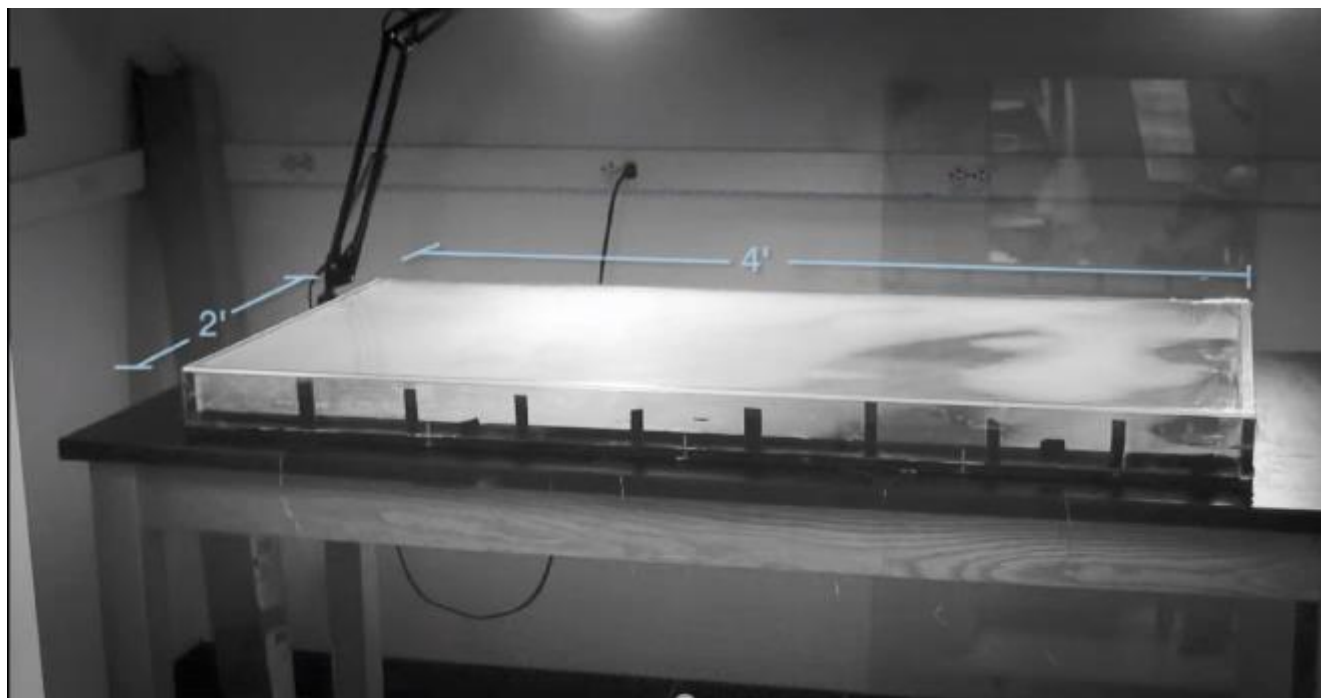


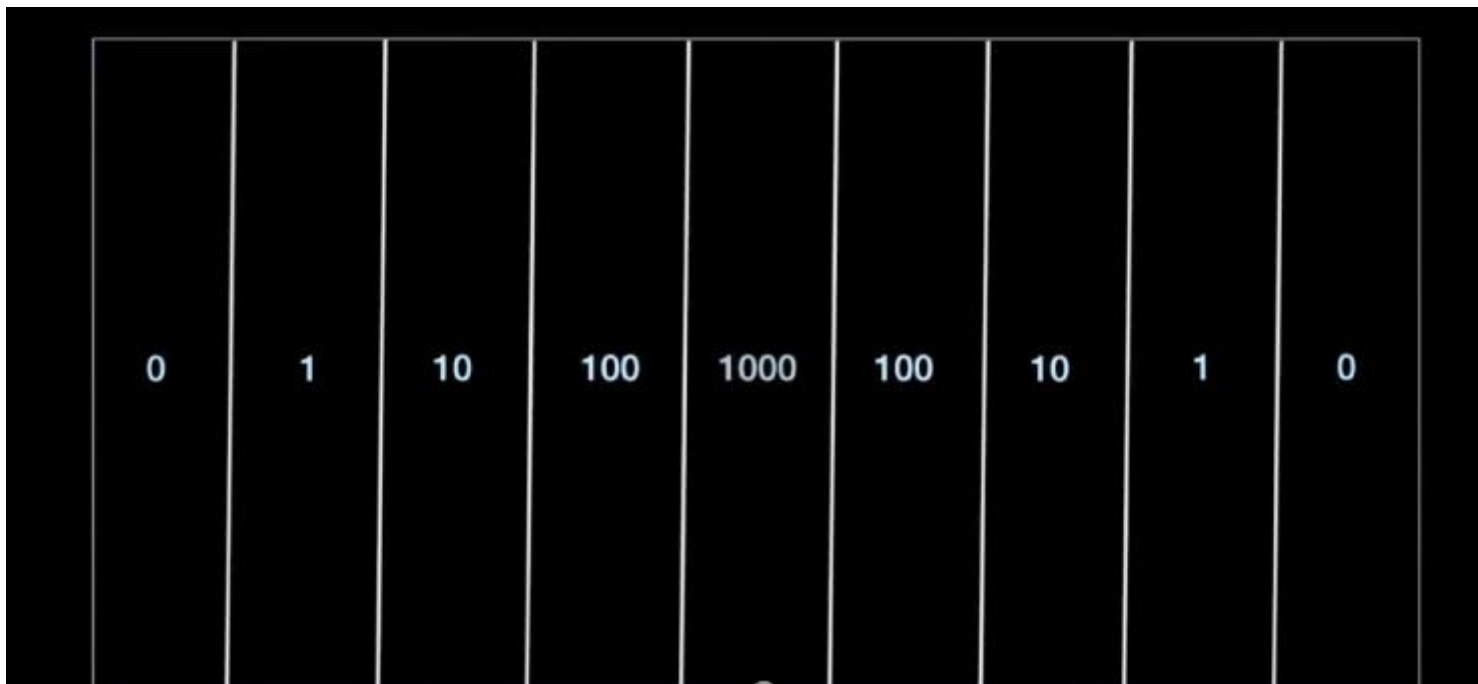
Impatto sanitario ed economico dell'antibiotico resistenza in Italia: soluzioni OMS

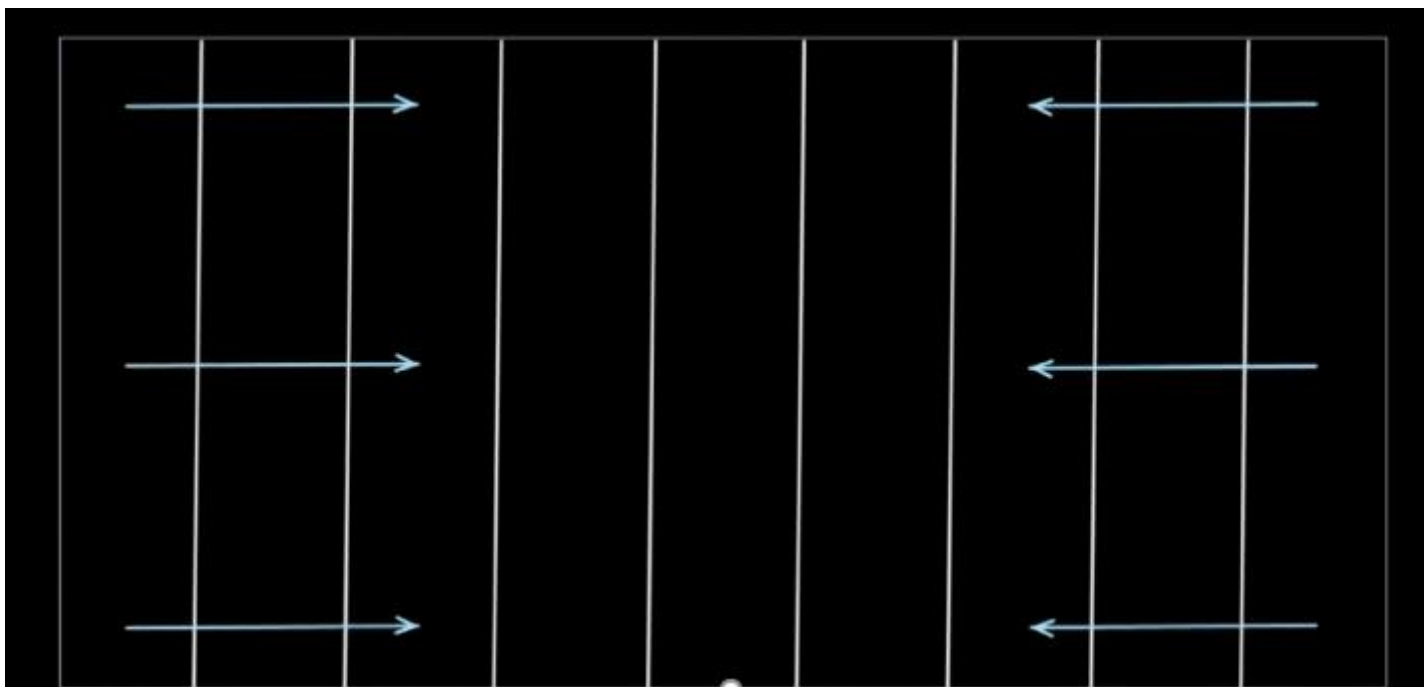
**Alessandro Cassini and Benedetta Allegranzi
per la “IPC Global Unit”**



