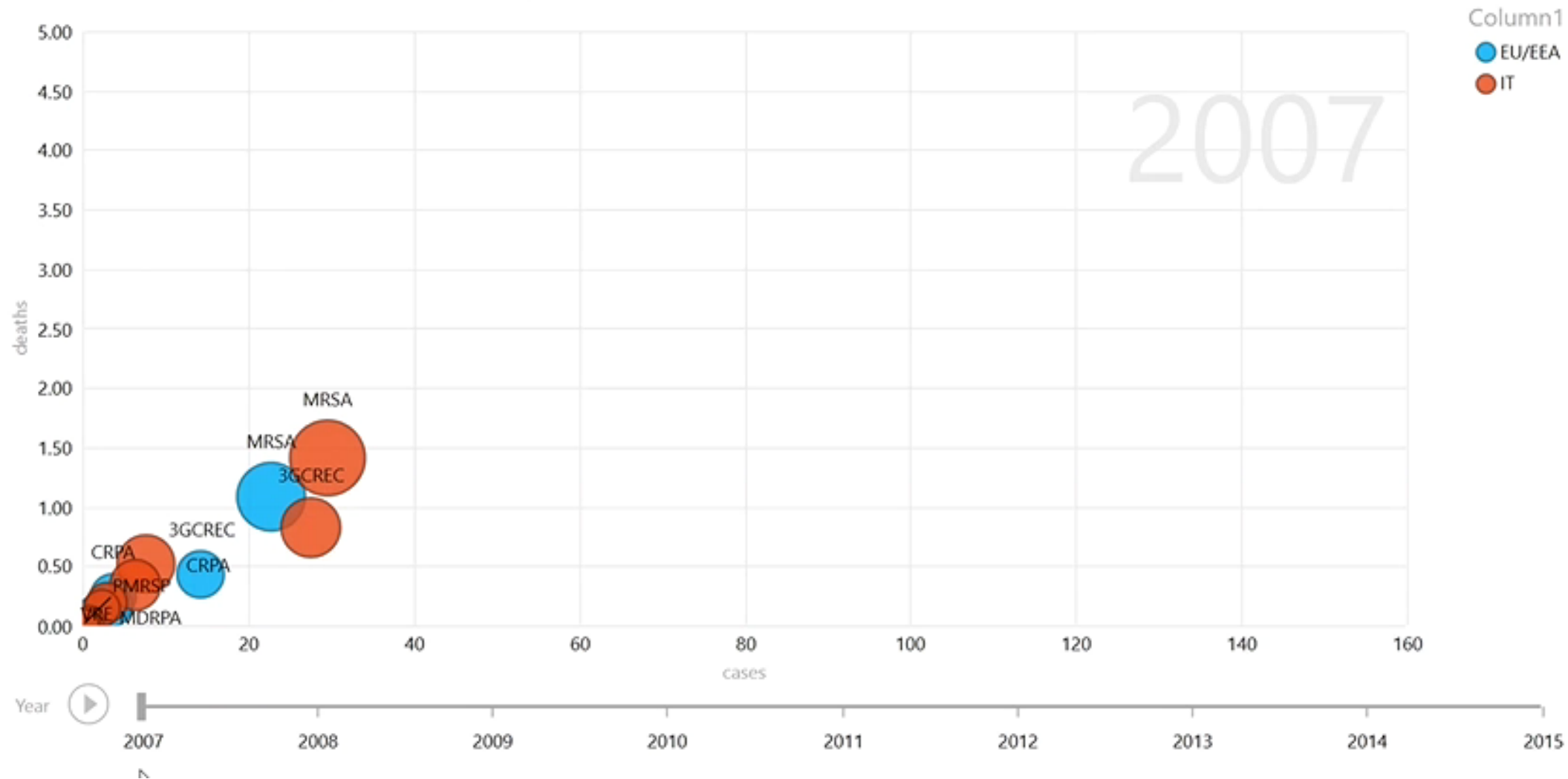
- CRKP x6
- 3GCREC x4

Year 2007

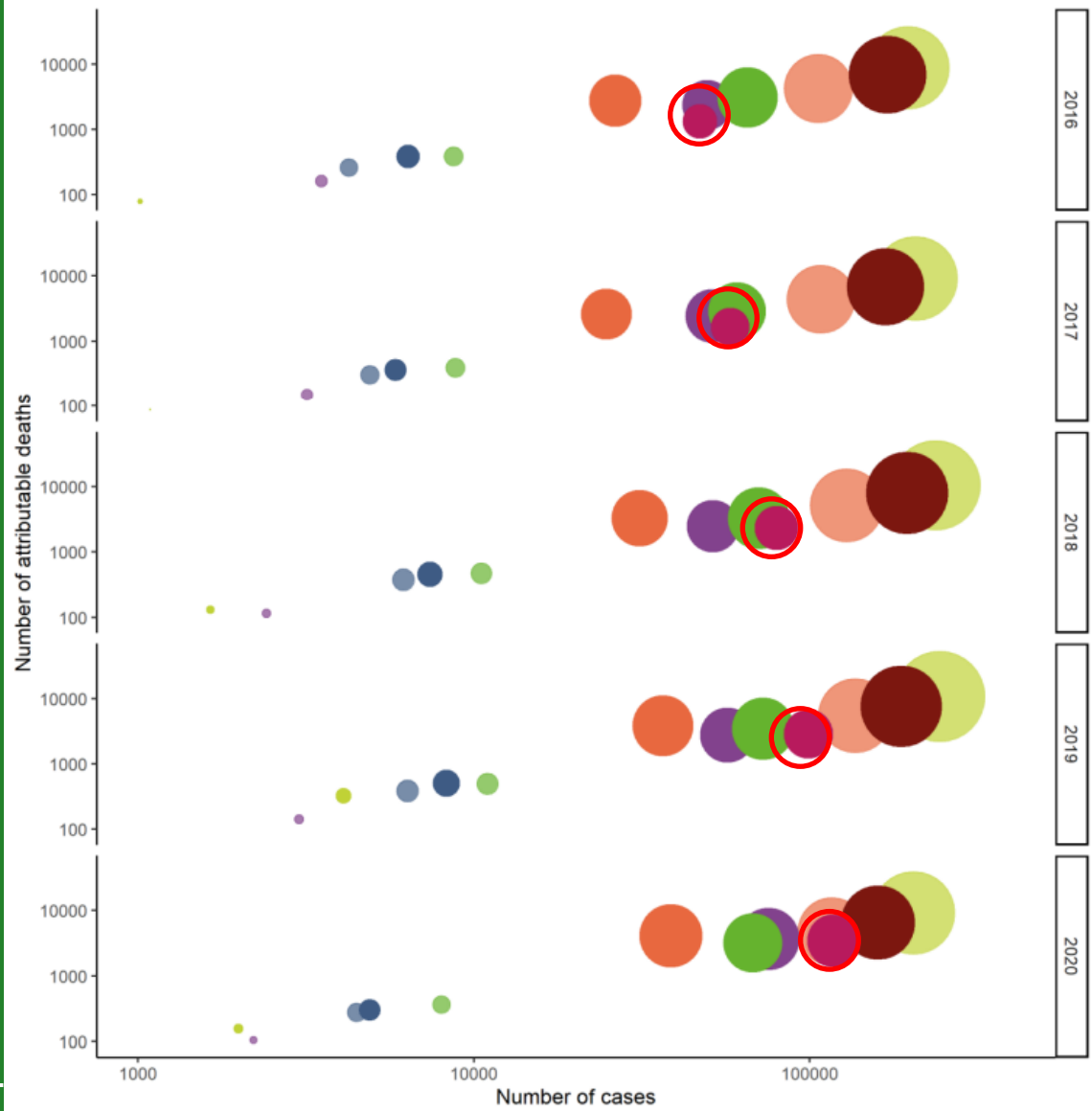


CRKP INCREASED 80 TIMES IN ITALY BETWEEN 2007 AND 2015

cases, deaths, and DALYs by Infection, and Column1



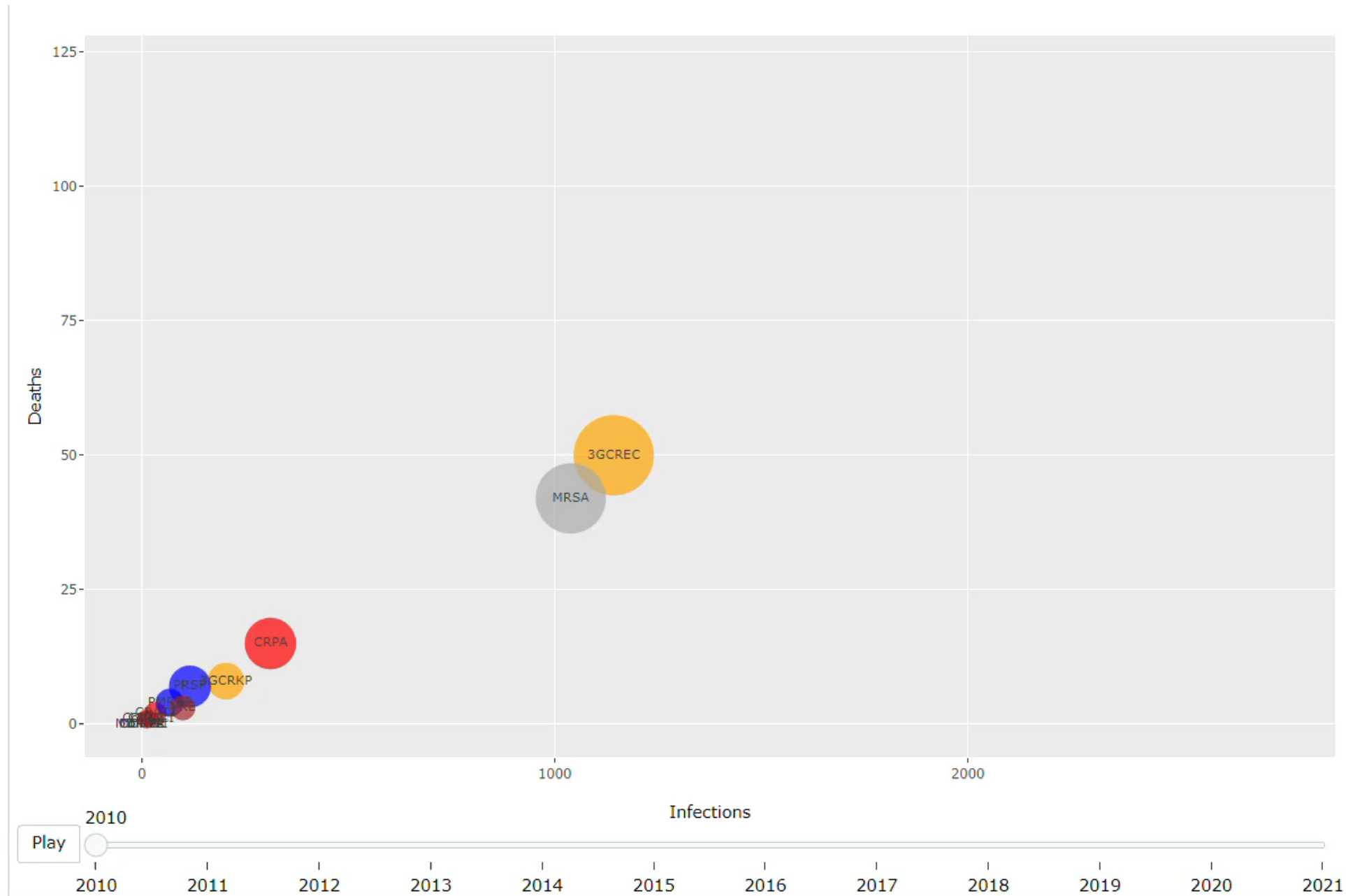
2020



- Carbapenem-resistant *Acinetobacter* spp.
- Aminoglycoside- and fluoroquinolone-resistant *Acinetobacter* spp.
- Third-generation cephalosporin-resistant *E. coli*
- Carbapenem-resistant *E. coli*
- Third-generation cephalosporin-resistant *K. pneumoniae*
- Carbapenem-resistant *K. pneumoniae*
- Carbapenem-resistant *P. aeruginosa*
- Multidrug-resistant *P. aeruginosa*
- Penicillin-non-wild-type *S. pneumoniae*
- Penicillin-non-wild-type and macrolide-resistant *S. pneumoniae*
- Meticillin-resistant *S. aureus*
- Vancomycin-resistant *E. faecalis* / *E. faecium*

