Session 3: ECDC – focus on consumption data and campaign support

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London, 19 September 2017

This presentation

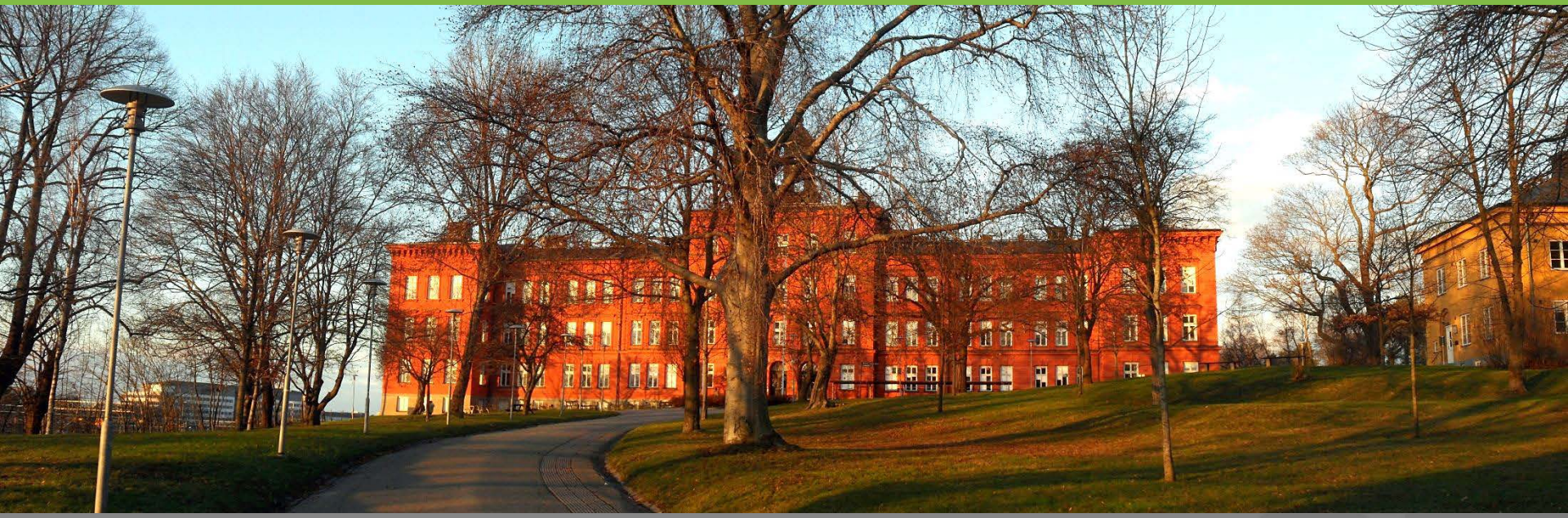
I. **ECDC work on AMR**

- Brief introduction about ECDC
- ARHAI programme and its networks
- Latest data on consumption/resistance, policy briefing and other ECDC resources
- Collaboration with EMA, EFSA, TATFAR, WAAW and international partners

II. European Antibiotic Awareness Day (EAAD)

III. National perspective: UK and Antibiotic Guardian

ECDC – European Centre for Disease Prevention and Control



- An agency of the European Union, located in Stockholm, Sweden
- Founded in 2005; nearly 300 employees in 2017
- European Union (EU) (28) and European Economic Area (EEA) (3) = 31 countries with a total of more than 500 mio. people

Our mission and disease programmes

- **Identify, assess and communicate** current and emerging threats to human health from communicable diseases.
- In the case of other outbreaks of illness of **unknown origin,** which may spread within or to the Community, the Centre shall act on its **own initiative** until the source of the outbreak is known.
- In the case of an outbreak **not caused by a communicable disease**, ECDC shall act only in co-operation with the competent authority upon its request.