**World Health
Organization**

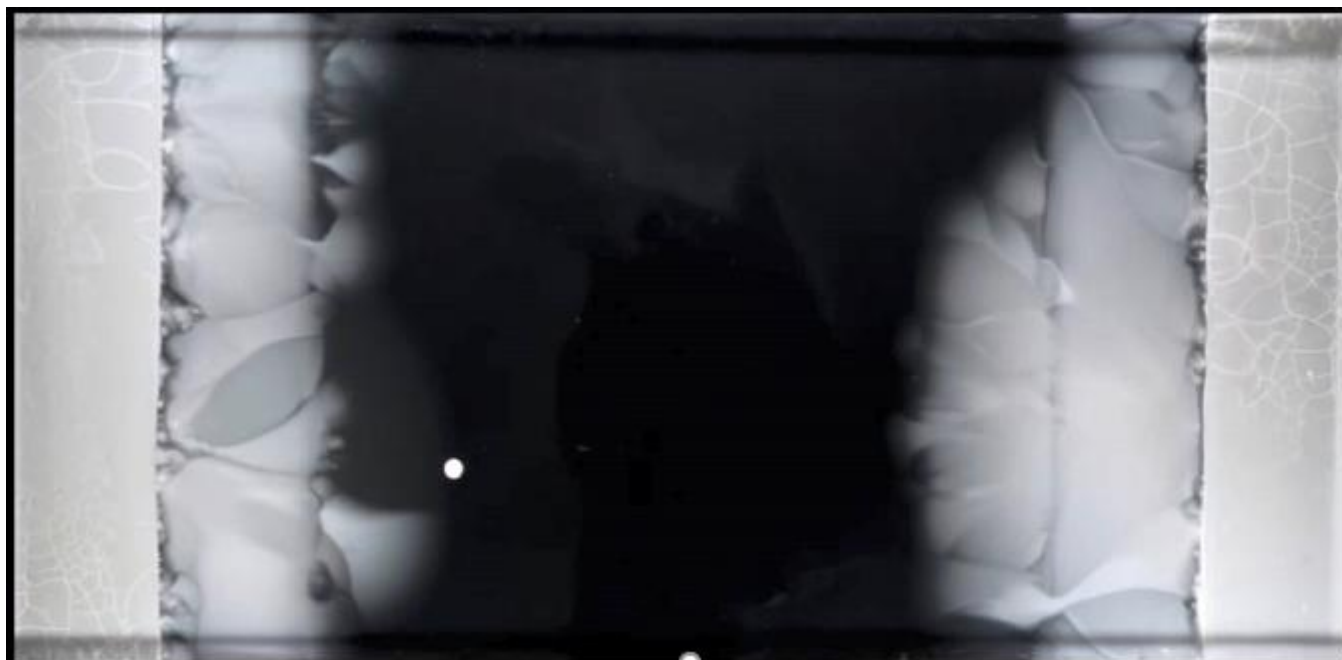


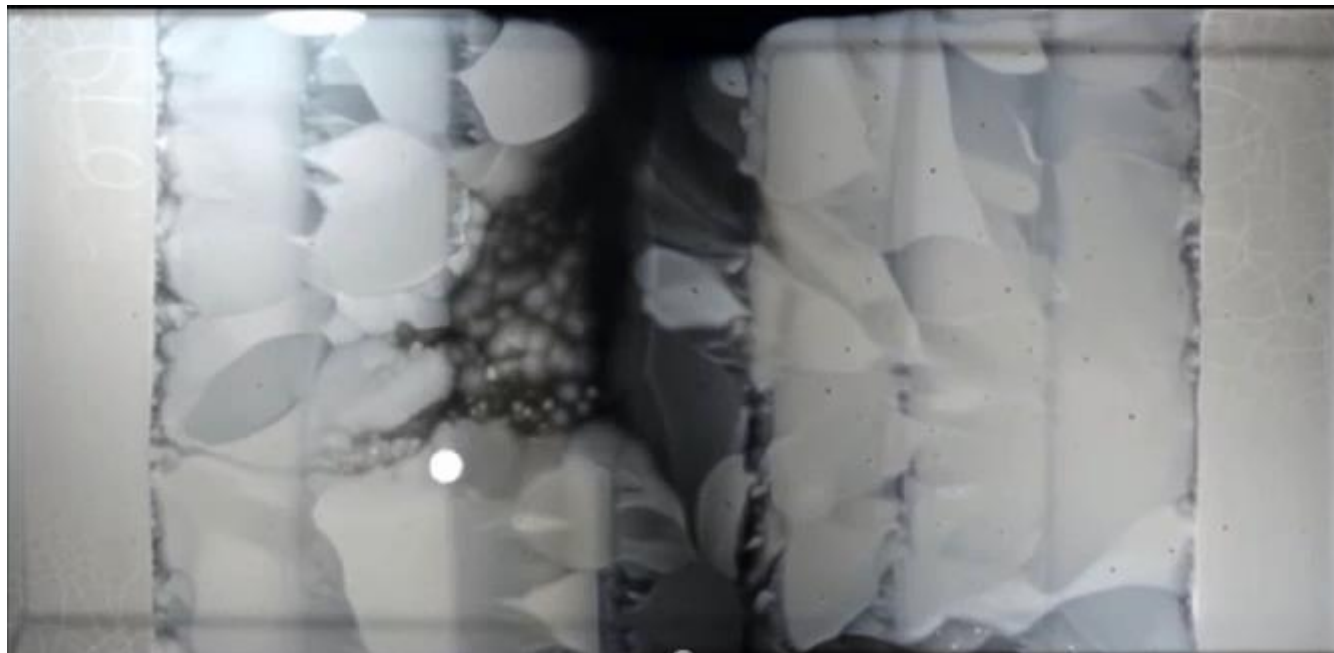


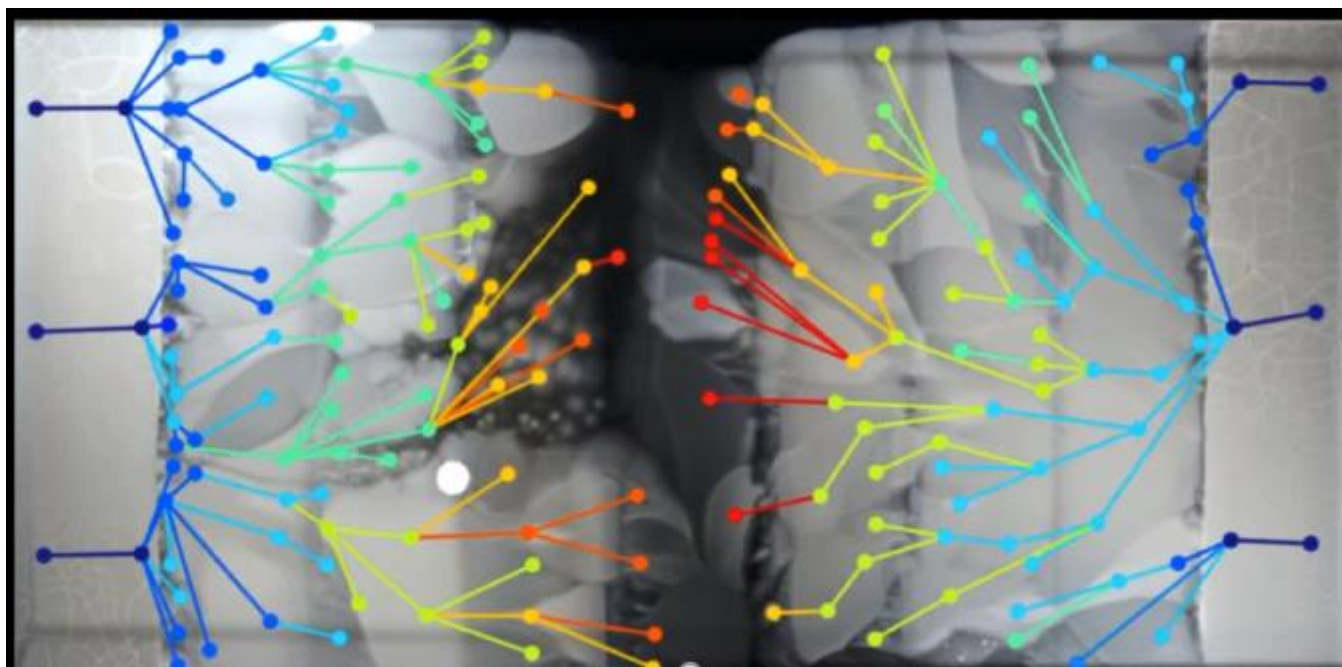








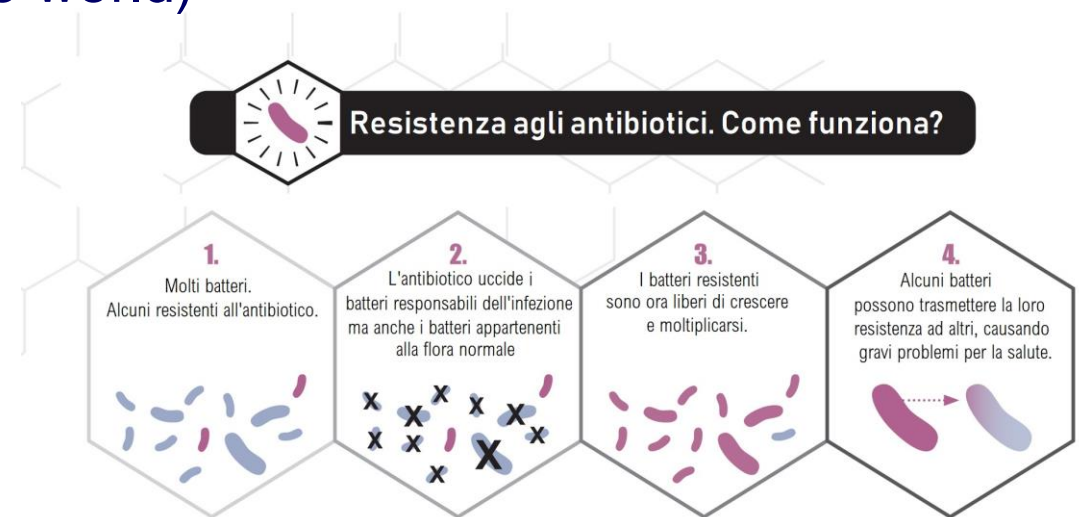




AMR non è una malattia, è un insuccesso terapeutico

- L'antibiotico-resistenza è
 - Multifattoriale (mutazione, geni acquisiti)
 - Multisetoriale (one health, one world)

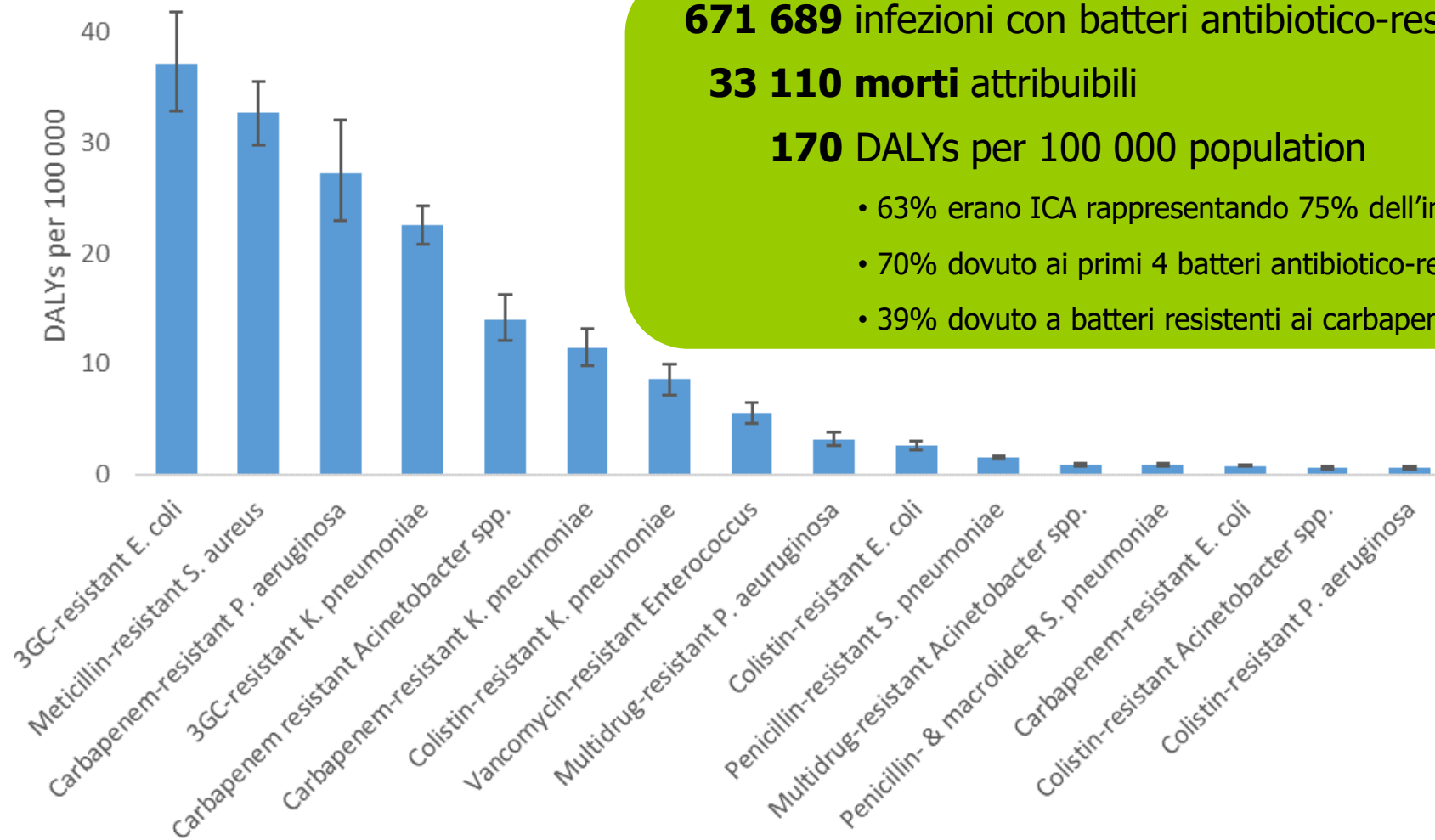
- Che varia a seconda del
 - Ospite
 - Organismo
 - Antibiotico
 - Tipo di infezione



Fonte: tradotto da Melissa Brower, US CDC

Un grande numero di combinazioni!

Impatto delle infezioni con batteri antibiotico-resistenti, UE/SEE, 2015



671 689 infezioni con batteri antibiotico-resistenti

33 110 morti attribuibili

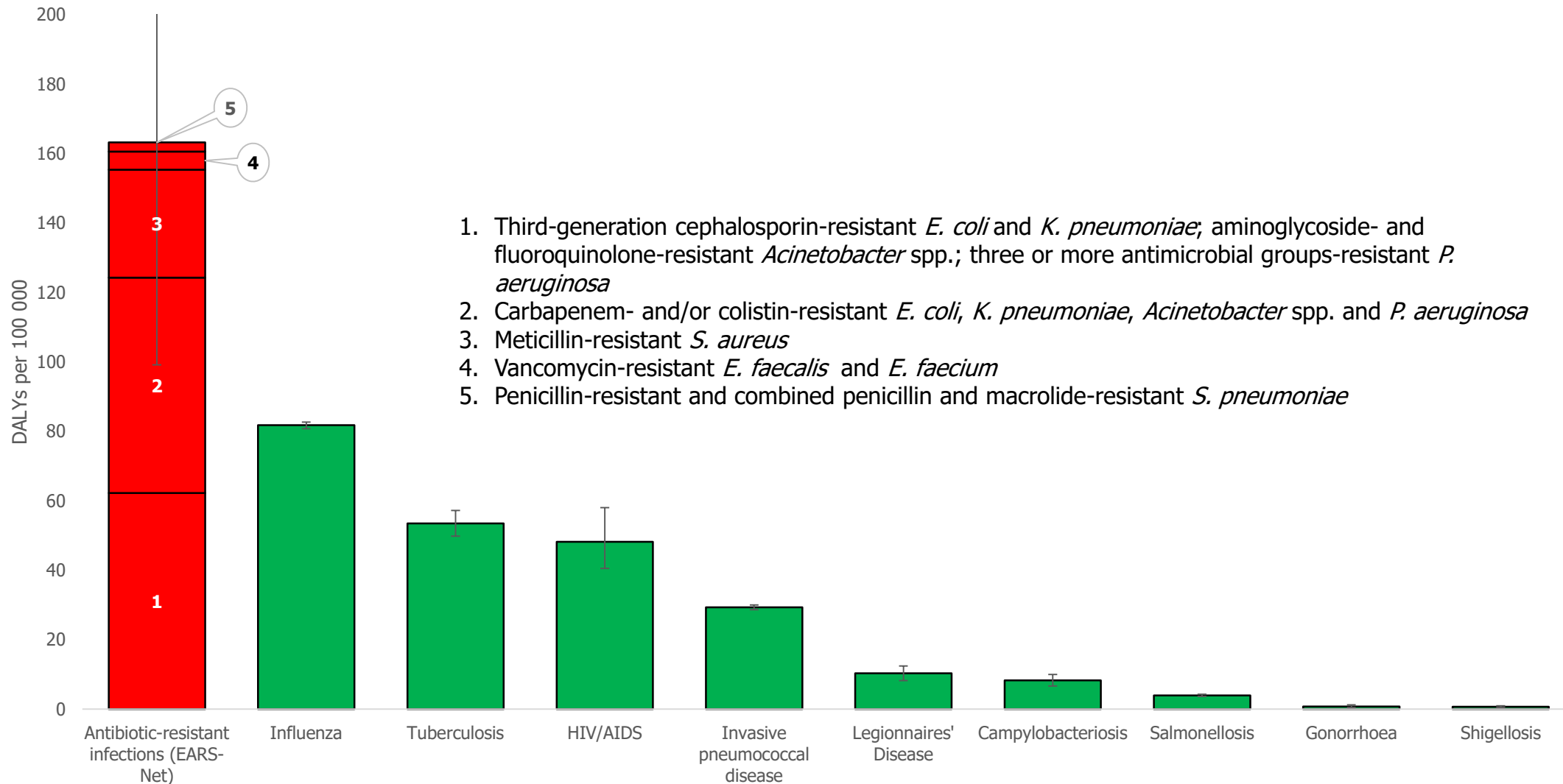
170 DALYs per 100 000 population

- 63% erano ICA rappresentando 75% dell'impatto totale in DALYs
- 70% dovuto ai primi 4 batteri antibiotico-resistenti
- 39% dovuto a batteri resistenti ai carbapenemi e/o colistina

Cassini A., et al. (2019). The Lancet Infectious Diseases 19(1): 56-66.