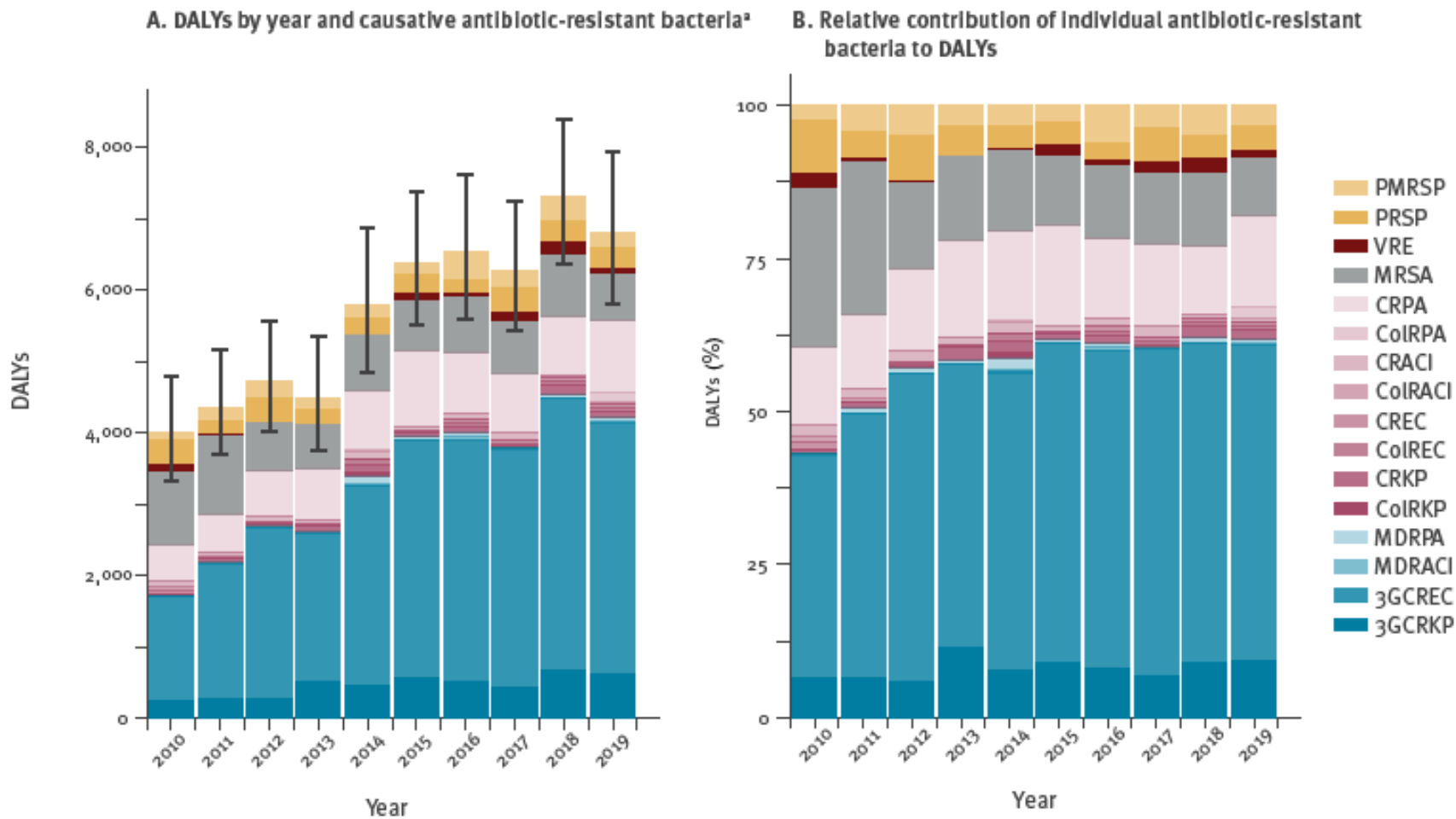
Year	2015	2019	Significant change
Infections	671 689	865 767	p < 0.001
Deaths	33 110	38 710	p < 0.001
DALYs	874 541	1 101 288	p < 0.001
HAIs (%)	75%	74%	NA

Burden of selected infections with antibiotic-resistant bacteria in Switzerland from 2010 to 2019



Gasser M et al. Associated deaths and disability-adjusted life-years caused by infections with antibiotic-resistant bacteria in Switzerland, 2010 to 2019. *Eurosurveillance*. 2023;28(20):2200532.

DALYS CAUSED BY AMR AND RELATIVE CONTRIBUTIONS, SWITZERLAND, 2010–2019

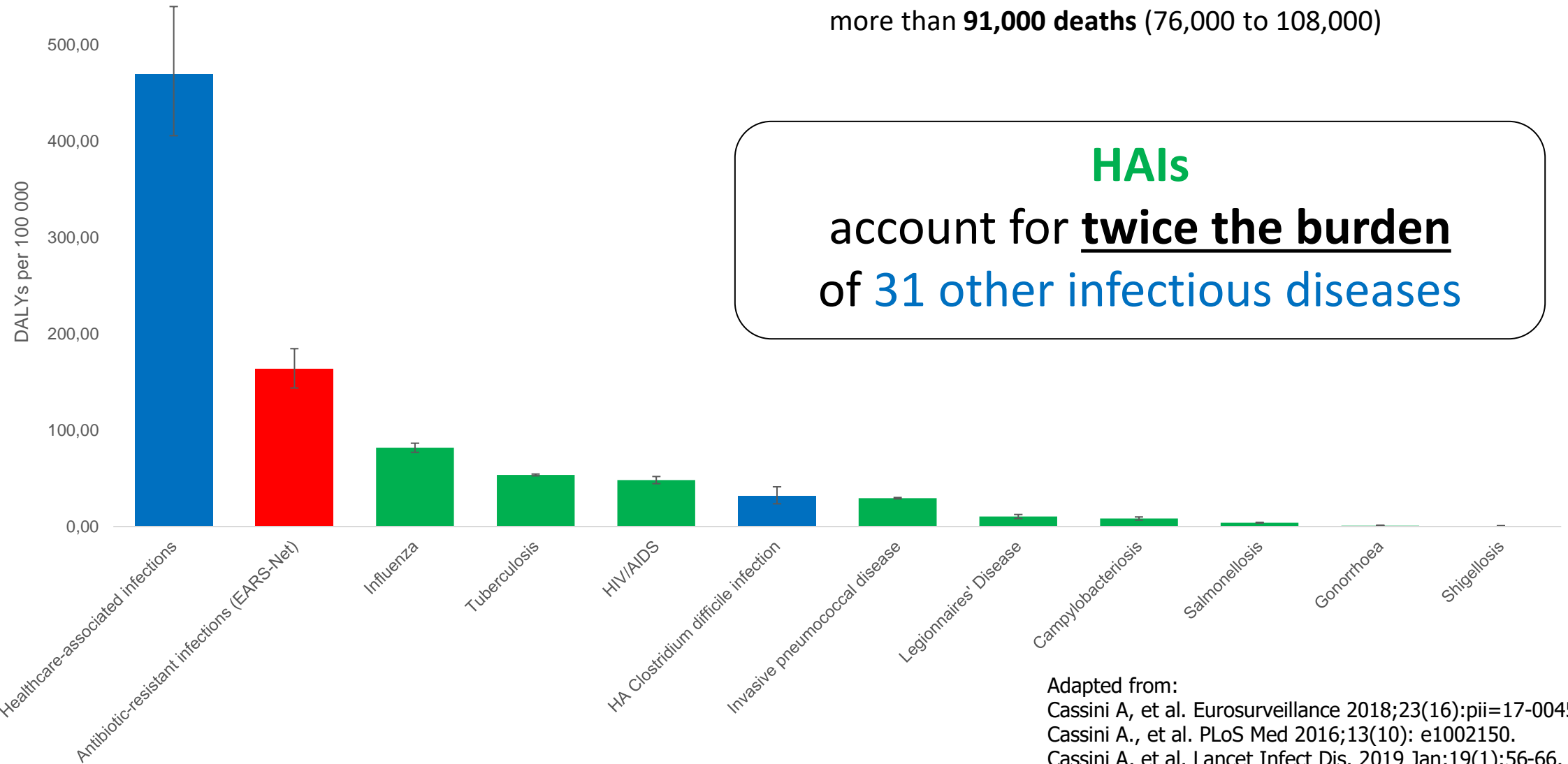


	Increase 2010-2019
	+104% (x2.04)
	+111% (x2.10)
	+70% (x1.70)

Gasser M et al. Associated deaths and disability-adjusted life-years caused by infections with antibiotic-resistant bacteria in Switzerland, 2010 to 2019. Eurosurveillance. 2023;28(20):2200532.