L'impatto è paragonabile a quello cumulativo dell'influenza, tubercolosi e HIV/AIDS

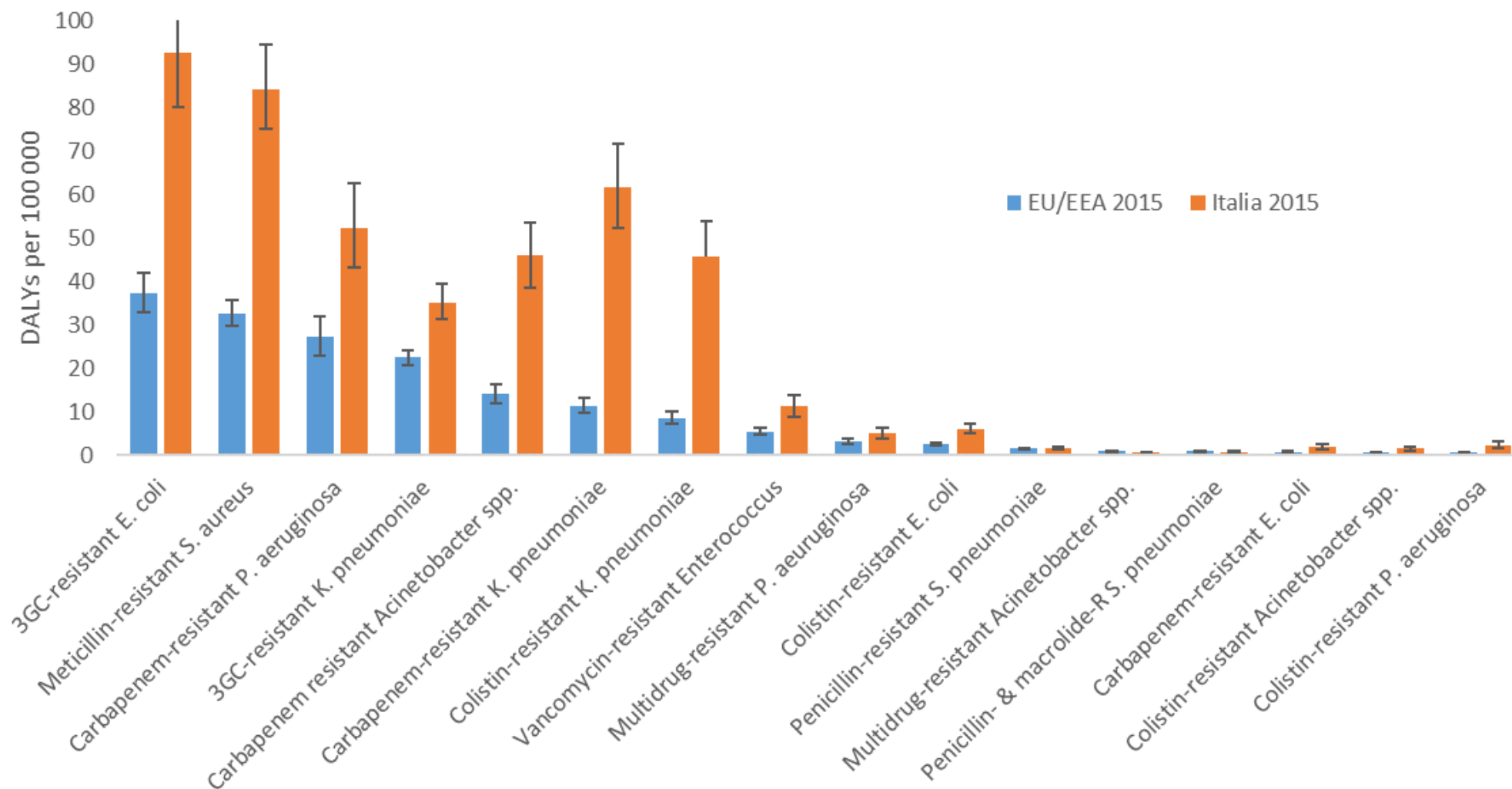


Adattato da: Cassini A., et al. (2019). *The Lancet Infectious Diseases* 19(1): 56-66.
Cassini A, et al. *Eurosurveillance* 2018;23(16):pii=17-00454



World Health Organization

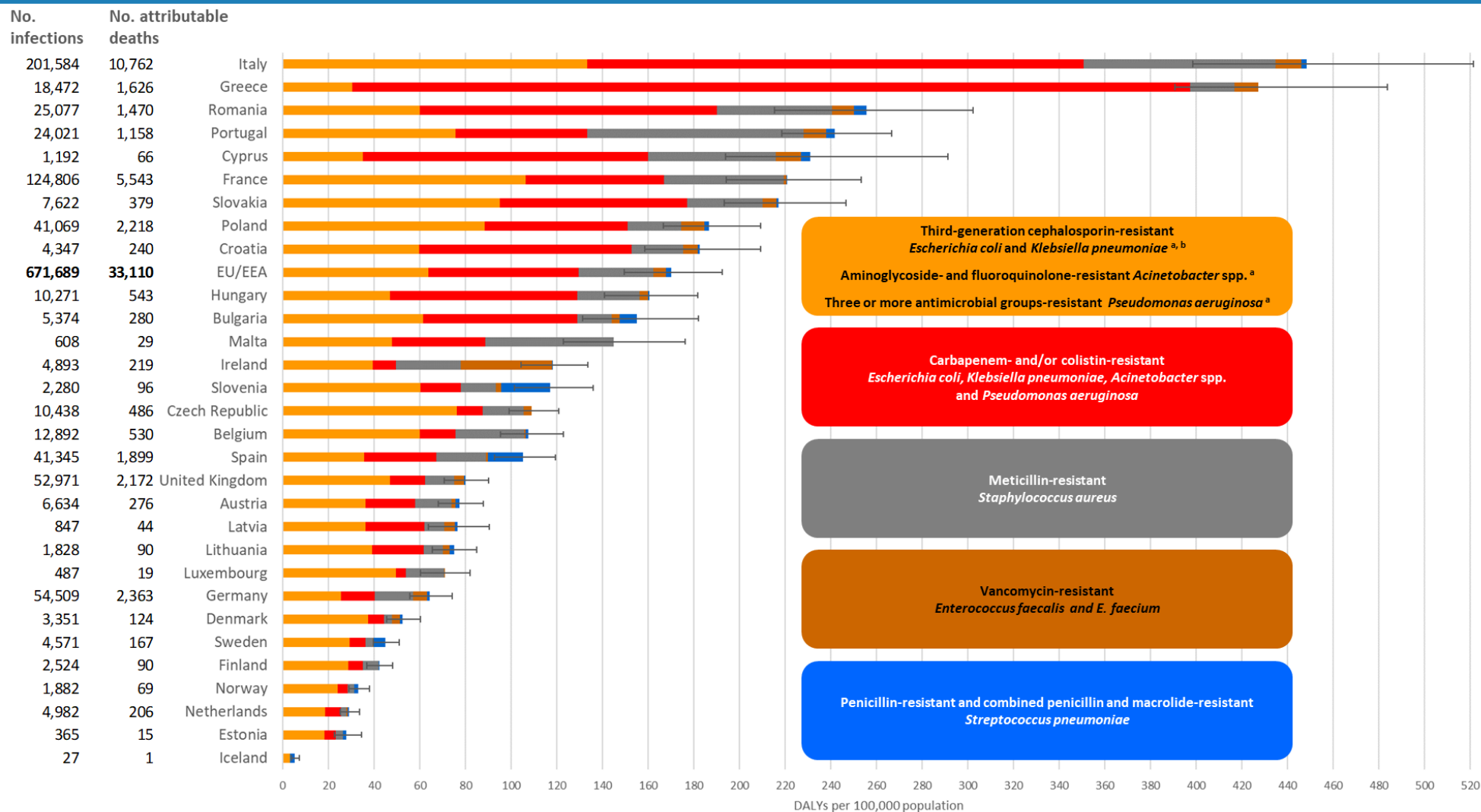
Paragone impatto UE/SEE e Italia



Cassini A., et al. (2019). The Lancet Infectious Diseases 19(1): 56-66.



Impatto delle infezioni con batteri antibiotico-resistenti, per paese, 2015, standardizzato per gruppo d'età



Cassini A., et al. (2019). The Lancet Infectious Diseases 19(1): 56-66.



World Health Organization

Burden of infections with antibiotic-resistant bacteria, EU/EEA, 2007-2015

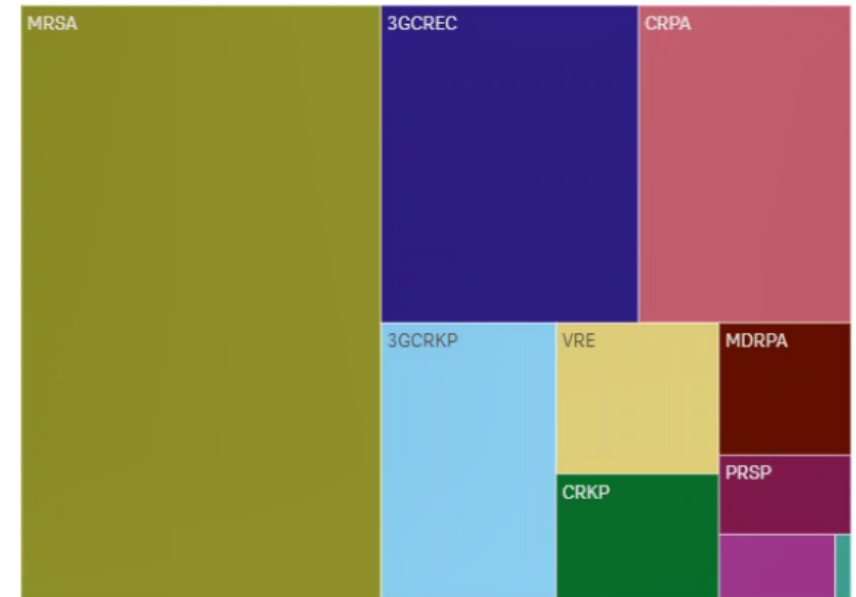
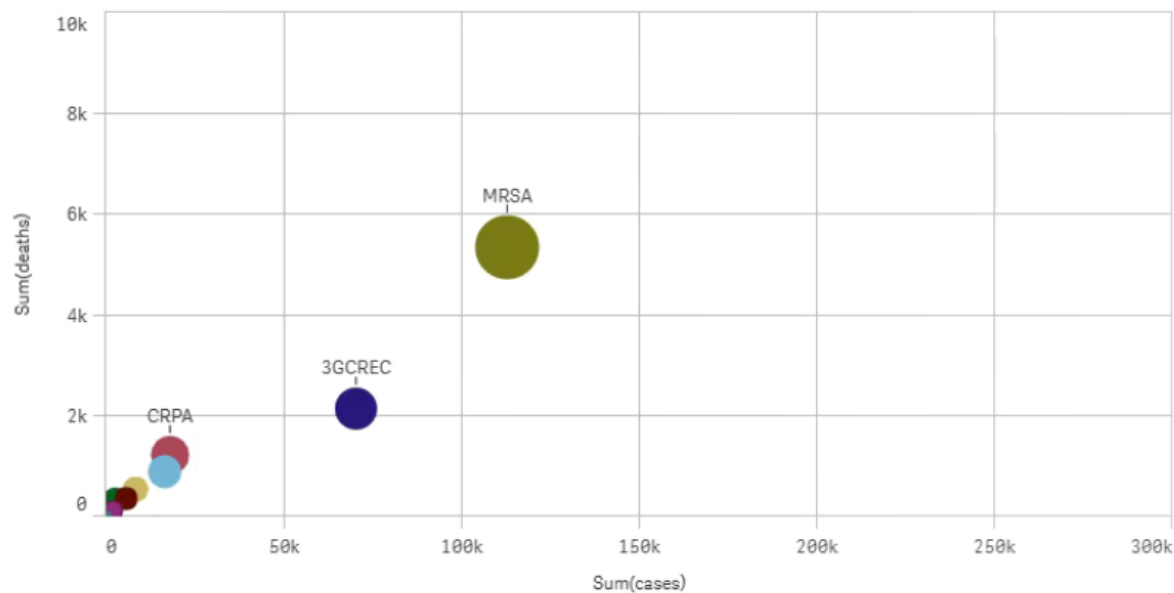
2007 to 2015:

Number of deaths more than doubled

Number of deaths due to:

- carbapenem-resistant *K. pneumoniae* increased **six-fold**
- third-generation cephalosporin-resistant *E. coli* increased **four-fold**

Year 2007



Adapted from Cassini A, et al. The Lancet Infectious Diseases. 5 November 2018



Burden of infections with antibiotic-resistant bacteria, EU/EEA, 2007-2015

2007 to 2015:

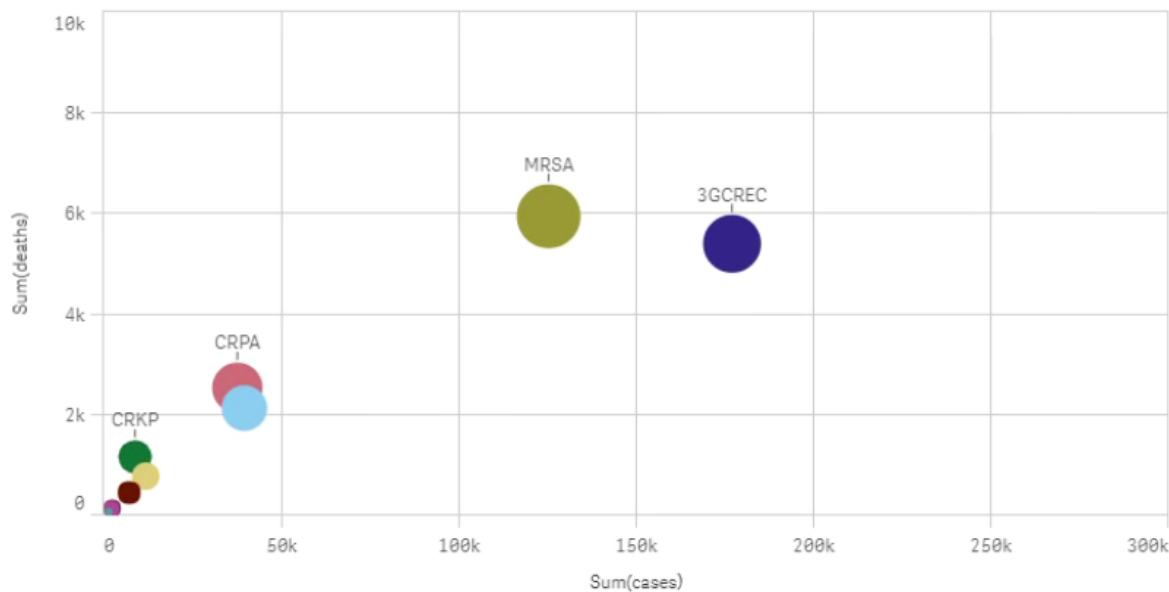
Number of deaths more than doubled

Number of deaths due to:

- carbapenem-resistant *K. pneumoniae* increased **six-fold**
- third-generation cephalosporin-resistant *E. coli* increased **four-fold**



Year 2011



Adapted from Cassini A, et al. The Lancet Infectious Diseases. 5 November 2018



Burden of infections with antibiotic-resistant bacteria, EU/EEA, 2007-2015

2007 to 2015:

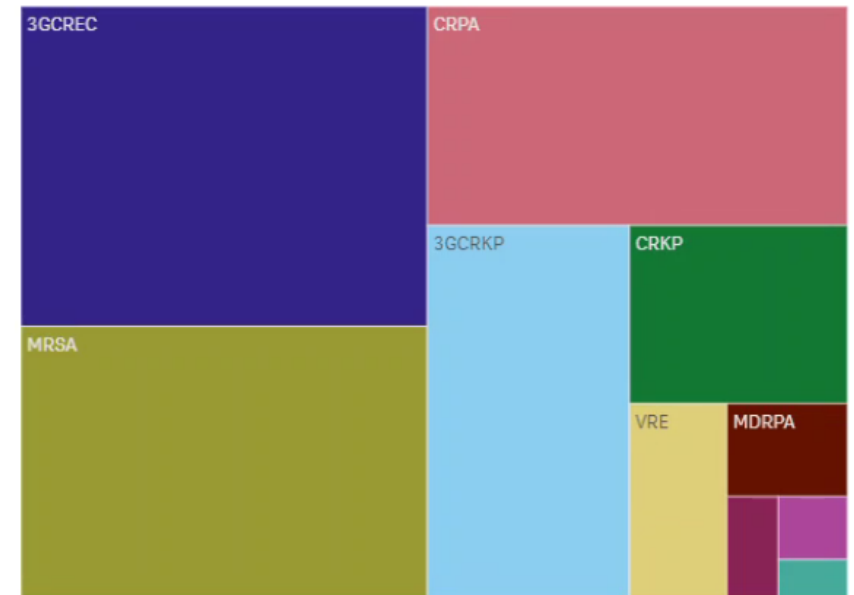
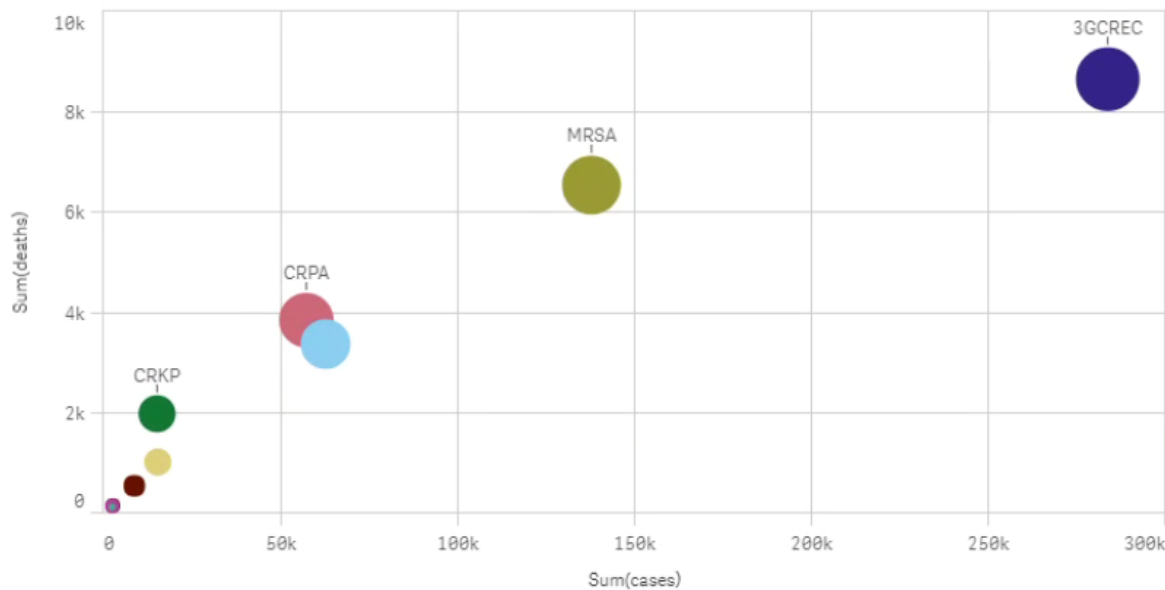
Number of deaths more than doubled

Number of deaths due to:

- carbapenem-resistant *K. pneumoniae* increased **six-fold**
- third-generation cephalosporin-resistant *E. coli* increased **four-fold**



Year 2015

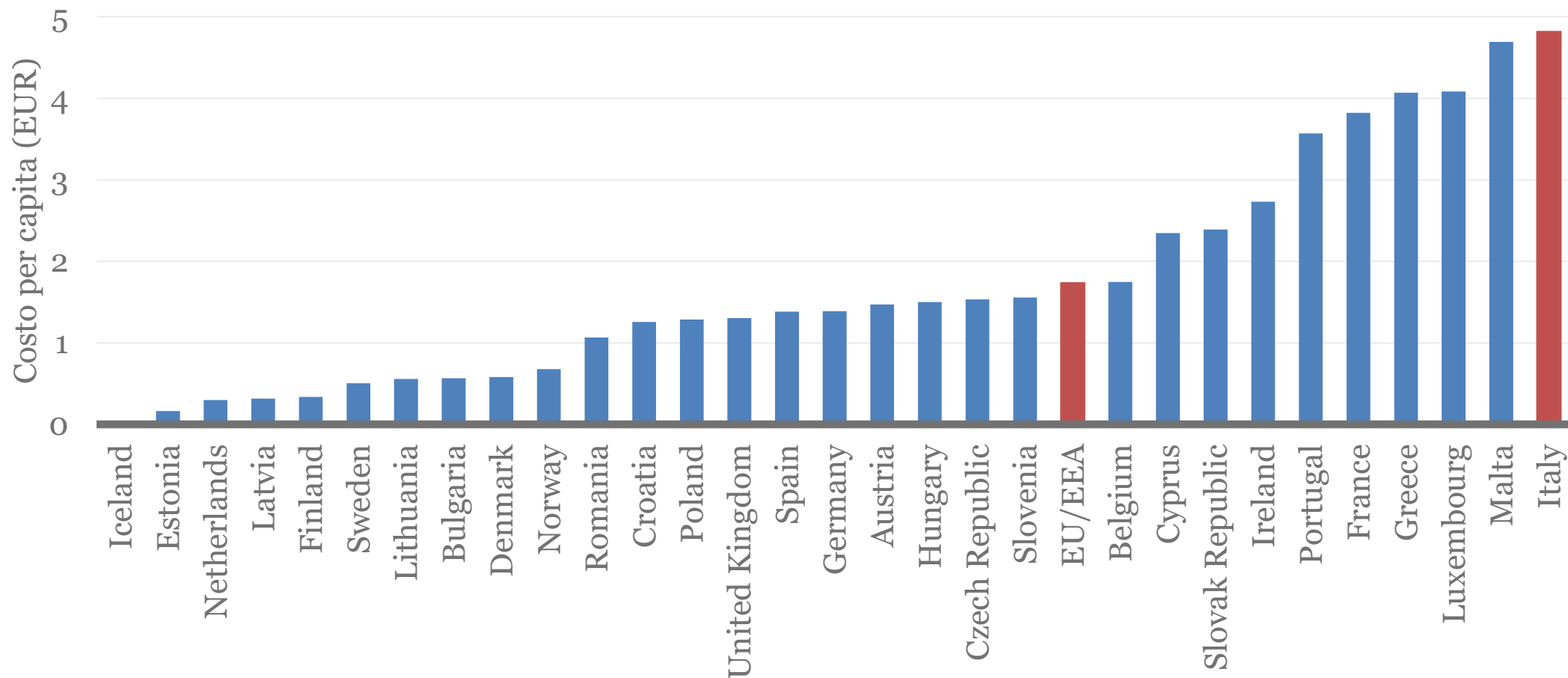


Adapted from Cassini A, et al. The Lancet Infectious Diseases. 5 November 2018

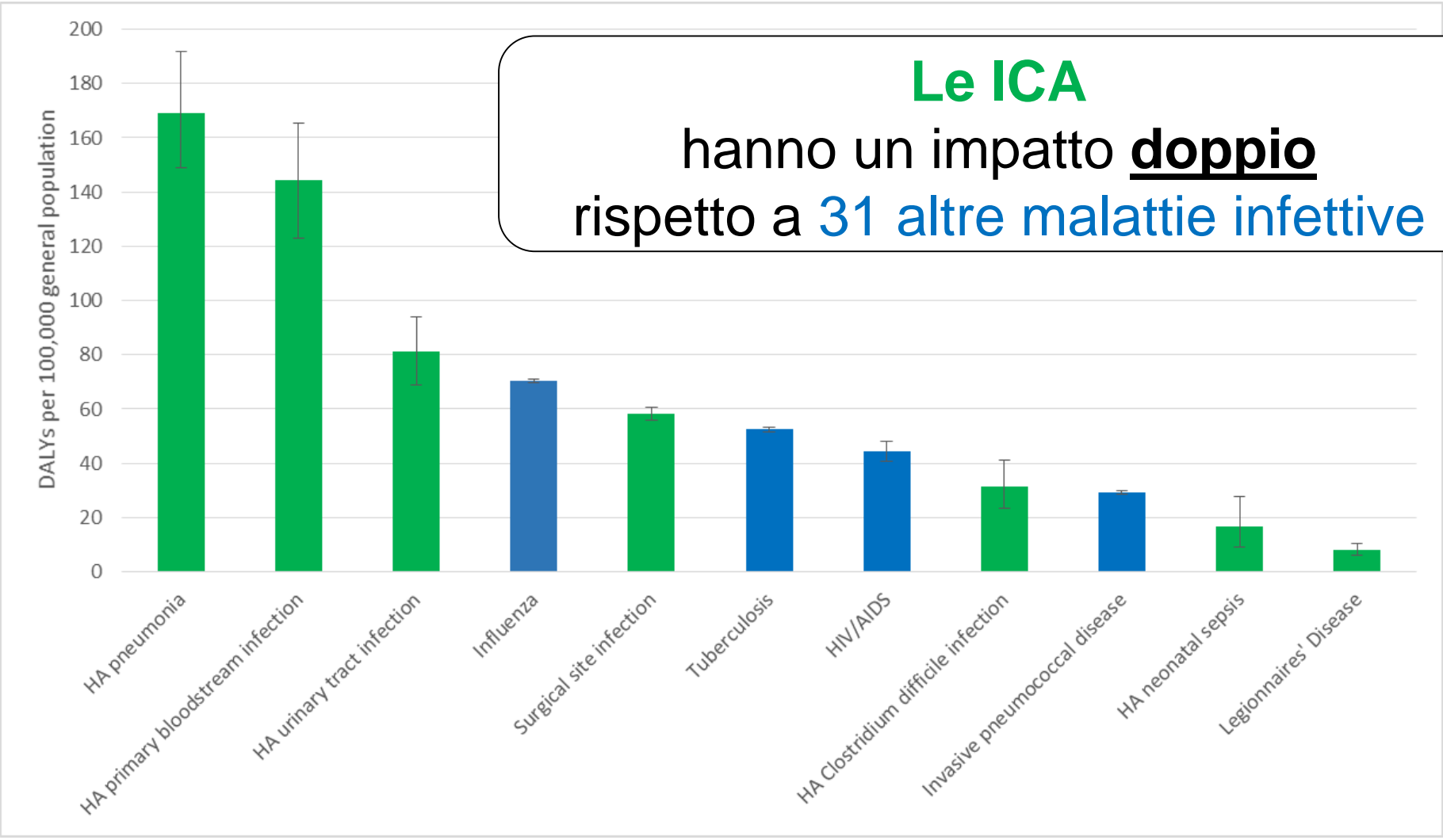




L'antibiotico resistenza costa 1.1 miliardi di Euro/anno ai sistemi sanitari europei con altissimi costi in Italia