BURDEN OF HAI

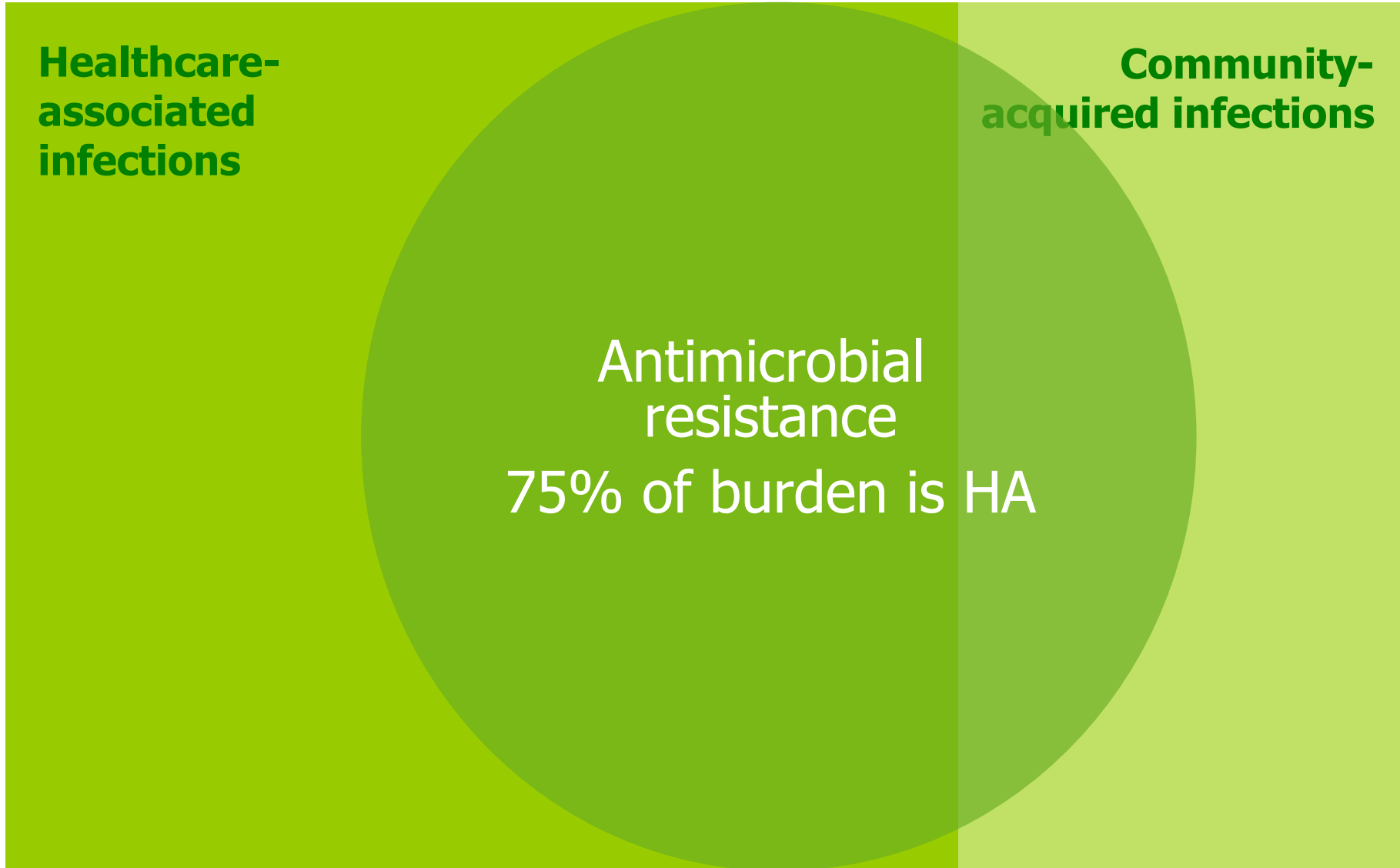
2.6 million annual number of cases of HAIs are associated with more than **91,000 deaths** (76,000 to 108,000)



HAIs
account for twice the burden
of **31 other infectious diseases**

Adapted from:
Cassini A, et al. Eurosurveillance 2018;23(16):pii=17-00454
Cassini A., et al. PLoS Med 2016;13(10): e1002150.
Cassini A, et al. Lancet Infect Dis. 2019 Jan;19(1):56-66.

IN TERMS OF BURDEN, HAIS HAVE A BIGGER IMPACT THAN COMMUNITY INFECTIONS AND AMR IS MOSTLY HA



MODERN MEDICINE: INCREASINGLY DIFFICULT WITHOUT EFFECTIVE ANTIBIOTICS



Hip / knee replacement

Organ transplant

Cancer chemotherapy

Intensive care

Care of preterm babies

Limited options for treatment

Increased length of hospital stays

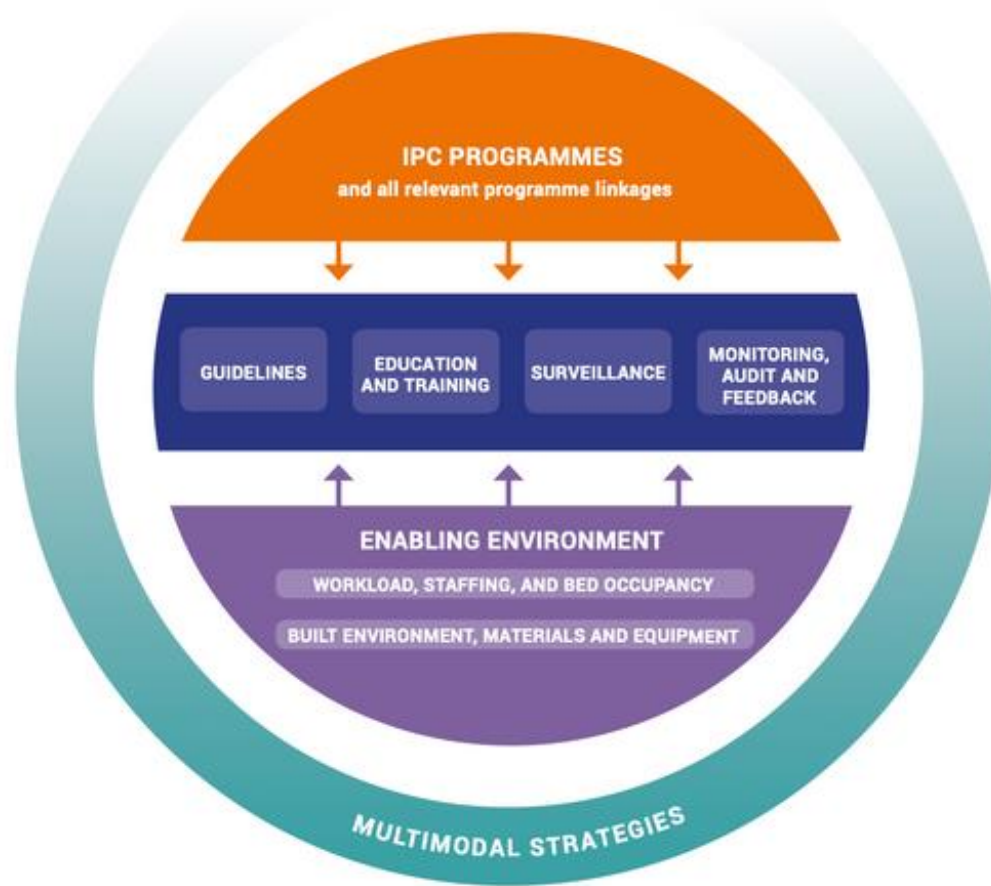
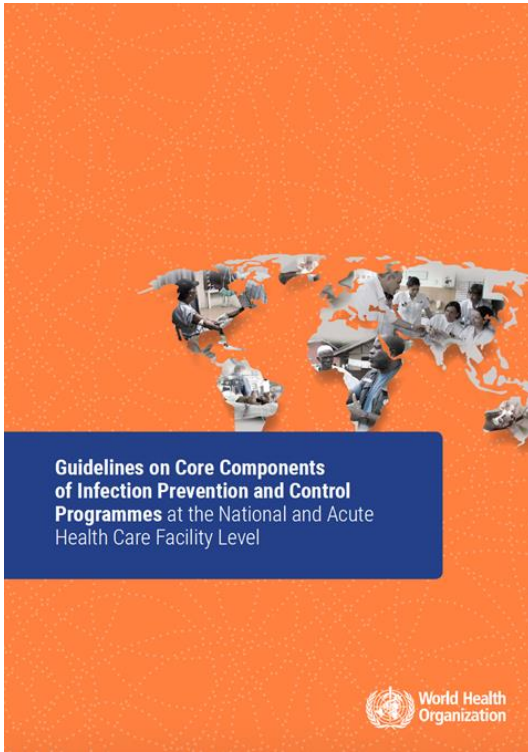
Increased patient morbidity and mortality

COÛT-EFFICACITÉ DE LA PCI: ÉVIDENCE DE LA LITTÉRATURE SCIENTIFIQUE

IPC TO PREVENT HAIS

HAIs represent a significant burden – how does IPC help?

- Results of studies from systematic reviews: IPC can reduce
 - 35-70% of HAIs – irrespective of income level
 - in particular of CA-BSI, CAUTI, SSIs and VAP
 - hand hygiene has been highlighted as the most effective single measure to reduce the transmission
- Zingg W, et al. Hospital organisation, management, and structure for prevention of health-care-associated infection: a systematic review and expert consensus. *Lancet Infect Dis.* 2015;15(2):212-24.
- Schreiber PW, et al. The preventable proportion of healthcare-associated infections 2005–2016: systematic review and meta-analysis. *Infect Control Hosp Epidemiol.* 2018;39(11):1277-95.
- Umscheid CA, et al. Estimating the proportion of healthcare-associated infections that are reasonably preventable and the related mortality and costs. *Infect Control Hosp Epidemiol.* 2011;32(2):101-114.