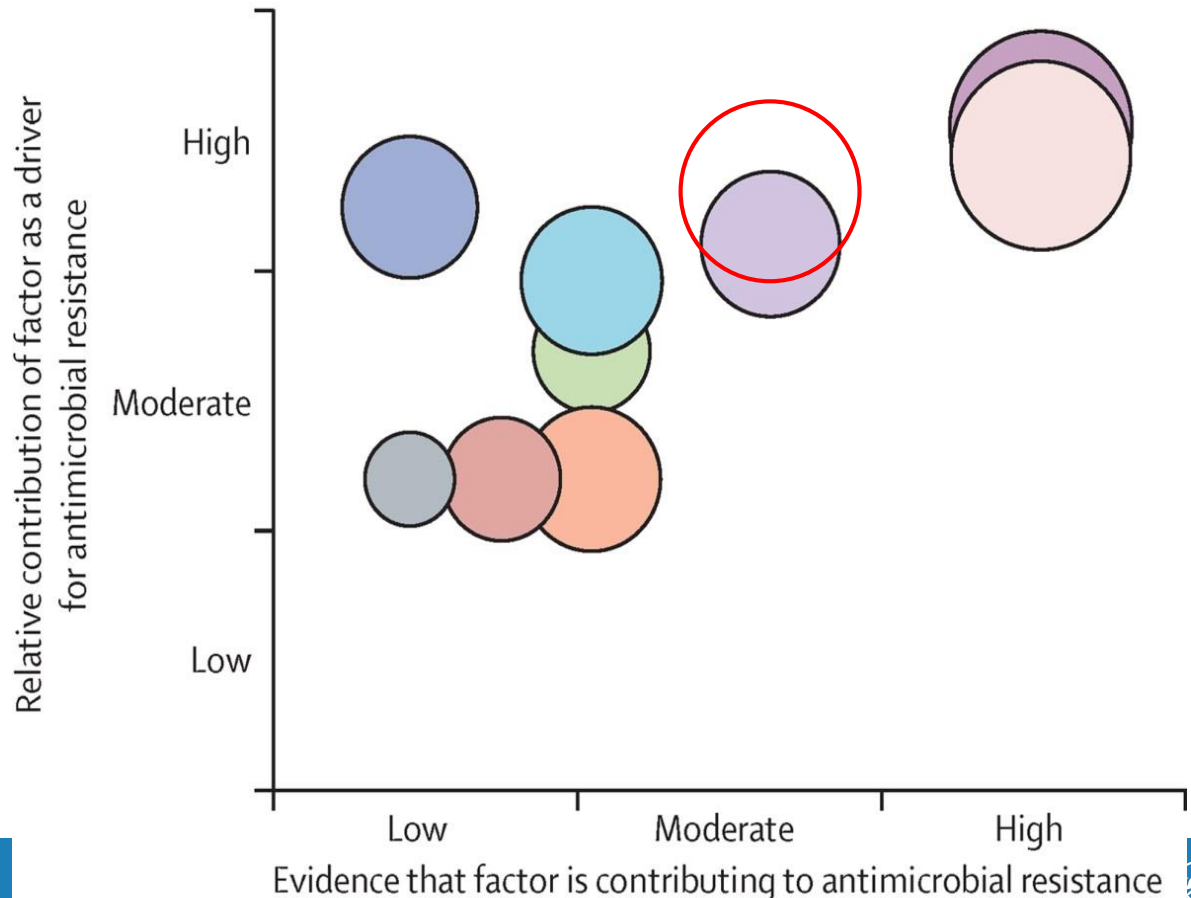
Paragonando l'impatto delle ICA e quello di altre infezioni



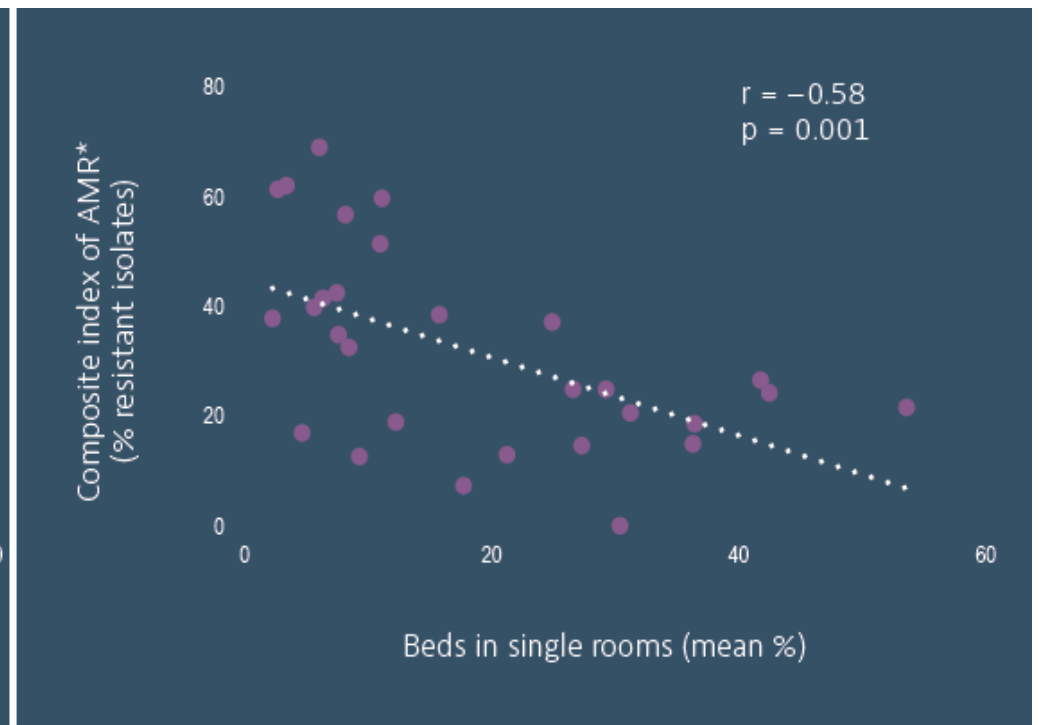
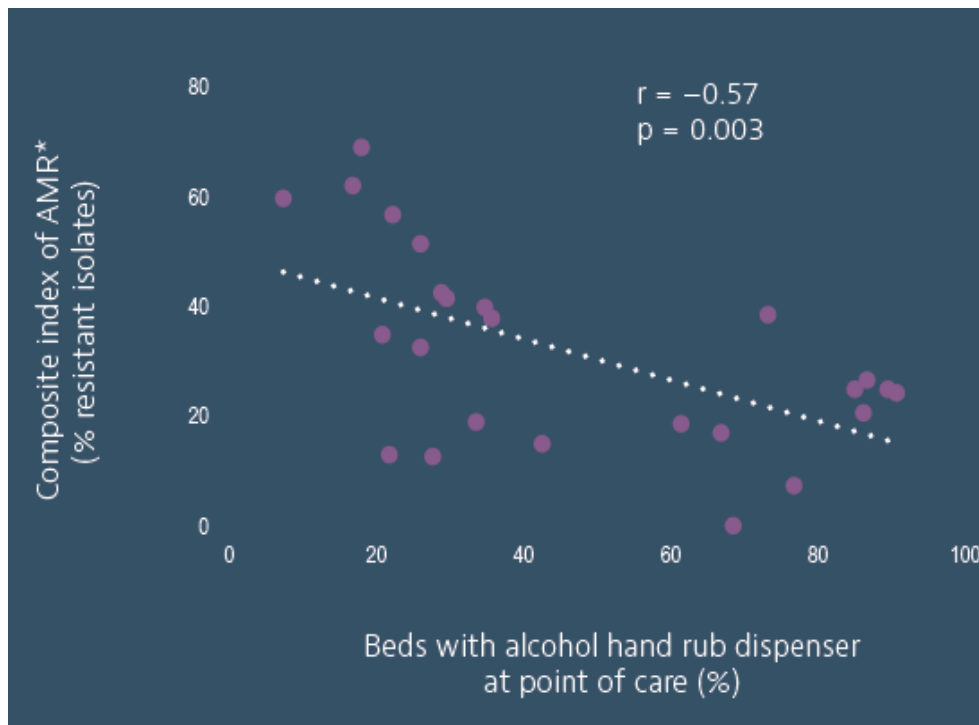
Adattato da: Cassini A, et al. PLoS Med 2016;13(10):e1002150
Cassini A, et al. Eurosurveillance 2018;23(16):pii=17-00454

Fattori che contribuiscono all'AMR

- Human antimicrobial misuse or overuse
- Animal antimicrobial misuse or overuse
- Environmental contamination
- Health-care transmission
- Suboptimal rapid diagnostics
- Suboptimal vaccination
- Suboptimal dosing, including from substandard and falsified drugs
- Travel
- Mass drug administration for human health



Correlazioni tra prevenzione e controllo delle ICA e AMR



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



Politiche per contrastare l'antibiotico resistenza

Ambiente ospedaliero

Comunità



Promuovere l'igiene delle mani

Presso il personale operante nei servizi sanitari



Prescrizione ritardata

Per diminuire il consumo di antibiotici nel caso di infezioni virali

Pacchetto di interventi



Migliore igiene dell'ambiente

Per minimizzare la trasmissione delle infezioni ambientali e da presidi medico chirurgici



Campagne informative

Per diffondere la consapevolezza dei rischi associati alla inappropriatezza prescrittiva



Programmi di stewardship

Per promuovere un uso prudente degli antibiotici e porre fine a decenni di prescrizione inappropriata

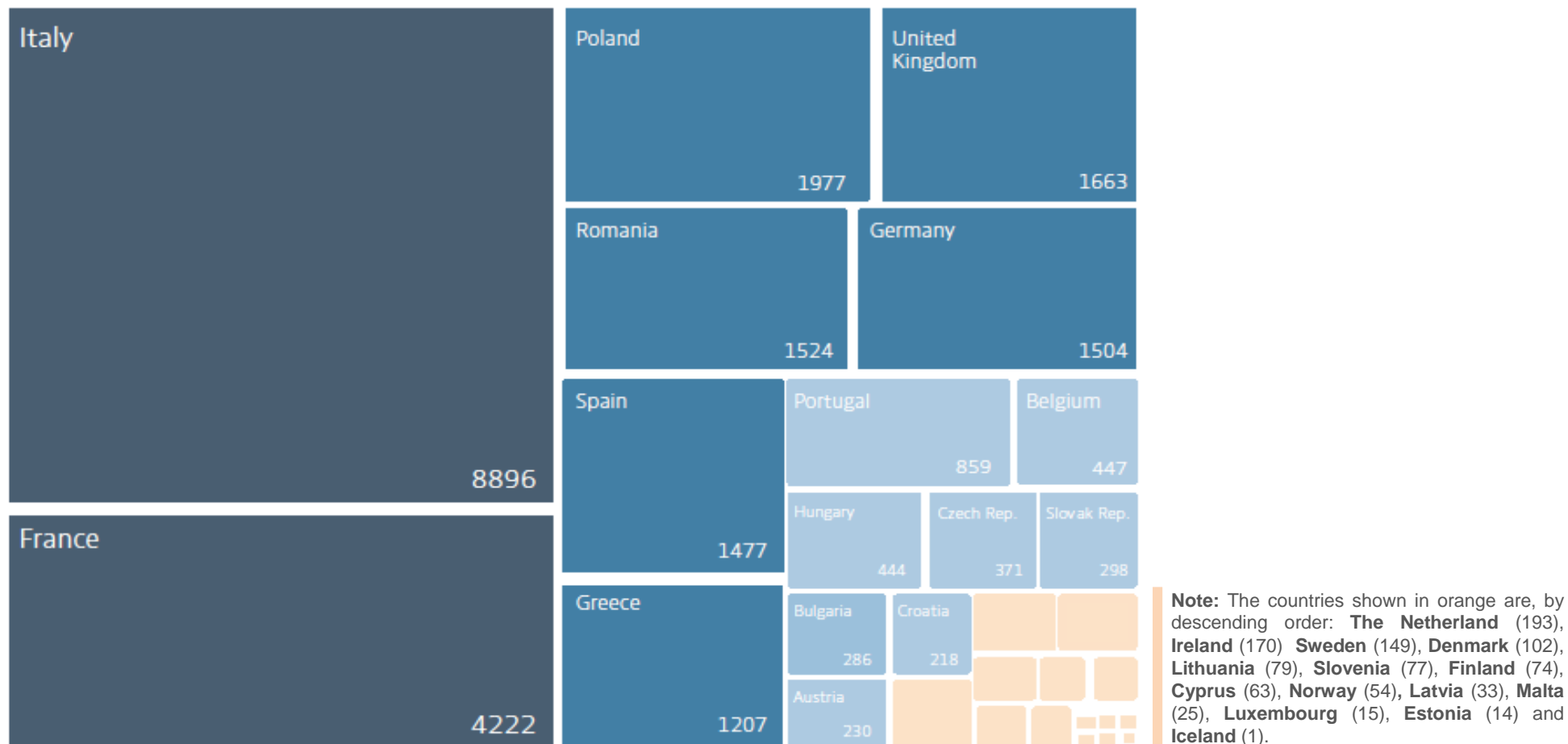


Uso dei test diagnostici rapidi

Per aiutare i medici di famiglia a determinare se un'infezione necessita di un trattamento antibiotico o meno



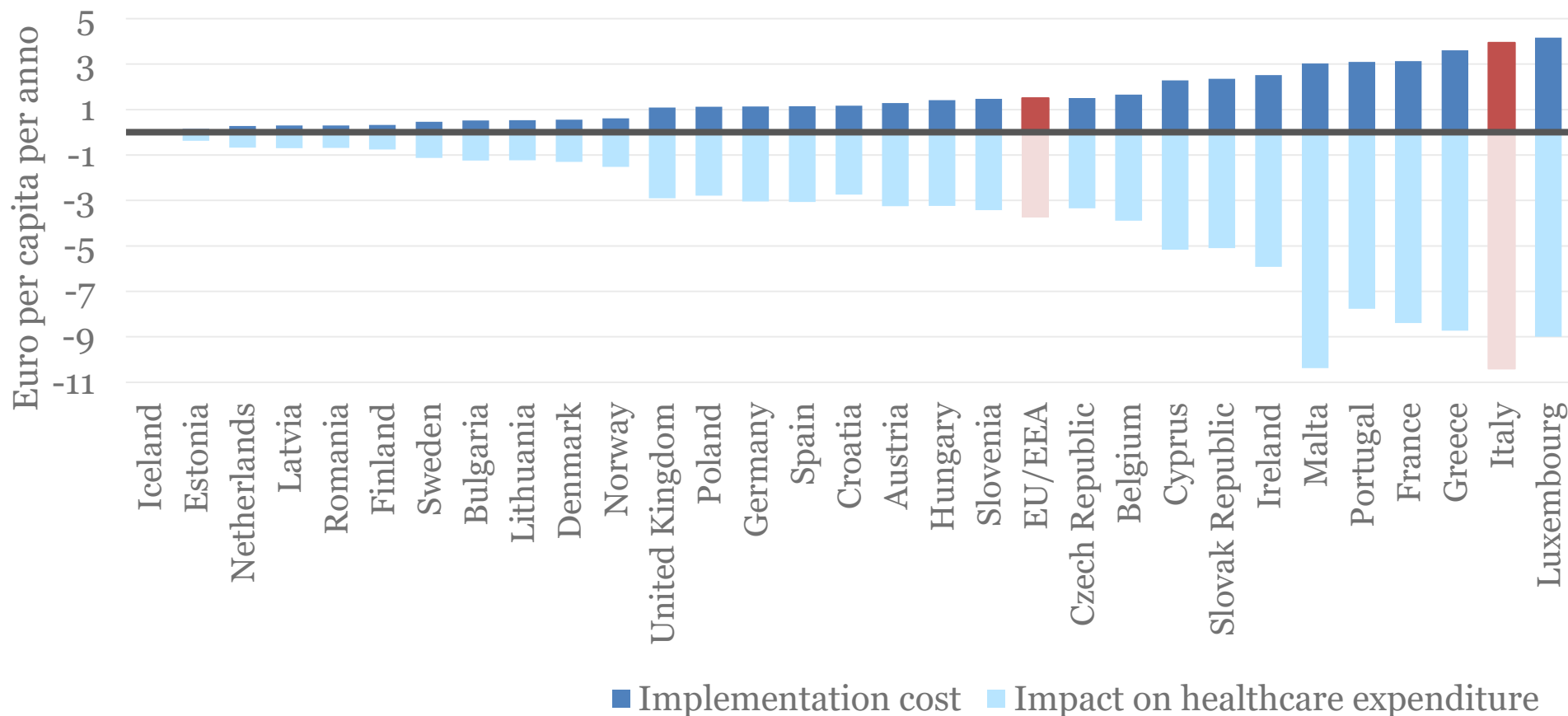
Il 'pacchetto' di interventi potrebbe evitare la morte di quasi 9000 persone/anno in Italia e 27000 in Europa





...e far risparmiare circa 1.4 miliardi di Euro per anno al budget dei sistemi sanitari Europei di cui 600 ml in Italia

Valutazione economica del 'pacchetto' di interventi:
un investimento di pochi Euro produce significativi risparmi nella spesa sanitaria



■ Implementation cost ■ Impact on healthcare expenditure

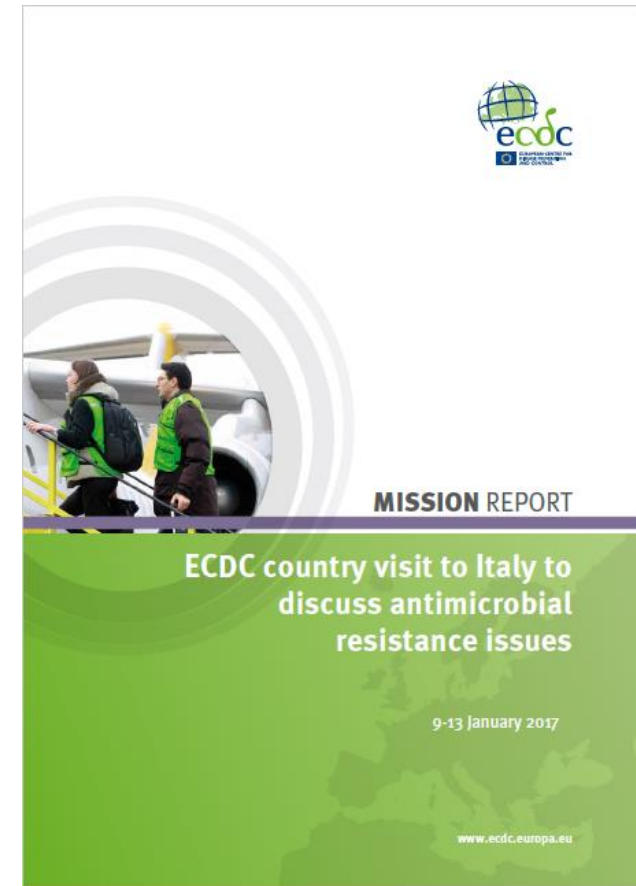
Nota: * includendo l'effetto sulle infezioni non resistenti

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

Ringraziamenti a Michele Cecchini, Responsabile Salute Pubblica, OCSE

Conclusioni della visita ECDC in Italia nel 2017

- Poca percezione dell'attuale situazione dell'antibiotico-resistenza da parte della maggior parte degli interessati e una tendenza di molti di essi a evitare di prendere in carico il problema;
- Mancanza di sostegno istituzionale a livello nazionale, regionale e locale;
- Mancanza di leadership professionale ad ogni livello;
- Mancanza di responsabilità ad ogni livello;
- Mancanza di coordinamento delle attività tra e all'interno di tutti i livelli.



La risposta: PNCAR



PROGRAMMA	TARGET	PRINCIPALI OBIETTIVI	
		A BREVE TERMINE (2017-2018)	A LUNGO TERMINE (2019-2020)
SORVEGLIANZA AMR	Umano	Sistema nazionale di sorveglianza dell'AMR con la partecipazione di tutte le Regioni	Consolidare le sorveglianze "dedicate" (es. CPE), valutare la sorveglianza per nuovi cloni emergenti e tendere verso un modello di sorveglianza esaustivo e non più sentinella
	Veterinario	Rafforzare la performance del sistema di sorveglianza e monitoraggio dell'AMR	Sorvegliare nuovi cloni antibiotico-resistenti
SORVEGLIANZA DELLE INFEZIONI CORRELATE ALL'ASSISTENZA (ICA)	Umano	Sviluppare un piano nazionale di sorveglianza delle ICA	Applicare il piano nazionale di sorveglianza delle ICA in tutte le Regioni
SORVEGLIANZA DEL CONSUMO DEGLI ANTIBIOTICI	Umano	Ottimizzare il monitoraggio del consumo degli antibiotici prescritti a livello nazionale	Promuovere lo sviluppo di sistemi regionali per il monitoraggio dell'appropriatezza prescrittiva
	Veterinario	Rendere la prescrizione veterinaria elettronica obbligatoria su tutto il territorio nazionale. Promuovere lo sviluppo di modelli di classificazione delle aziende sulla base della valutazione del rischio di sviluppo di AMR e consumo di antibiotici (miglioramento dei controlli ufficiali)	Misurare i dati di prescrizione e di consumo degli antibiotici e non soltanto quelli di vendita
RESIDUI DI ANTIBIOTICI	Veterinario	Aggiornamento annuale del piano di monitoraggio dei residui in animali e alimenti di origine animale, con rivalutazione periodica delle ricerche	Aggiornamento annuale del piano di monitoraggio dei residui in animali e alimenti di origine animale, con rivalutazione periodica delle ricerche
PREVENZIONE DELLE INFEZIONI CORRELATE ALL'ASSISTENZA (ICA)	Umano	Armonizzare le strategie per la prevenzione e il controllo delle ICA, integrandole con quelle per l'uso appropriato di antibiotici	Migliorare e adeguare costantemente alle evidenze scientifiche le misure di prevenzione e controllo delle ICA
PREVENZIONE DELLE MALATTIE INFETTIVE E DELLE ZONOSI	Veterinario	Sviluppare programmi di buone pratiche nella corretta gestione degli allevamenti e strategie di prevenzione della malattie infettive	Ridurre il rischio infettivo nelle aziende zootecniche
USO CORRETTO E PRUDENTE DEGLI ANTIBIOTICI	Umano	Armonizzare le strategie sull'uso appropriato di antibiotici, integrandole con quelle di controllo delle ICA. Rendere specifici e sostenibili i programmi di antimicrobial stewardship. Migliorare conoscenze e consapevolezza negli operatori sanitari e nei cittadini	Migliorare e aggiornare costantemente le indicazioni nazionali sull'uso appropriato di antibiotici. Promuovere interventi utili a ridurre il fenomeno dell'utilizzo di antibiotici "avanzati" a domicilio
	Veterinario	Predisporre Linee guida per l'uso prudente di antibiotici in animali produttori di alimenti da compagnia	Rafforzare la cooperazione con Industria farmaceutica, Associazioni e Organizzazioni sull'uso prudente
COMUNICAZIONE	Umano	Promuovere programmi di comunicazione per aumentare la consapevolezza del fenomeno AMR e le buone pratiche di uso degli antibiotici	Coinvolgere nelle iniziative tutti gli operatori sanitari, le società scientifiche, le associazioni: dai cittadini agli operatori sanitari
FORMAZIONE	Umano e Veterinario	Promuovere la formazione degli operatori sanitari nei diversi ambiti, secondo il principio One Health	Educare e promuovere lo scambio di buone pratiche di formazione sull'uso corretto e prudente degli antibiotici
RICERCA E SVILUPPO		Identificare il tema AMR e delle ICA come area prioritaria nell'ambito della ricerca	Promuovere il trasferimento dei risultati della ricerca

Prevenire le ICA è possibile

>30%
Reduction

Effective IPC programmes lead to more than a 30% reduction in HAI rates

25-57%
Reduction

Surveillance contributes to a 25-57% reduction in HAIs

50%
Reduction

Improving hand hygiene practices may reduce pathogen transmission in health care by 50%

13-50%
Reduction

Strong IPC plans, implemented across the USA between 2008 and 2014, reduced central line-associated bloodstream infections by 50%, surgical site infections (SSIs) by 17% and MRSA bacteraemia by 13%

56%
Reduction

MRSA declined by 56% over a four-year period in England in line with a national target

44%
Reduction

A safety culture and prevention programme reduced SSI risk in African hospitals by 44%

80%
Compliance

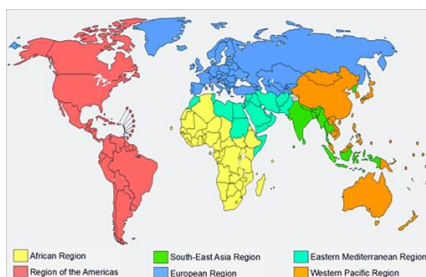
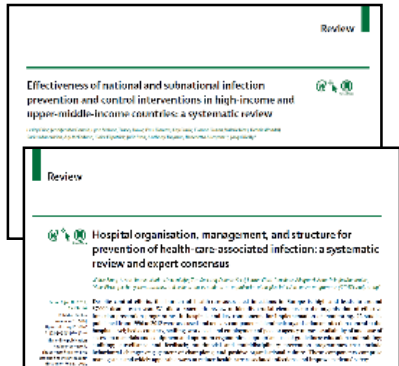
Between 2010 and 2015 Australia achieved and sustained 80% hand hygiene compliance in hospitals nationwide