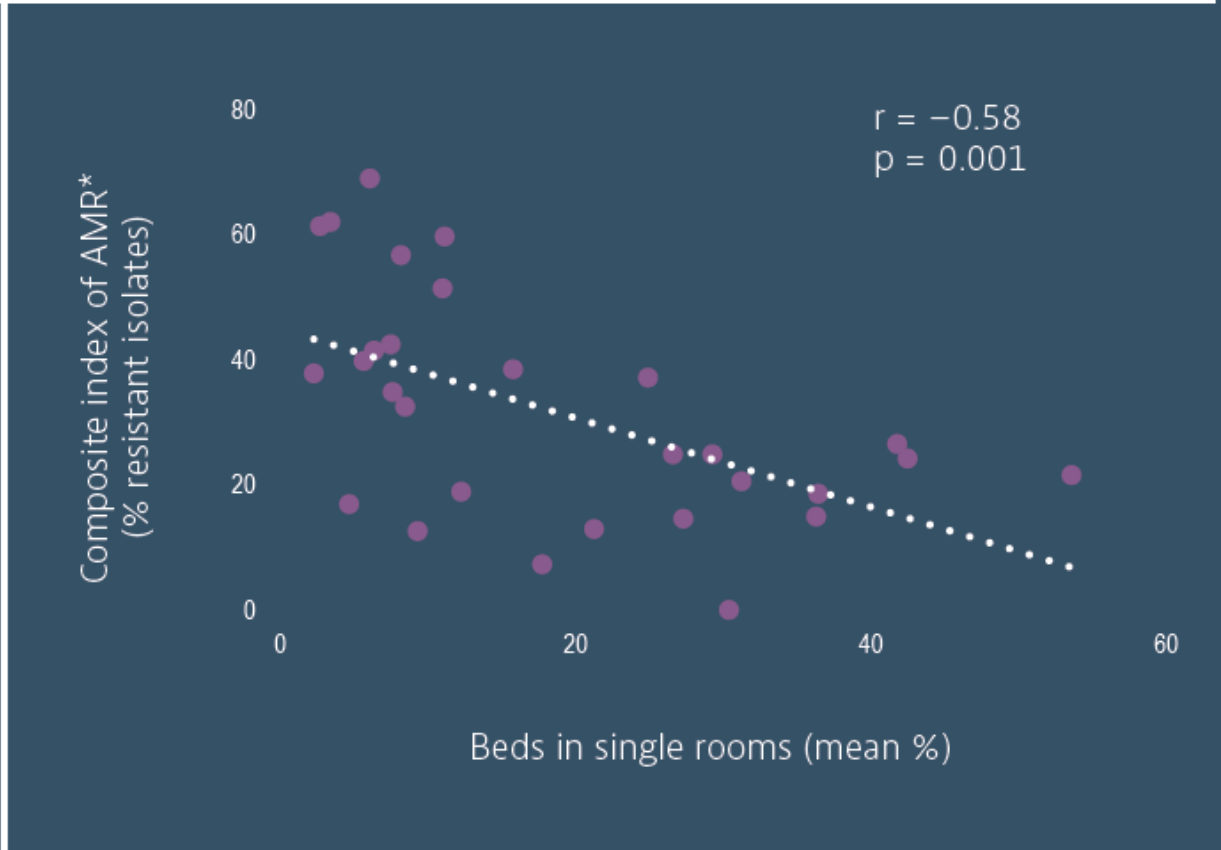
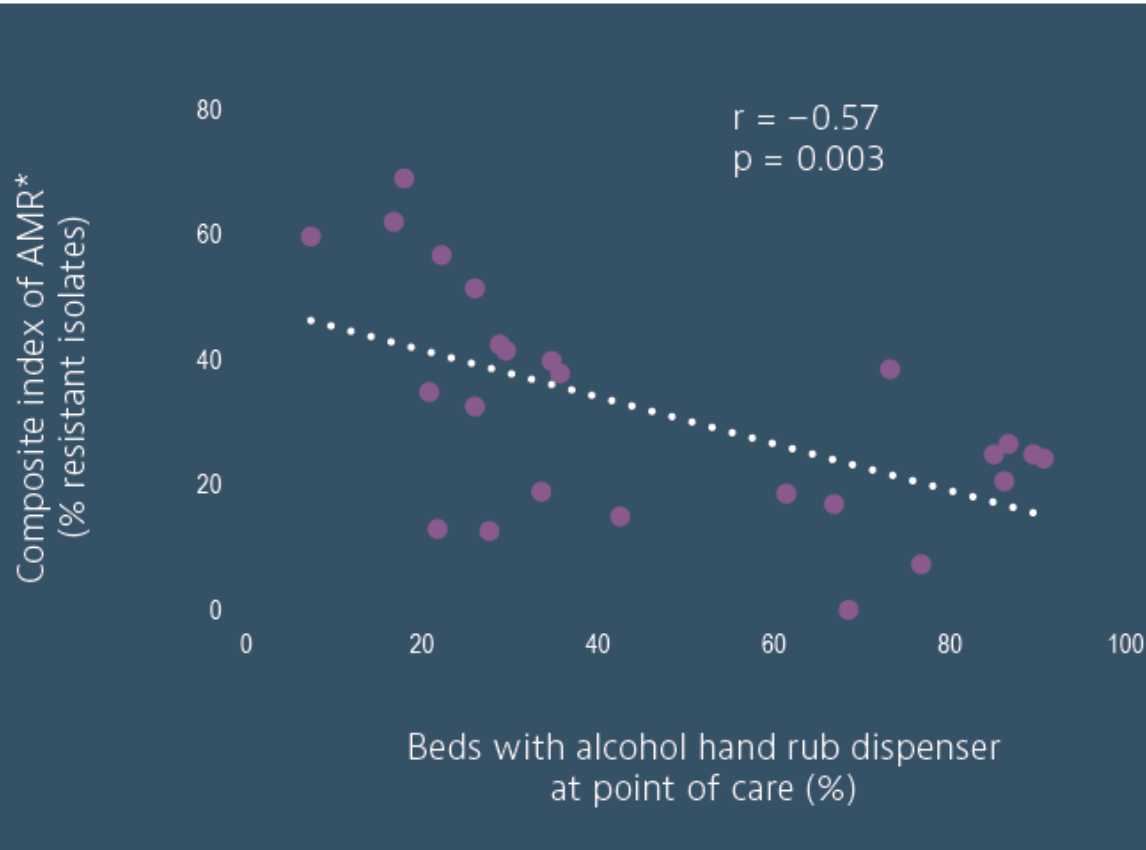


MINIMUM REQUIREMENTS for infection prevention and control programmes



The starting point for implementing the World Health Organization core components of infection prevention and control programmes at the national and health care facility level

CORRELATIONS BETWEEN AMR AND IPC



Antimicrobial resistance – tackling the burden in the European Union. Briefing note for EU/EEA countries. Paris: Organisation for Economic Co-operation and Development, European Centre for Disease Prevention and Control; 2019 (<https://www.oecd.org/health/health-systems/AMRTackling-the-Burden-in-the-EU-OECD-ECDC-Briefing-Note-2019.pdf>)

FIRST SYSTEMATIC REVIEW

Intervention assessed	Cost-effectiveness	Quality of the studies
Hand hygiene (4)	Hospital staff 	
	Surgeons 	
Personal protective equipment (3)		
Screening, isolation and decolonization (21)	 ...BUT	
	Decolonisation  Universal screening	



“Drawing strong conclusions on the basis of heterogeneous and weak evidence could lead to inappropriate decision making.”

SECOND SYSTEMATIC REVIEW (2009-2022)



Panel: Eligible interventions suitable for inclusion

- Hand hygiene interventions targeting prevention and control of health-care-associated infections (HAIs)
- Screening followed by contact precautions, isolation, decolonisation, or a combination of these targeting prevention and control of HAIs
- Personal protective equipment targeting prevention and control of HAIs
- Infection prevention and control programmes involving an infection preventionist at the national level or at a facility
- Education and training programmes
- Environmental cleaning
- Surveillance

Economic evaluations of interventions to prevent and control health-care-associated infections: a systematic review

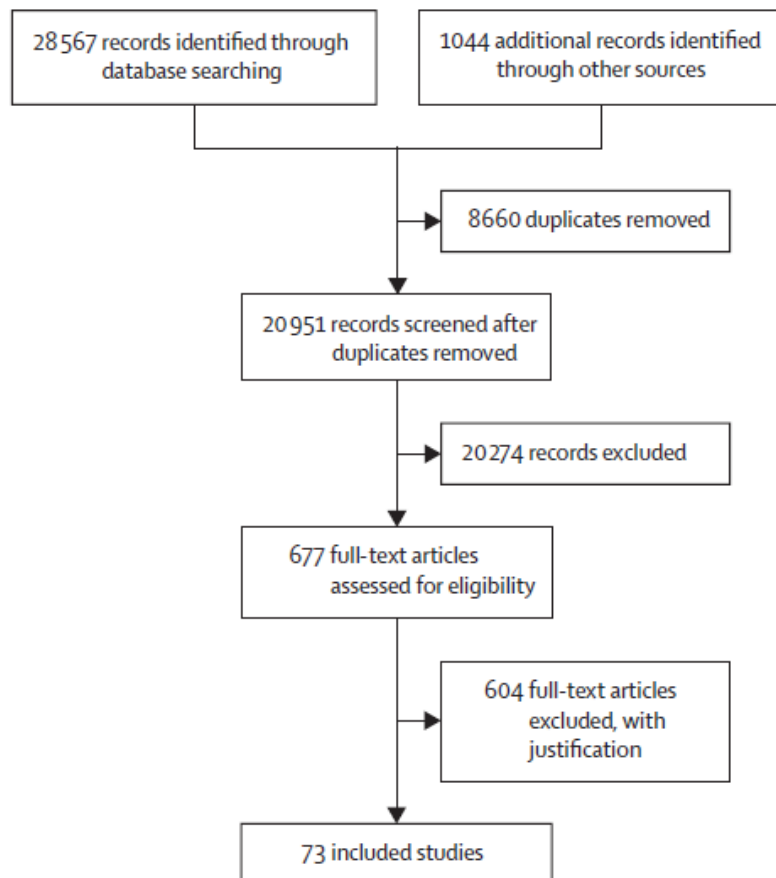


Stephen Rice, Katherine Carr, Pauline Sobiesuo, Hosein Shabaninejad, Giovany Orozco-Leal, Vasileios Kontogiannis, Christopher Marshall, Fiona Pearson, Najmeh Moradi, Nicole O'Connor, Akvile Stoniute, Catherine Richmond, Dawn Craig, Benedetta Allegranzi, Alessandro Cassini

Almost 9 million health-care-associated infections have been estimated to occur each year in European hospitals and long-term care facilities, and these lead to an increase in morbidity, mortality, bed occupancy, and duration of hospital stay. The aim of this systematic review was to review the cost-effectiveness of interventions to limit the spread of health-care-associated infections), framed by WHO infection prevention and control core components. The Embase, National Health Service Economic Evaluation Database, Database of Abstracts of Reviews of Effects, Health Technology

Lancet Infect Dis 2023
Published Online
March 28, 2023
[https://doi.org/10.1016/S1473-3099\(22\)00877-5](https://doi.org/10.1016/S1473-3099(22)00877-5)








36 STUDIES MET THE MINIMUM QUALITY CRITERIA



	Comparator	Base case cost-effectiveness result (target: microorganism)
US-G with contact precautions	No screening	\$26 283 per QALY (CPE); ^{28,30} not cost-saving (MRSA); ^{28,30} \$14 955 per infection avoided (MRSA); ²⁸ \$1283 per QALY (CDI); ²⁷ dominated by extension (MRSA) ⁴³
US-G (PCR test)	US-G (culture test)	Cost-saving (CPE) ³⁵
US-G	SS-G	\$49 749 per infection avoided (MRSA) ²⁸
US-G (PCR test)	SS-G (PCR test)	\$131 000 per infection avoided (high-prevalence MRSA); ³¹ \$232 700 per infection avoided (medium-prevalence MRSA) ³¹
USID-G	No screening	Not cost-saving (MRSA); ²⁸ dominant (MRSA) ⁴⁵
USID-G (culture test)	SS-G	Dominant (CPE, prevalence 1 in 500-1000) ⁴⁵
USD-G	US-G	Dominant (MRSA) ²³
SS-G	No screening	\$4749 per life saved (sepsis); ²⁸ cost-saving (MRSA); ²⁸ dominant (MRSA); ²⁸ \$4632 per infection averted (MRSA); ³³ cost-saving (MM); ³³ \$7850 per QALY (VRE); ³⁴ \$65 566 per QALY dominant (baseline or low prevalence MRSA); ⁴¹ £26 411-159 566 per QALY (high-prevalence MRSA) ⁴¹
SS-G (PCR test)	US-G (culture test)	Dominant (high-prevalence or medium-prevalence MRSA); ³¹ dominant (VRE) ³⁴
SS-G (PCR test)	SS-G (culture test)	\$13 000 per infection averted (high-prevalence MRSA); ³³ \$36 200 per infection averted (medium-prevalence MRSA); ³³ £994 198 per QALY (CPE, prevalence 1 in 500); ⁴³ \$55 915 per QALY (CPE, prevalence 1 in 100) ⁴³
USD-SD	No screening	CHF30 784 per infection avoided (MRSA); ⁴⁰ dominant (SA) ²²
USD-SD	SSD-SG	Dominant (MRSA) ⁴⁰
SS-GI	No screening	Cost saving (MRSA); ^{28,32} \$81 per QALY (CRE) ⁴⁸
USD-NI	US-NI	Dominant (MRSA) ³⁸
UD-I	No ICU screening	Dominant (MRSA) ⁴⁵
UD-I	US-I	Dominant (MRSA) ^{27,42,44}
UD-I	USD-I	Dominant (MRSA) ^{27,42,44,6}
UD-I	SS-ID	Dominant (MRSA) ⁴²
Hand hygiene	Standard practice	\$430-660 per QALY (adult or paediatric ICU, MRSA); ⁵⁴ AU\$29 700 per life-year gained (SA); ²⁷ dominant (MM); ^{55,63,64} dominant (health-care workers*, CDI); ²⁷ dominant (patients*, CDI); ²⁷ \$5730 987 per QALY (visitors*, CDI) ²⁷
Hand hygiene (ideal)	Hand hygiene (enhanced)	Dominant (health-care workers*, CDI, patients*, CDI, visitors*, CDI) ²⁷
Environmental cleaning	Standard practice	\$4684 per QALY (MM); ⁴⁶ dominant (MM); ⁵⁹ cost-saving (CDI, MRSA, VRE); ²⁷ dominant (daily cleaning, CDI); ²⁷ dominant (terminal cleaning, CDI) ²⁷
Environmental cleaning (ideal)	Environmental cleaning (enhanced)	\$18 399 (daily cleaning, CDI); ²⁷ \$5275 (terminal cleaning, CDI) ²⁷
Personal protective equipment (gloves and gowns)	Standard practice	\$123 264 (health-careworkers*, CDI); ²⁷ dominated (visitors*, CDI) ²⁷
Personal protective equipment (ideal)	Personal protective equipment (enhanced)	\$136 135 (health-care workers*, CDI); ²⁷ \$1 669 089 (visitors*, CDI) ²⁷
Surveillance	Standard practice	Dominant (MM) ^{51,53}
MMI	Standard practice	\$23 278 per QALY (MM); ⁴⁶ \$28 048 per life-year (MM); ⁴⁰ dominant (MRSA); ^{45,47} \$28 504-71 487 per life-year (MRSA); ⁵⁹ \$9263-14 475 per life-year (MM) ⁵⁹

Rice S, Carr K, Sobiesuo P, Shabaninejad H, Orozco-Leal G, Kontogiannis V, Marshall C, Pearson F, Moradi N, O'Connor N, Stoniute A, Richmond C, Craig D, Allegranzi B, Cassini A. Economic evaluations of interventions to prevent and control health-care-associated infections: a systematic review. *Lancet Infect Dis.* 2023;23(7):e228-e39.

IPC IS HIGHLY COST EFFECTIVE AND A "BEST BUY" TO REDUCING HAIS AND PROTECTING HW AND PATIENTS

Intervention		Cost-effectiveness
Selective screening, isolation and decolonisation		Mostly cost-effective in all general wards and in ICUs
Universal screening, isolation and decolonisation		Cost-effective in surgical wards and ICUs (mostly neonatal)
Hand hygiene		Always cost-effective
Multimodal hand hygiene (e.g. WHO My 5 Moments)		Always cost-saving
Environmental cleaning		Cost-saving or cost-effective
Surveillance		Cost-effective
Multimodal strategies		Cost-effective

BUT...

- Most studies focus on high-income countries
- Most studies focus on MRSA and are dependent on its epidemiology
- Most studies focus on one microorganism (or bug-drug combination) – risk of underestimation of cost-effectiveness
- Studies are too heterogeneous in terms of methodology, context, outcomes – metaanalysis was not possible and difficult to adapt to different context

Therefore, we need to model interventions to the right interventions, with the right baseline, for a specific setting

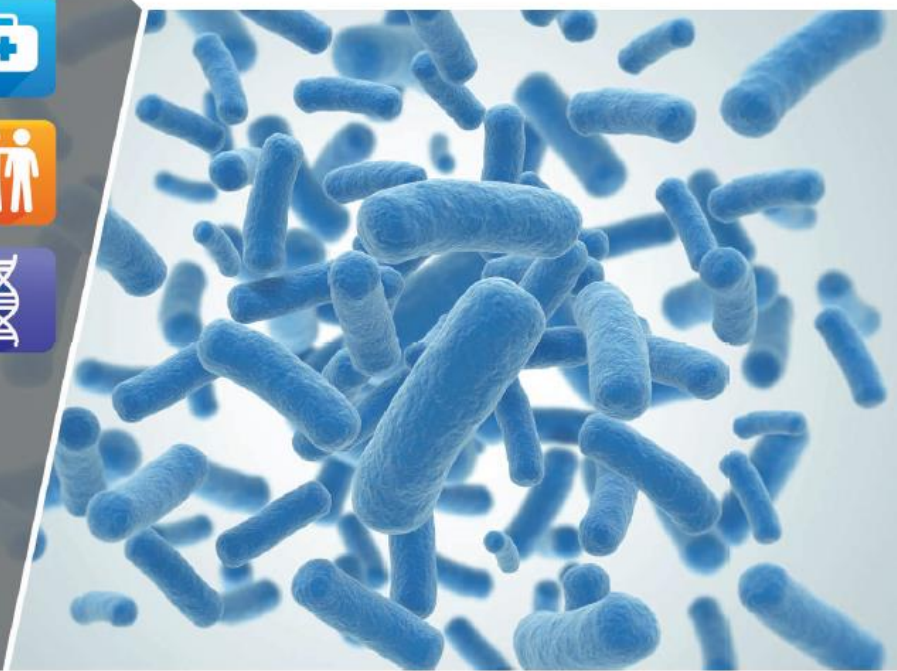
COÛT-EFFICACITÉ DE LA PCI: ÉVIDENCE DES ÉTUDES DE MODÉLISATION



OECD Health Policy Studies

Stemming the Superbug Tide

JUST A FEW DOLLARS MORE



SURVEILLANCE AND OUTBREAK REPORT

Prevalence of healthcare-associated infections, estimated incidence and composite antimicrobial resistance index in acute care hospitals and long-term care facilities: results from two European point prevalence surveys, 2016 to 2017

Carl Suetens¹, Katrien Latour², Tommi Kärki¹, Enrico Ricchizzi³, Pete Kinross⁴, Maria Luisa Moro³, Béatrice Jans², Susan Hopkins⁴, Sonja Hansen⁵, Outi Lyytikäinen⁶, Jacqui Reilly^{7,8}, Aleksander Deptula⁹, Walter Zingg¹⁰, Diamantis Plachouras¹, Dominique L Monnet¹, the Healthcare-Associated Infections Prevalence Study Group¹¹

1. European Centre for Disease Prevention and Control, Solna, Sweden
2. Sciensano, Brussels, Belgium



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*

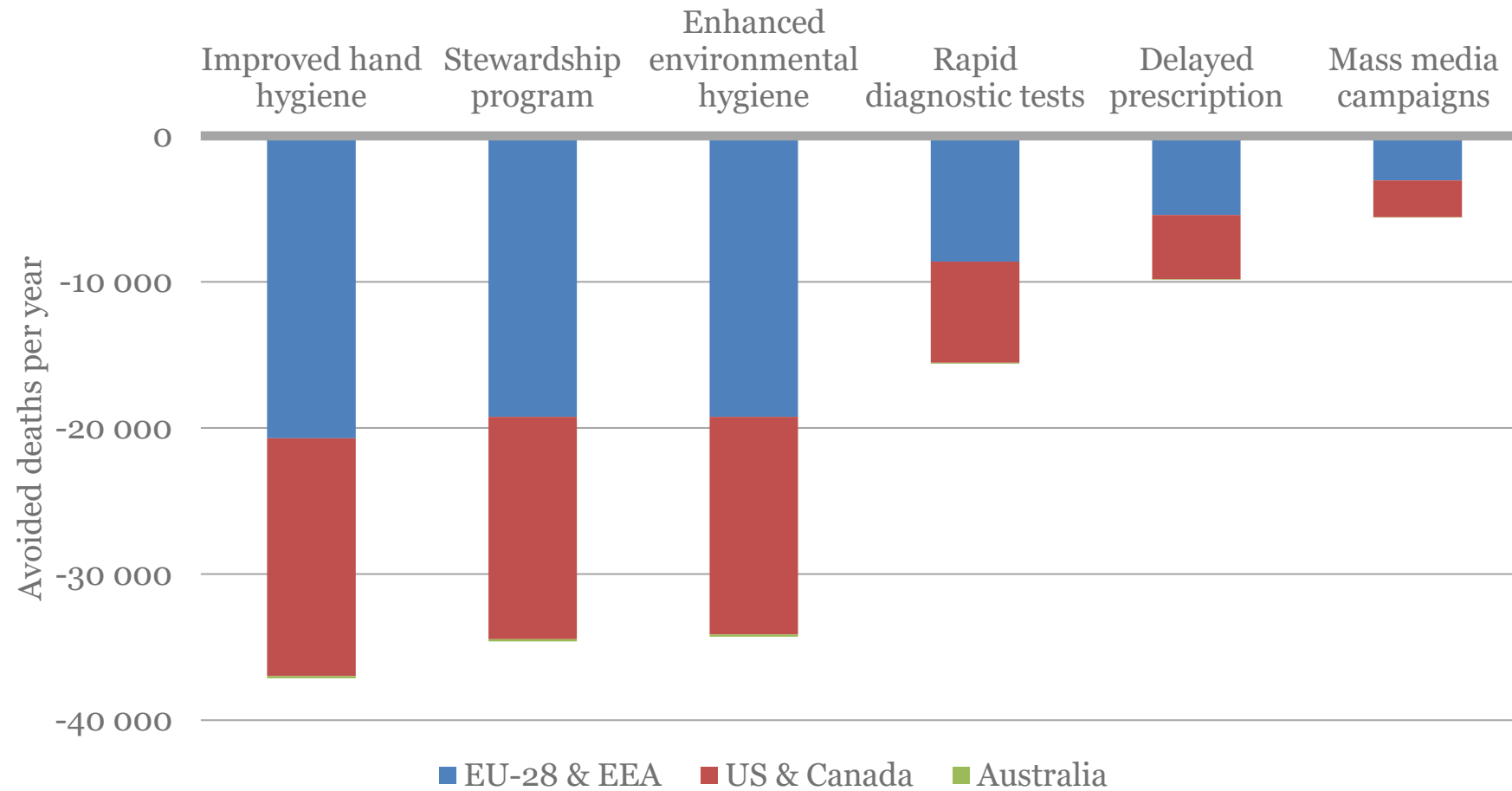
Summary

Lancet Infect Dis 2019; 19: 56-66

Background Infections due to antibiotic-resistant bacteria are threatening modern health care. However, estimating their incidence, complications, and attributable mortality is challenging. We aimed to estimate the burden of infections



Public Health Policies to Tackle AMR Save Lives...