<http://www.who.int/infection-prevention/en/>



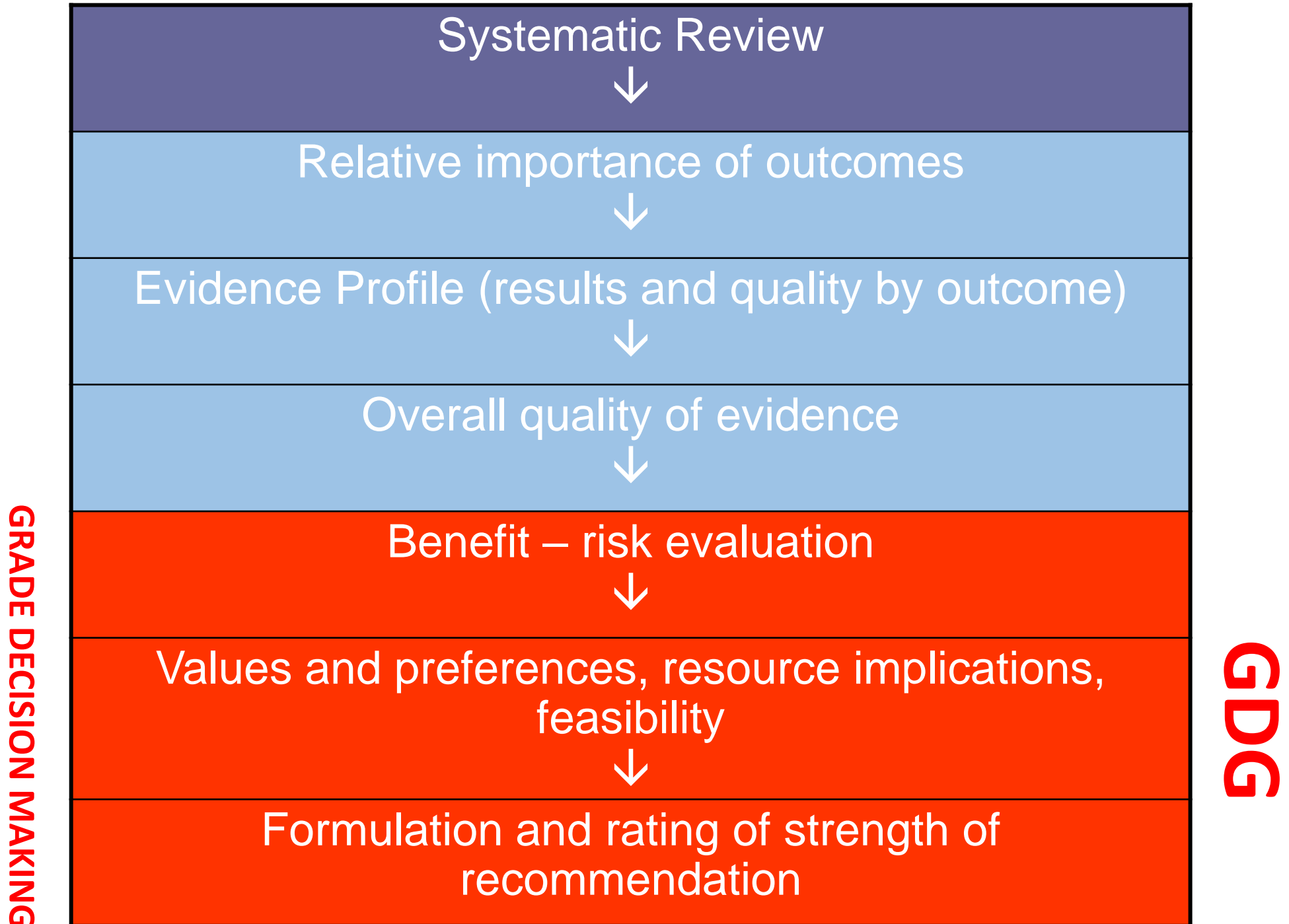
WHO approach for guidelines development & implementation



Dissemination

Measuring impact

WHO's process for developing Guidelines




WHO IPC global guidelines




World Health Organization | Patient Safety
A World Alliance for Safer Health Care

WHO Guidelines on Hand Hygiene in Health Care

First Global Patient Safety Challenge
Clean Care is Safer Care



World Health Organization



INTERIM GUIDANCE

Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola

December 2014


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WHO/HS/SDS/2014.4/Rev.1

GLOBAL GUIDELINES FOR THE PREVENTION OF SURGICAL SITE INFECTION




Decontamination and Reprocessing of Medical Devices for Health Care Facilities



Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level

World Health Organization

WHO guideline on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health care settings



WHO guidelines on tuberculosis infection prevention and control
2019 update


THE END TB STRATEGY

World Health Organization



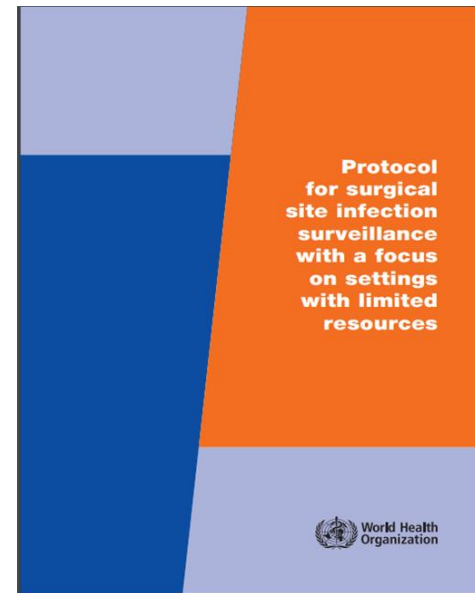
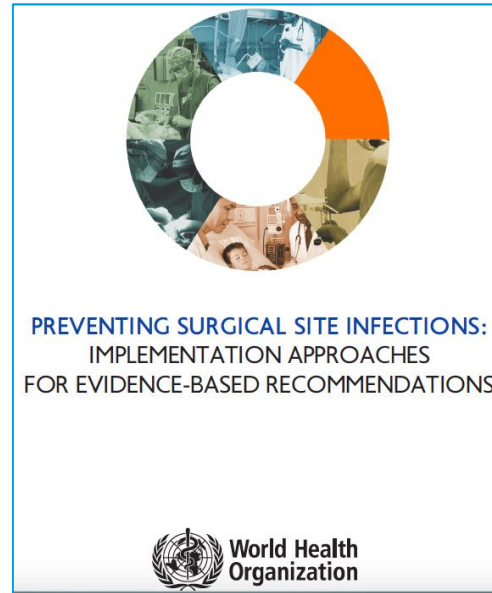
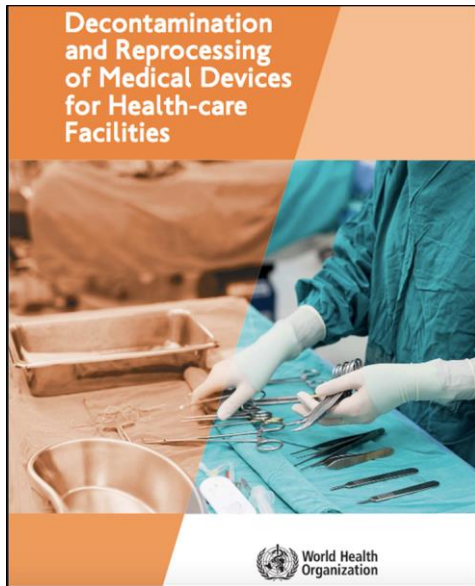
World Health Organization

Global guidelines for the prevention and control of carbapenem-resistant *Enterobacteriaceae*, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* in health care facilities



<http://www.who.int/infection-prevention/en/>

Recently launched WHO SSI Prevention Implementation Package



SURGICAL SITE INFECTION PREVENTION

Key facts on decolonization of nasal carriers of *Staphylococcus aureus*

THINGS YOU SHOULD KNOW
What does the World Health Organization (WHO) recommend?

The 2016 WHO Global guidelines for the prevention of surgical site infections recommend that patients with known nasal carriage of *Staphylococcus aureus* undergo:

- cardiothoracic and orthopaedic surgery should be decolonized** using intranasal applications of mupirocin 2% ointment with or without a combination of chlorhexidine gluconate (CHG) body wash (strong recommendation);
- other types of surgery** – treatment with intranasal applications of mupirocin 2% ointment with or without a combination of CHG body wash **may be considered** (conditional recommendation).

This recommendation applies to facilities where screening for *S. aureus* is feasible and may not apply to settings with a high prevalence of mupirocin resistance. Based on the lack of evidence, this recommendation is **not** applicable to paediatric patients.

WHAT should be done?



HANDLE ANTIBIOTICS WITH CARE IN SURGERY

Misuse of antibiotics puts all surgical patients at risk

REDUCE the risk of surgical site infections (SSI) by improving SAP and infection prevention and control practices

IMPROVE quality of care and patient safety and reduce antimicrobial resistance (AMR) through SSI reduction

Up to 33% of surgical patients get a postoperative infection, of which 51% can be antibiotic resistant

Up to 15% of women around the world get an infection after a caesarean section

43% of patients have surgical antibiotic prophylaxis (SAP) inappropriately continued after the operation

WHAT SHOULD HEALTH WORKERS DO TO PREVENT AMR IN SURGERY?

- Give intravenous SAP - when recommended, depending on the type of operation - within 120 minutes preceding surgical incision
- For effective SAP, adequate antibiotic tissue concentrations should be present at the time of surgical incision and throughout the procedure. Thus, antibiotics with a short half-life should be administered closer to incision time.

WHO SHOULD BE INVOLVED IN ENSURING APPROPRIATE ANTIBIOTIC USE IN SURGERY?

Implementation of antibiotic use in surgical services should be part of the antimicrobial stewardship programme

WHAT SHOULD YOU NOT DO?

- Avoid prolonging SAP postoperatively
- Avoid antibiotic wound irrigation
- Avoid continuing antibiotic prophylaxis because there is a drain (evacuate each case)
- Avoid giving antibiotic treatment unless there is a proven or suspected SSI or other infection

These recommendations are based on evidence from studies in adult patients, but they are considered valid also for paediatric patients

www.who.int/infection-prevention/publications/en/guidance

Advanced Infection Prevention and Control (IPC) Training

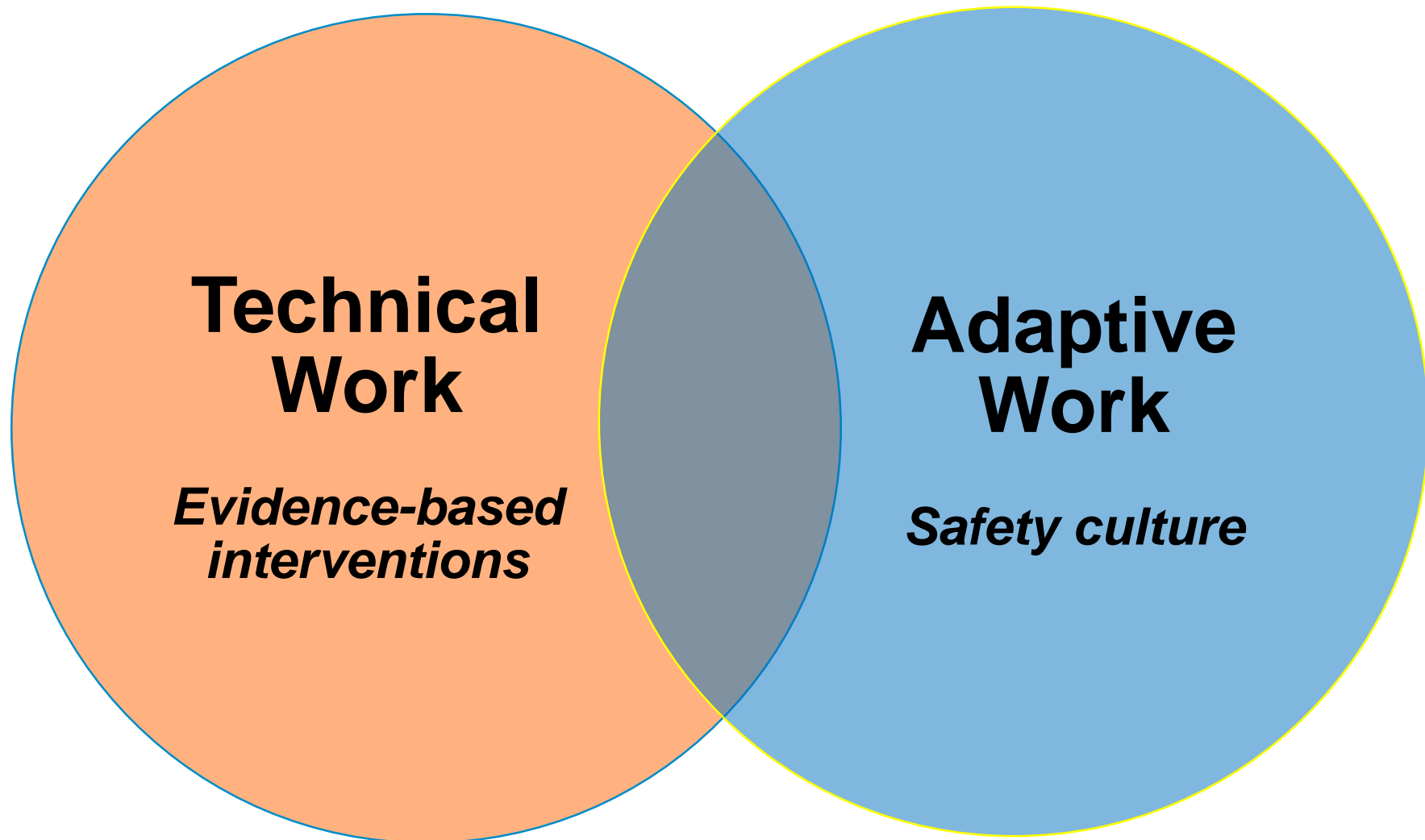
Prevention of surgical site infection (SSI)

18
© Global IPC Unit 2018

Fact sheets on SSI recommendations

- Support access to necessary products - provision to patients may be required or desirable in some countries: - nasal mupirocin 2% ointment - CHG 2-4% soap body wash.
- For other types of surgery, consider a careful local evaluation about whether and how to apply this recommendation. In particular, regarding feasibility of carrier identification in a broader surgical patient population, priority of this intervention.
- Support the local screening policy of patients to detect *S. aureus* carriage - consider the local rates of *S. aureus* (MRSA) and patient-related factors. - Specifically look for previous *S. aureus*

<http://www.who.int/infection-prevention/tools/surgical/en/>

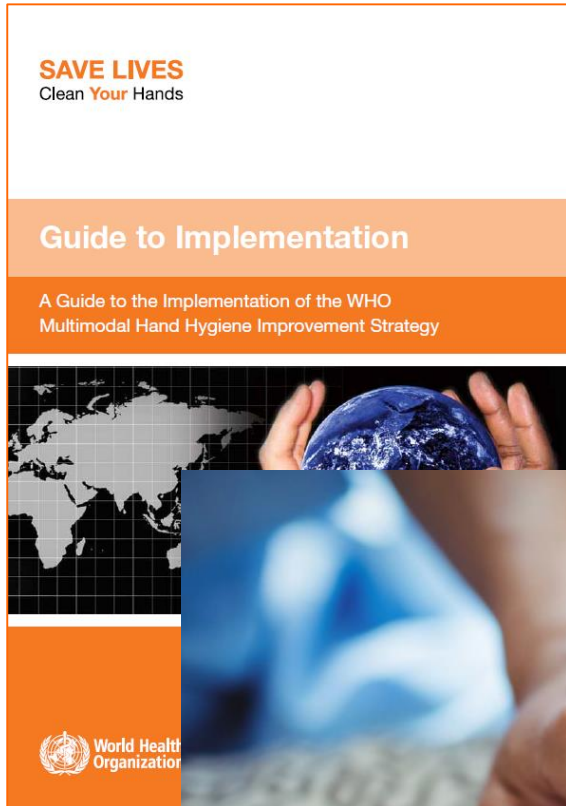


Implementation manuals

SAVE LIVES
Clean Your Hands

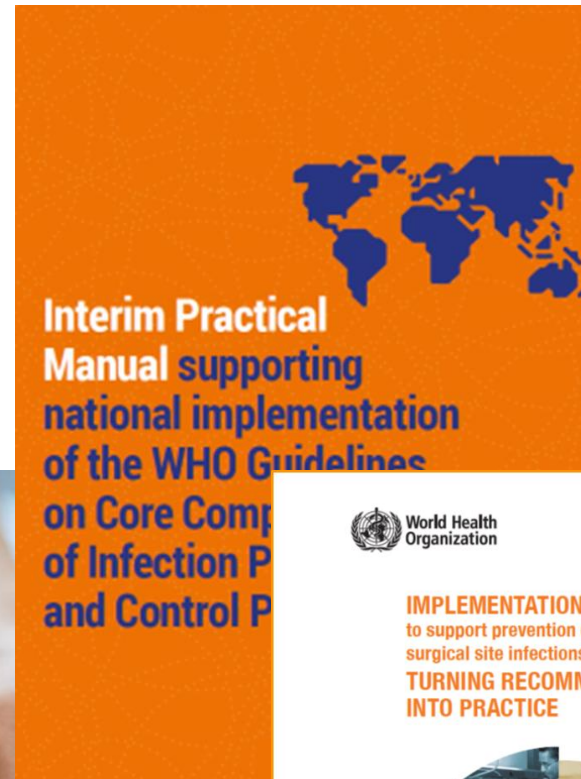
Guide to Implementation

A Guide to the Implementation of the WHO Multimodal Hand Hygiene Improvement Strategy



World Health Organization

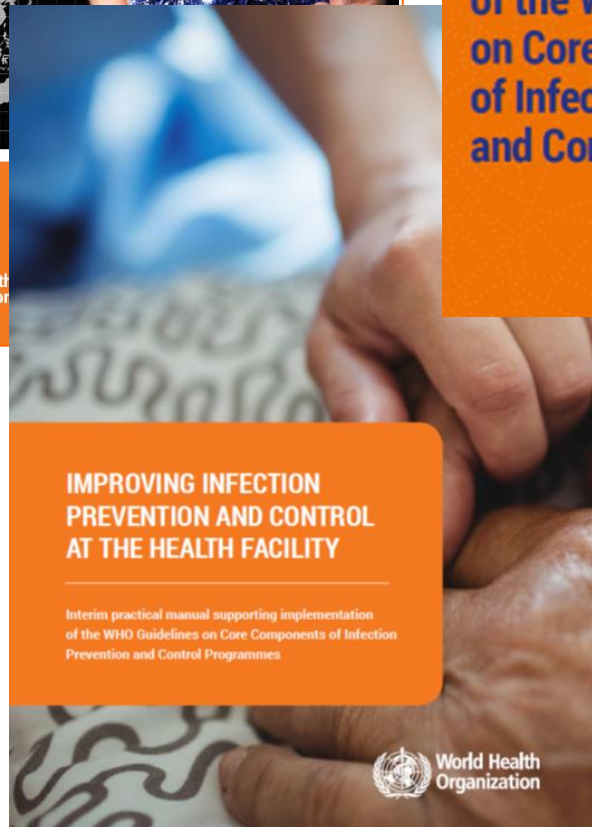
Interim Practical Manual supporting national implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes



PREVENTING SURGICAL SITE INFECTIONS: IMPLEMENTATION APPROACHES FOR EVIDENCE-BASED RECOMMENDATIONS

IMPROVING INFECTION PREVENTION AND CONTROL AT THE HEALTH FACILITY

Interim practical manual supporting implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes



World Health Organization

World Health Organization

IMPLEMENTATION MANUAL to support prevention of surgical site infections at the facility level
TURNING RECOMMENDATIONS INTO PRACTICE
(INTERIM VERSION)



Build it Teach it Check it Sell it Live it

Implementation manual to prevent and control the spread of carbapenem-resistant organisms at the national and health care facility level

Interim practical manual supporting implementation of the Guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* in health care facilities



World Health Organization

<https://www.youtube.com/watch?v=nw9TMfqc3cE>

<https://youtu.be/G2PUBbeHyVs>

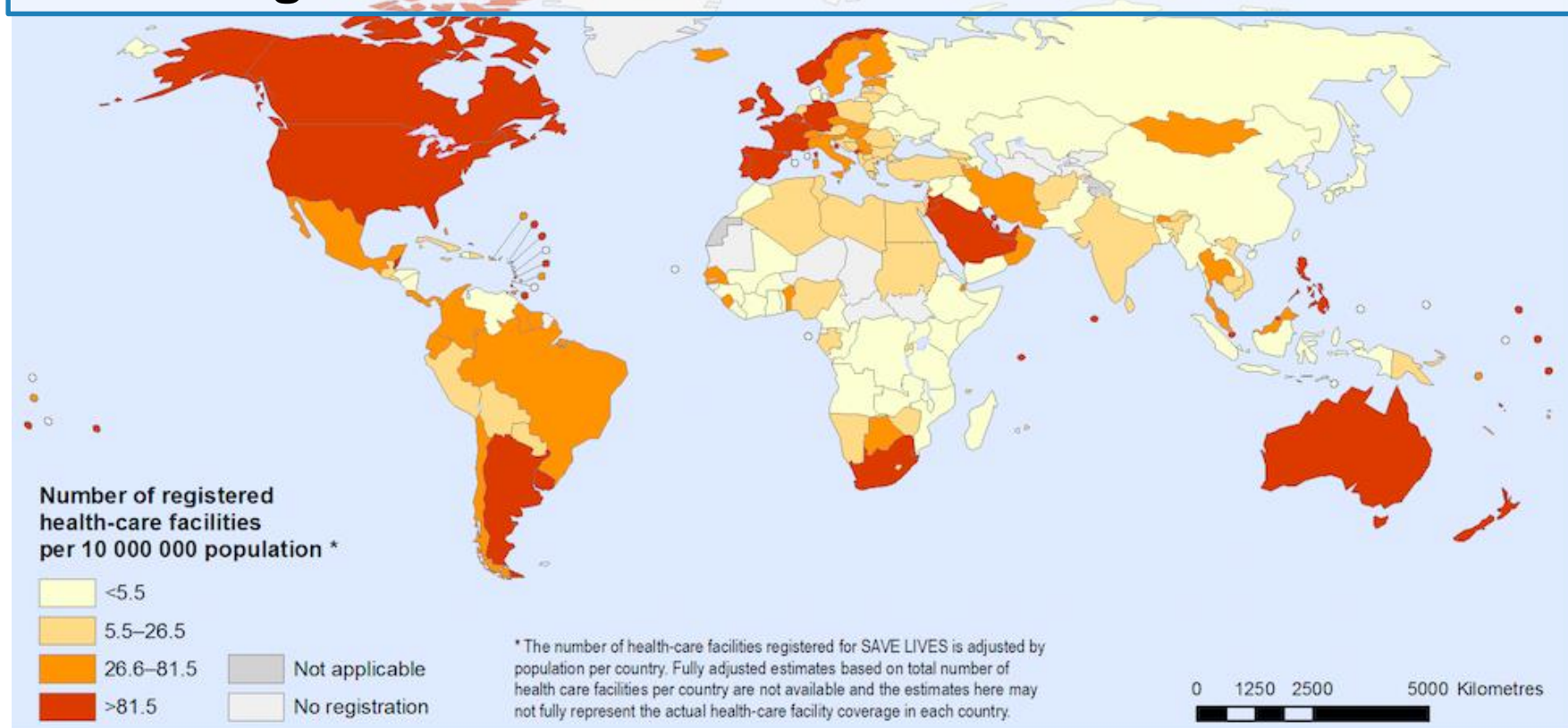


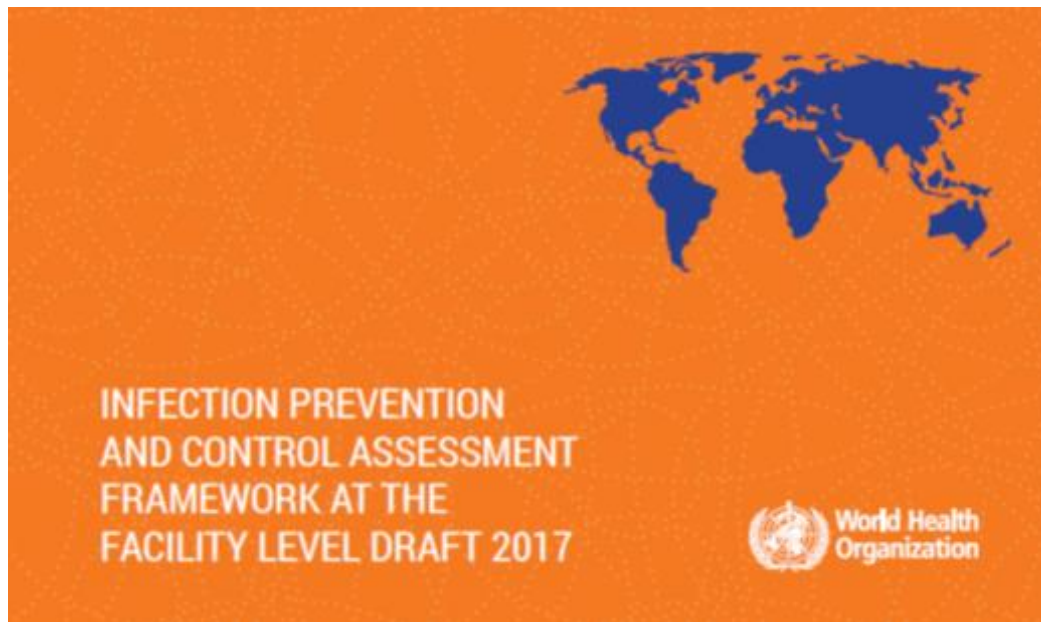
SAVE LIVES: Clean Your Hands: an ongoing worldwide campaign



Countries with health-care facilities registered for
SAVE LIVES: Clean Your Hands global campaign

As of 1 May 2019, **22,144 facilities** in **182 countries** –
covering over 13 million staff and over 5.1 million beds





Core component 1: Infection Prevention and Control (IPC) programme		
Question	Answer	Score
1. Do you have an IPC programme? ³ Choose one answer	<input type="checkbox"/> No	0
	<input type="checkbox"/> Yes, without clearly defined objectives	5
	<input type="checkbox"/> Yes, with clearly defined objectives and annual activity plan	10
2. Is the IPC programme supported by an IPC team comprising of IPC professionals? ² Choose one answer	<input type="checkbox"/> No	0
	<input type="checkbox"/> Not a team, <i>only</i> an IPC focal person	5
	<input type="checkbox"/> Yes	10
3. Does the IPC team have at least one full-time IPC professional or equivalent (nurse or doctor working 100% in IPC) available? Choose one answer	<input type="checkbox"/> No IPC professional available	0
	<input type="checkbox"/> No, <i>only</i> a part-time IPC professional available	2.5
	<input type="checkbox"/> Yes, one per > 250 beds	5
	<input type="checkbox"/> Yes, one per ≤ 250 beds	10
4. Does the IPC team or focal person have dedicated time for IPC activities?	<input type="checkbox"/> No	0
	<input type="checkbox"/> Yes	10
5. Does the IPC team include both doctors and nurses?	<input type="checkbox"/> No	0
	<input type="checkbox"/> Yes	10
6. Do you have an IPC committee ⁵ actively supporting the IPC team?	<input type="checkbox"/> No	0
	<input type="checkbox"/> Yes	10

Box 8. IPCAF scoring interpretation

Score		Interpretation
0-200	Inadequate	IPC core components' implementation is deficient. Significant improvement is required.
201-400	Basic	Some aspects of the IPC core components are in place, but not sufficiently implemented. Further improvement is required.
401-600	Intermediate	Most aspects of IPC core components are appropriately implemented. Continue to improve the scope and quality of implementation and focus on the development of long-term plans to sustain and further promote the existing IPC programme.
601-800	Advanced	The IPC core components are fully implemented according to the WHO recommendations and appropriate to the needs of your facility.

<http://www.who.int/infection-prevention/tools/core-components/en/>
www.who-ipc-survey.org

WHO 2019 Global Survey on Infection Prevention and Control and Hand Hygiene

Facility-level assessments in a spirit of improvement



16 January – 16 July

All health care facilities and countries are invited to participate!

Find instructions here <https://www.who.int/infection-prevention/campaigns/ipc-global-survey-2019/en/>

Submit here: www.who-ipc-survey.org

**“It always seems impossible,
until it’s done”**

**“We can change the world
and make it a better place.
It is in your hands
to make a difference.”**

”

~ Nelson Rolihlahla Mandela



**World Health
Organization**