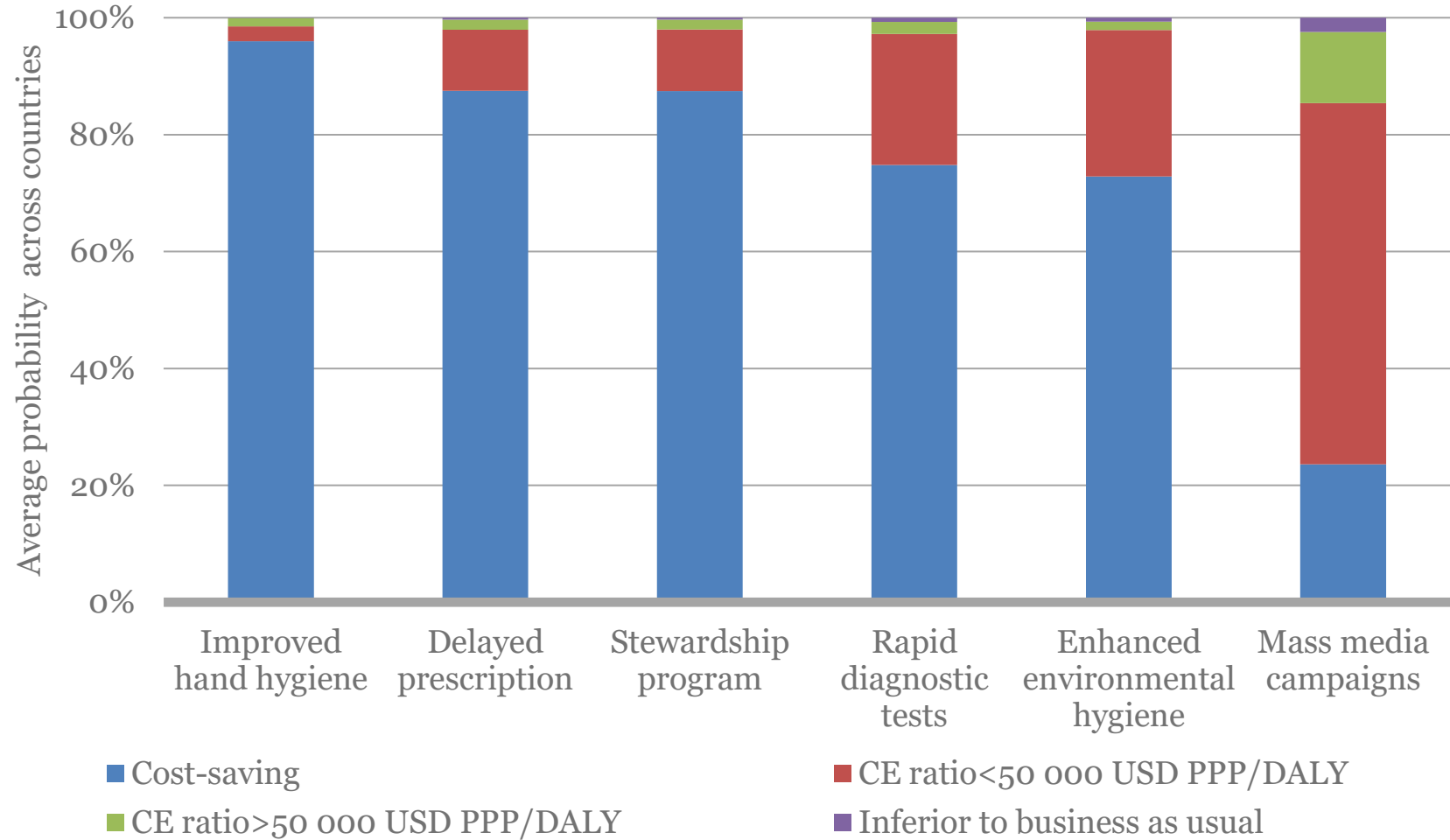


Courtesy of Michele Cecchini, OECD

Source: OECD. Stemming the Superbug Tide: just a few dollars more. 2018. [oe.cd/amr-2018](https://www.oecd.org/amr-2018)



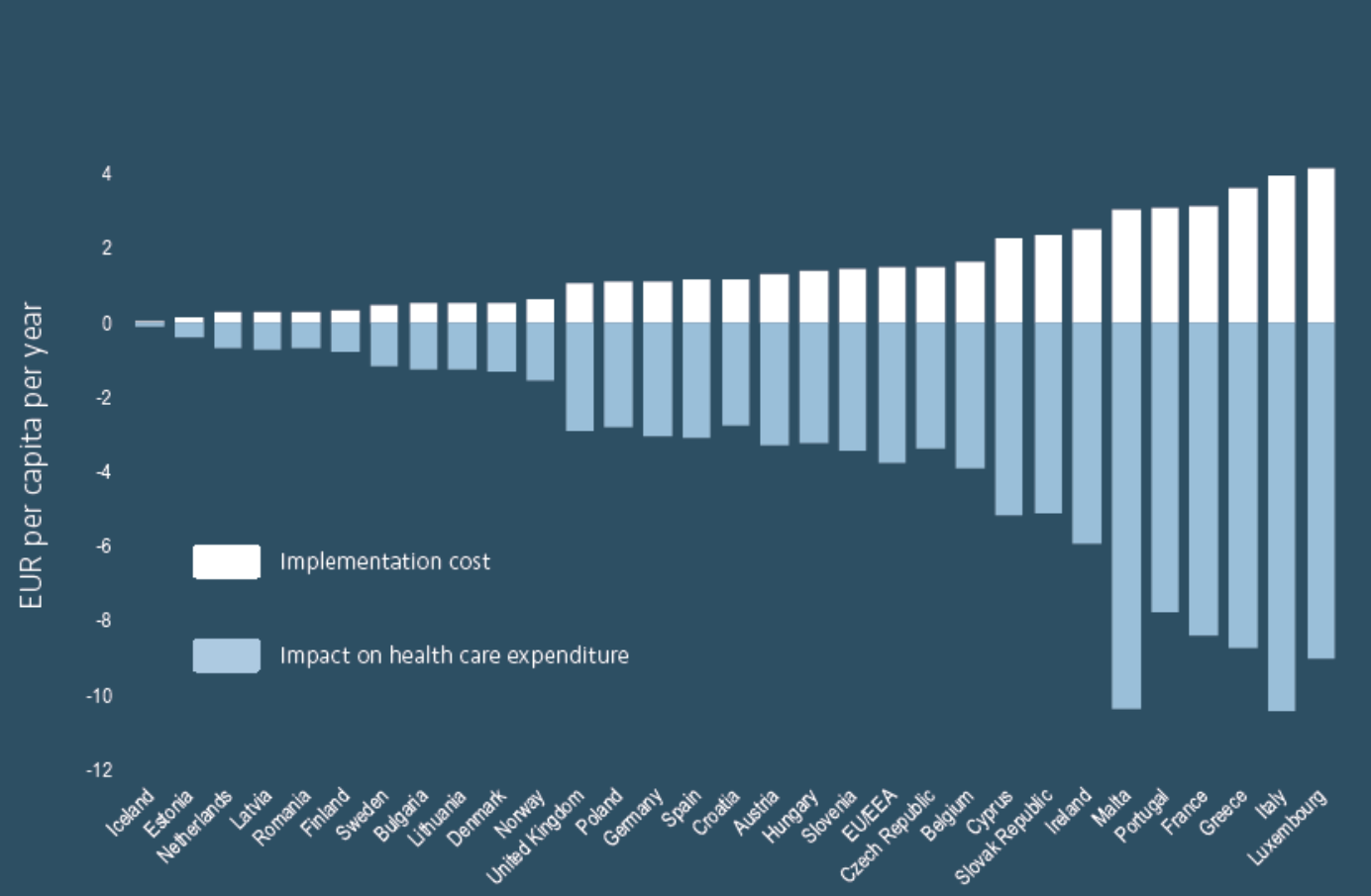
Tackling AMR is a Very Good Investment for OECD and EU Countries



Courtesy of Michele Cecchini, OECD

Investing 1.5 Euros per capita per year in a package 3 of mixed public health interventions **would avoid about 27 000 deaths per year** in EU/EEA countries.

Figure 10. Economic assessment of the 'mixed-intervention' package: just a few Euros more produce substantial savings in health care expenditure



Package 1, for hospitals: hand hygiene, antibiotic stewardship programmes and enhanced environmental hygiene = ↓ 85%

Package 2, for community settings: delayed antibiotic prescriptions, mass media campaigns and the use of rapid diagnostic tests = ↓ 23%

Package 3, mix of interventions = ↓ 73%

Savings of 3, 0.7 and 2 Euros per capita per year

Source: OECD & ECDC (2019): Antimicrobial Resistance, Tackling the Burden in the European Union. Briefing note for EU/EEA countries.

CONCLUSIONS

- Healthcare-based policies would result in the highest number of hospital days avoided, but the impact is very context specific:
 - In Italy improved hand hygiene would result in 1 000 hospital days avoided per 100 000 persons, each year
 - In The Netherlands, the same would lead to approximately 60 hospital days avoided per 100 000 persons
- **However, the results also show that health systems with lower levels of AMR and HAIs would also draw substantial economic benefits**

"Although some policies require major investments and involve complex implementation, a number of policies such as **hygiene interventions** can be effectively implemented in resource-constrained settings."

"The first intervention would be to improve hygiene in healthcare facilities, including promotion of **hand hygiene** and better **hospital hygiene**."



A Hospital-based Package Based on IPC Is An Effective And Cost-effective Investment for AMR

A comprehensive prevention package including

- improving hand hygiene in healthcare professionals
- Enhancing hygiene in healthcare settings
- Scaling up stewardship programmes



USD PPP 7.9 per capita saved every year due to reduced healthcare expenditure



243 000 additional full-time workers per year due to reduced sickness



4.7:1
4.7 USD PPP returned in economic benefit for each USD PPP invested

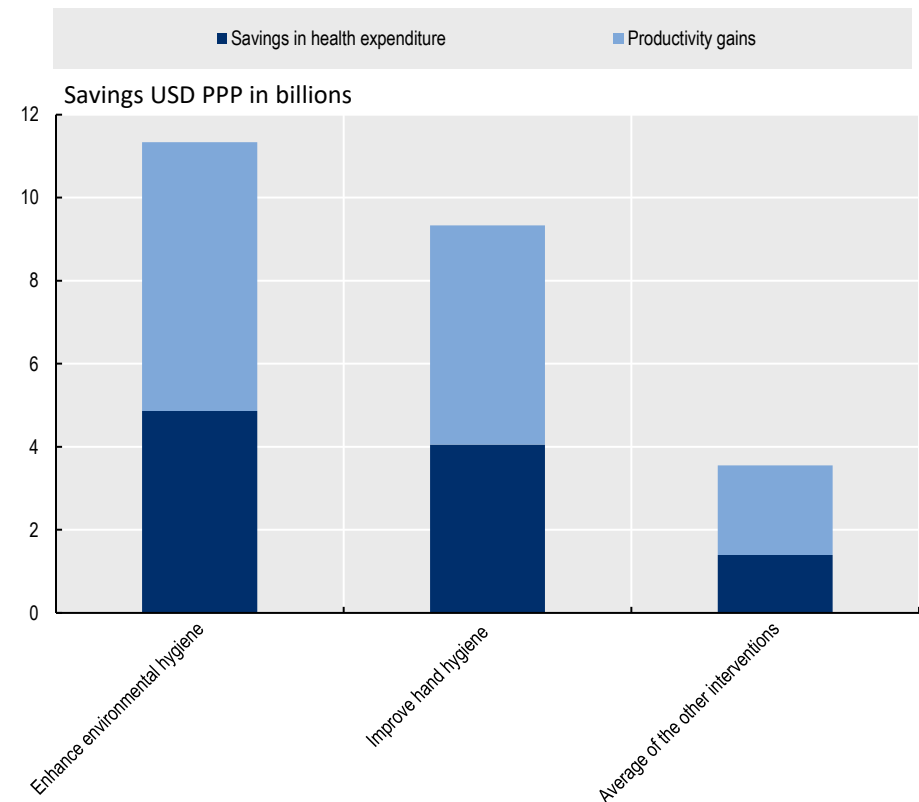
Courtesy of Michele Cecchini, OECD



IPC Interventions To Tackle AMR Produce the Highest Savings

- Scaling up IPC interventions in healthcare settings can produce savings equal to up to 11.7 billion USD PPP per year across 34 OECD and EU/EEA countries
- Around 42% of savings come from reduced healthcare expenditure due to reduced infections and complications
- IPC interventions produce higher savings than interventions directly targeting inappropriate use of antibiotics because they prevent both resistant and susceptible infections

Savings in USD PPP produced by IPC interventions and other AMR interventions across 34 OECD countries



Courtesy of Michele Cecchini, OECD

IPC IN EPIDEMIC PREPAREDNESS

Estimating the return on investment of selected infection prevention and control interventions in healthcare settings for preparing against novel respiratory viruses: modelling the experience from SARS-CoV-2 among health workers

Özçelik E, Lerouge A, Cecchini M, Cassini A, Allegranzi B



Our Analysis Makes The Economic Case For Scaling Up Investments on Key Elements Of The IPC Core Components



Promoting best practices in hand hygiene

- Procuring of cleaning facilities/equipment
- Hand-hygiene training and education (2hr-training at health facility by IPC focal point with dedicated time per 250 beds)
- Hand-hygiene guidelines and visual reminders
- Audit- and feedback
- Creating a work environment that promotes best practices in hand hygiene



Scaling up access to PPE (“PPE only”)

- PPE tracking system
- Procuring PPE in line with WHO guidelines

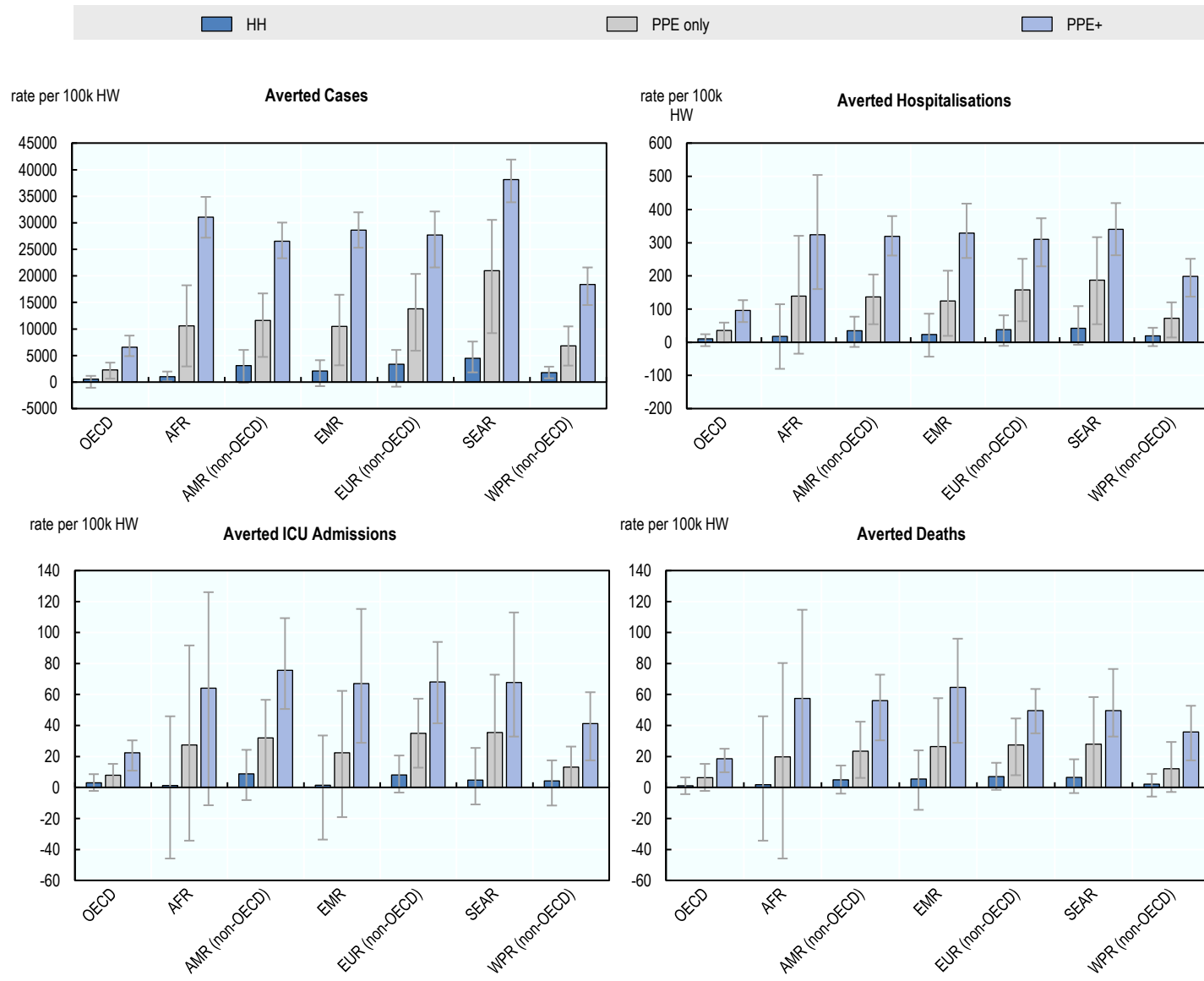


Combining increased access to PPE and IPC education and training (PPE+)

- IPC training and education (2hr-training at health facility by IPC focal point with dedicated time per 250 beds)
- IPC guidelines and visual reminders
- Feedback mechanism
- Health workers have access to PPE at target coverage levels



A Wider Implementation Of The Interventions Would Have Significantly Reduced The Health Impact Of COVID-19 Among Healthcare Workers



All the interventions are effective in reducing the health burden of COVID-19 in healthcare workers, with regions starting from a lower level of implementation benefitting more

PPE becomes more effective when combined with IPC training

- PPE only could have averted about 4.4 million new infections in health workers, respectively
- PPE+ could have averted 9.8 million new infections in health workers

Enhancing hand hygiene in health care settings is estimated to produce more modest health gains:

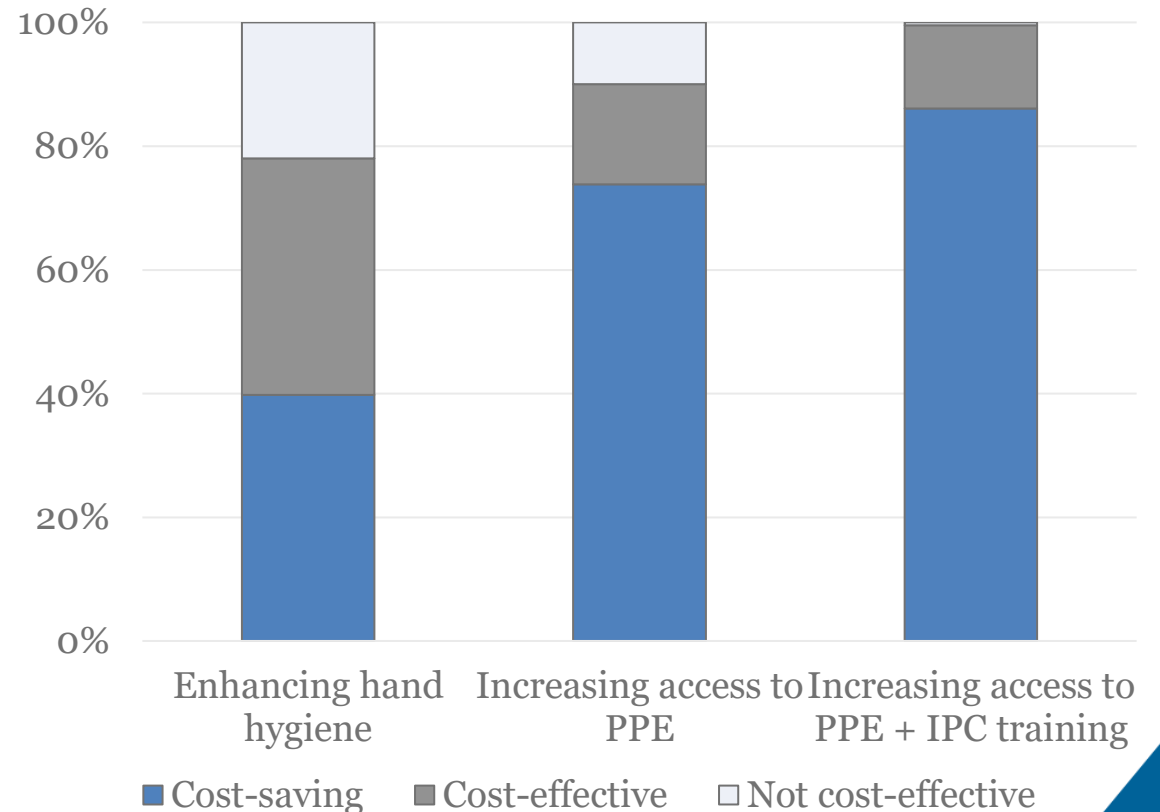
- HH intervention could have averted about 1 million new infections in health workers



Scaling up IPC Interventions Is An Excellent Investment For All Countries, Independently From Their Income

- All the three interventions show excellent cost-effectiveness profiles, which are likely to further improve by extending the scope of the analyses to cover other hospital-acquired infections
- Non-OECD regions usually show slightly better results, including because implementation costs tend to be lower

Probability of cost-effectiveness, average across the 7 regions by intervention

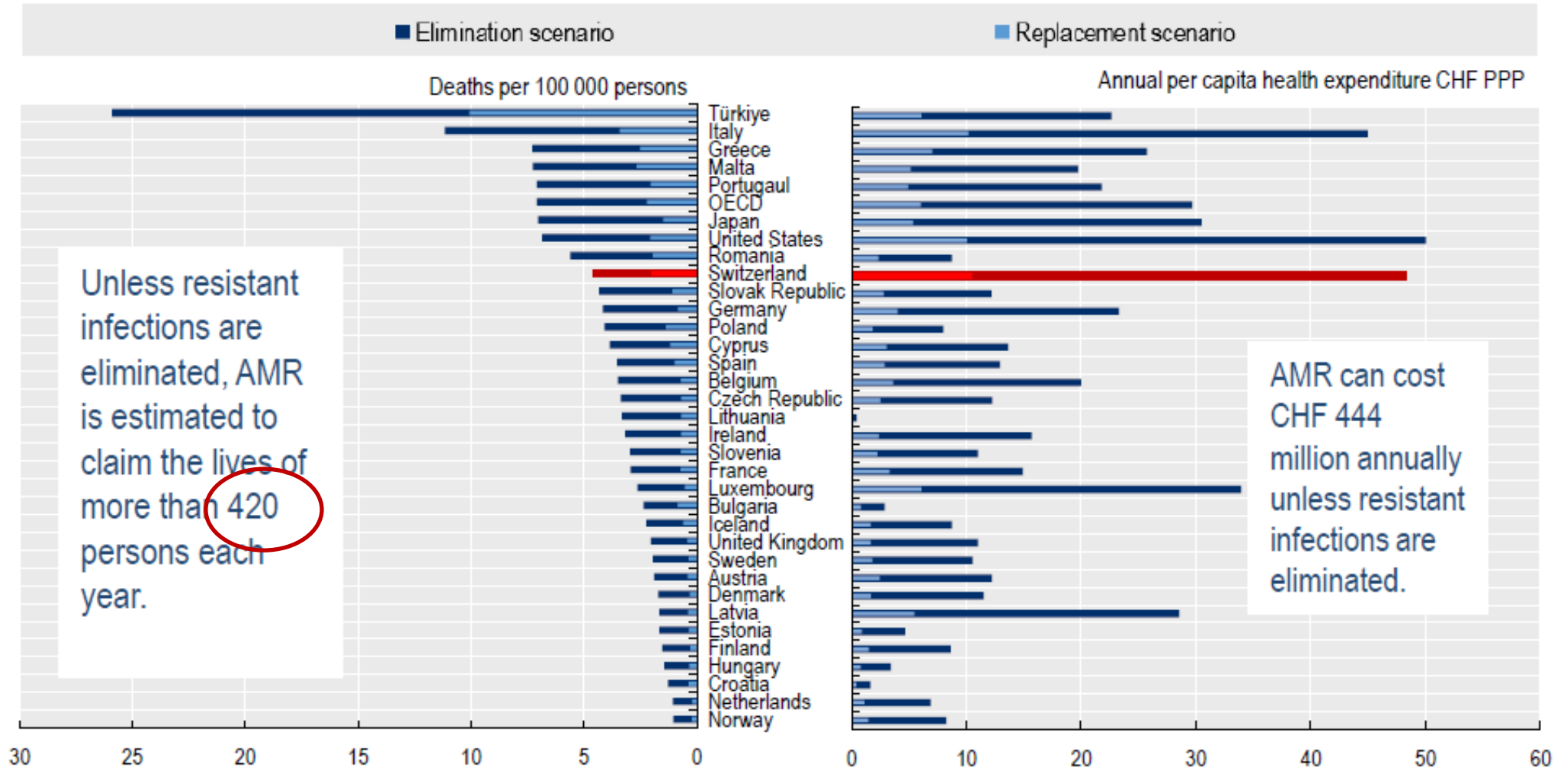


Embracing a One Health Framework to Fight Antimicrobial Resistance

Switzerland

UN EXEMPLE DE LA SUISSE

OECD REPORT *EMBRACING A ONE HEALTH FRAMEWORK TO FIGHT ANTIMICROBIAL RESISTANCE* ([HTTPS://OE.CD/AMR-ONEHEALTH](https://oe.cd/amr-onehealth))



The Elimination Scenario assumes elimination of all the resistant infections whereas the Replacement Scenario considers a situation where all resistant infections are assumed to be completely replaced by susceptible infections.



Comprehensive Packages Maximise Synergies Of Individual Interventions

Health-care based package



Improve antibiotic stewardship



Improve hand hygiene practices



Improve environmental hygiene practices in health facilities

Community-based package



Delayed antimicrobial prescription



Financial incentives to optimize antimicrobial use



Scale up use of RDTs



Improve the training of health professionals



Increase information campaigns

Mixed package



Improve antibiotic stewardship



Improve hand hygiene practices



Increase information campaigns



Improve food hygiene practices



Delayed antimicrobial prescription

Courtesy of Michele Cecchini, OECD

In Switzerland, investing 7 CHF per person annually in a mixed policy package can yield important gains every year:

Infections prevented

27 473

Lives saved

210

Savings in healthcare costs (in million CHF)

216

Gains by increased workforce participation and productivity (in million CHF)

196

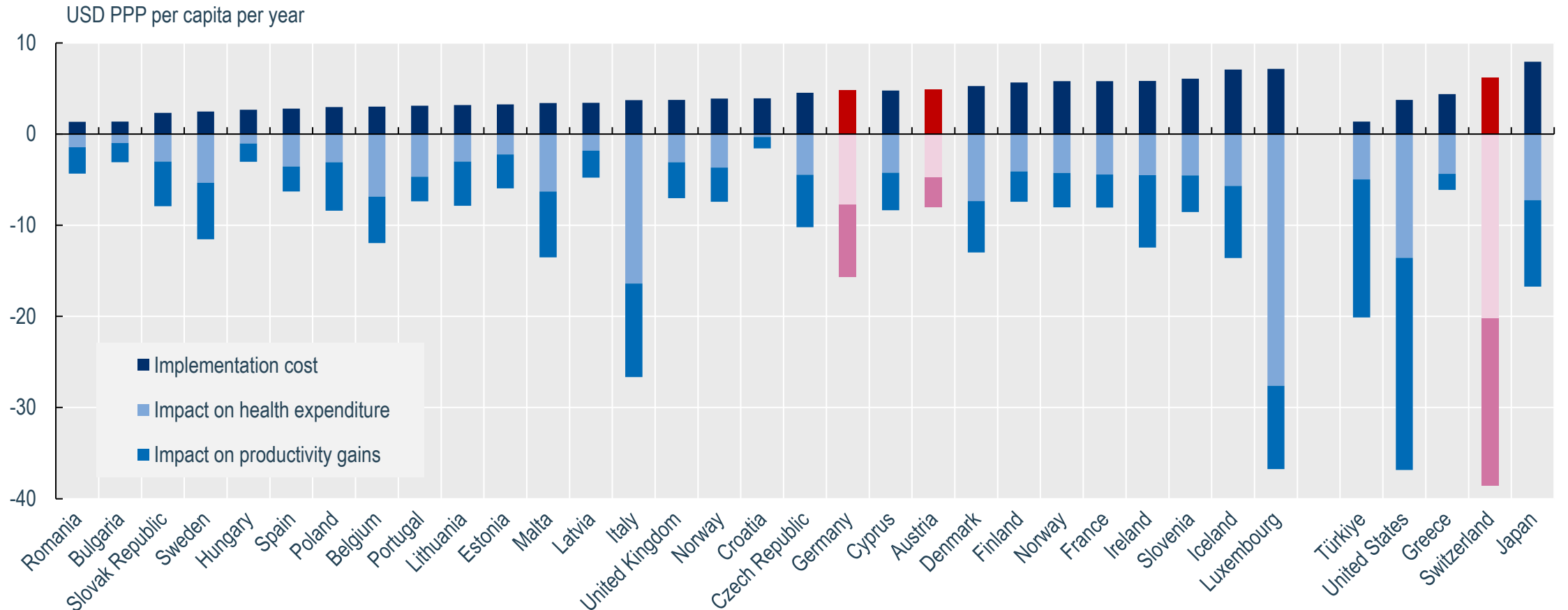
Return per CHF invested

6.22



Effectiveness of these interventions is enhanced when rolled out as a policy package

➤ Every **USD 1** invested in a mixed policy package – *involving human health and food sectors** – returns **USD 2** in **Austria**, **USD 3** in **Germany** and **USD 6** in **Switzerland** in health and economic gains



Courtesy of Michele Cecchini, OECD

Note: A mixed package includes improving hand hygiene, scaling up antimicrobial stewardship programmes, delayed antimicrobial prescription, increasing mass media campaigns and enhancing food handling practices
Source: OECD (2023), *Embracing a One Health Approach to Fight Antimicrobial Resistance*, available at: oe.cd/amr-onehealth.

REASONS FOR INCONSISTENCY NO OF DEATHS

Differences in deaths:

- OECD analyses are carried out for the period 2015-2050 and, if not specified otherwise, reported numbers refer to the average yearly impact of AMR over this period.
- OECD project quite some increase for fluoroquinolone-resistant *E. coli* and for carbapenem-resistant *K. pneumoniae*, although AMR tends to stay relatively flat.
- Population growth. For the last 30 years or so, population in CH has been growing by 10% per decade. OECD used UN population projections and if the trend is projected to continue in the future, this would justify quite a good share of the difference in the number. In fact, more people means more infections at constant rates.
- Population ageing. Risk of infection and fatality are closely related with age. The population in CH is projected to age quite significantly over the next years up to 2050, meaning that everything else being equal more people will be hospitalized, will develop infections, including resistant infections, and die due to AMR.

REASONS FOR HIGH COSTS

- CH is among the OECD countries with the highest health expenditure per capita, which is reflected in the input data used to model healthcare costs
- The coverage of healthcare services. Countries with a higher share of coverage for (including access to) healthcare services have higher costs, even if the cost per service provided is slightly lower.
- The use of purchasing power parity that, while increasing the cross-country comparability of results, may be less immediate in reflecting the ‘true’ cost at the national level

STATUS OF IMPLEMENTATION

Efforts to be made in:

- Optimising antimicrobial use in human health to ensure national guidelines are implemented and data on antimicrobial use is systematically fed back to prescribers
- Enhancing training and education on AMR in human health to ensure AMR is systematically and formally incorporated in pre service and in service training for all relevant human health professionals

National AMR Action Plan



Optimising antimicrobial use in human health



Monitoring antimicrobial consumption in human health



Infection prevention and control (IPC) in human health



Training and education on AMR in human health



Biosecurity practices in terrestrial animal production



Good management and hygiene practices in food processing



Webinar on OECD Report

Embracing a One Health Framework to Fight Antimicrobial Resistance Main Findings for Switzerland



22. November 2023, 14:00

[Register here](#)

[Link to directly join MS-Teams Webinar](#)

Agenda

Welcome

- Federal Office of Public Health
- Alessandro Cassini, Deputy Chief Medical Officer, Canton Vaud

Results of the latest OECD analysis for Switzerland

- Michele Cecchini, Head of the Public Health Unit, OECD Health Division
- Ece Özçelik, Health Policy Analyst, OECD, Health Division
- What is the health and economic impact of AMR in Switzerland in comparison to other OECD countries?
- What One Health policies and policy packages offer the highest return on investment for Switzerland?

Questions and Discussion

Resources

- Summary of Report: [OECD Policy Brief](#)
- Country Key Findings Switzerland: [FR/EN](#)
- Full Report „[Embracing a One Health Framework to Fight AMR](#)”
- [OECD-Program on AMR](#)

THANK YOU – QUESTIONS?