- Antimicrobial resistance and healthcare-associated infections
- Emerging and vector-borne diseases
- Food- and waterborne diseases and zoonoses
- Influenza and other respiratory viruses
- Tuberculosis
- HIV/AIDS, sexually transmitted and blood-borne infections
- Vaccine preventable diseases

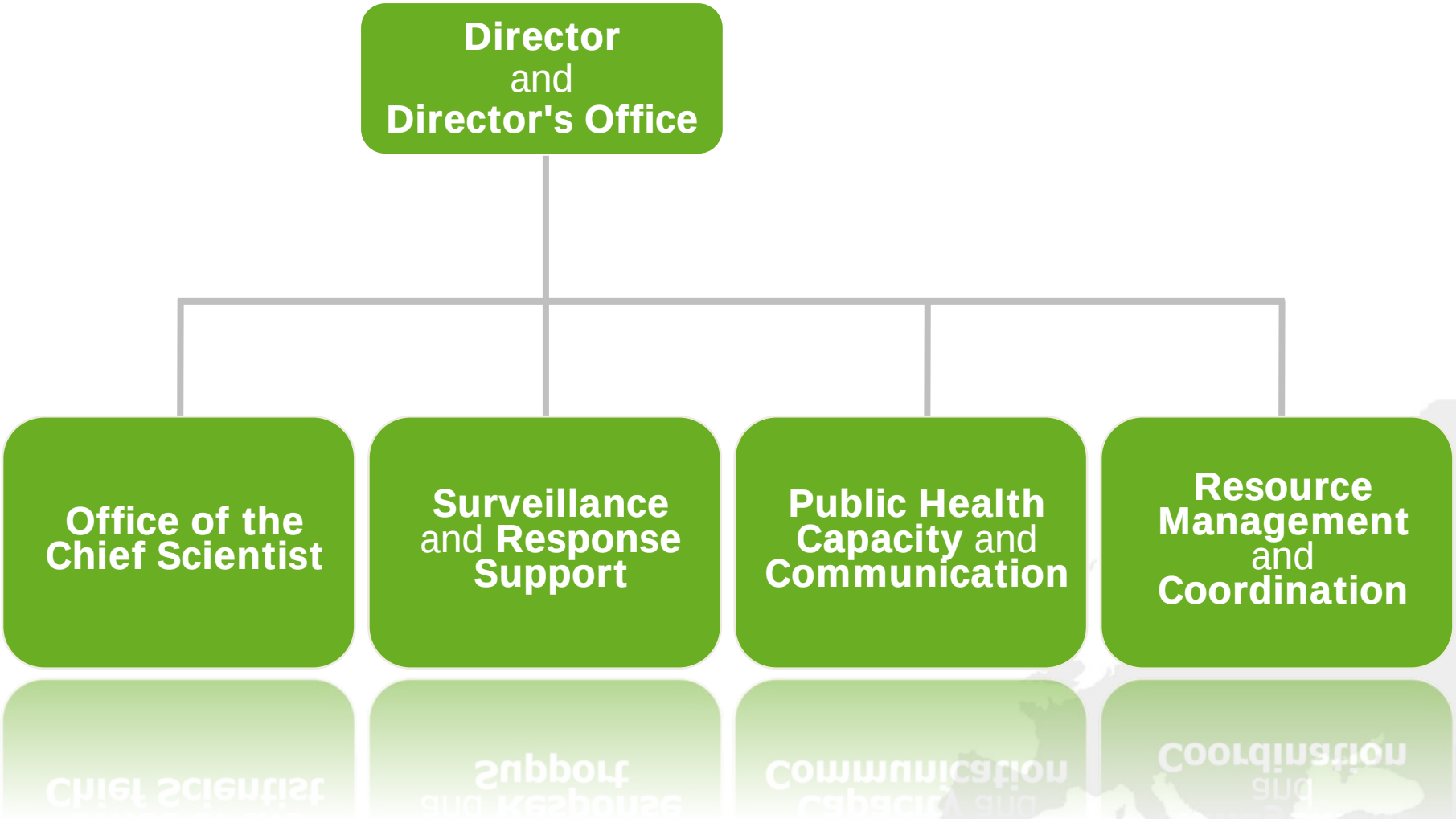
Core functions of ECDC

- Disease surveillance
- Epidemic intelligence
- Risk assessment
- Scientific advice and guidance
- Response support
- Preparedness and capacity strengthening
- Training

Every working day at 11:30h, a Round Table meeting in ECDC's Emergency Operations Centre assesses threats, official alerts and epidemic intelligence across the EU and the world.

Photo: ECDC

Organisational structure



Disease and event monitoring: our health radar

TESSy[1]

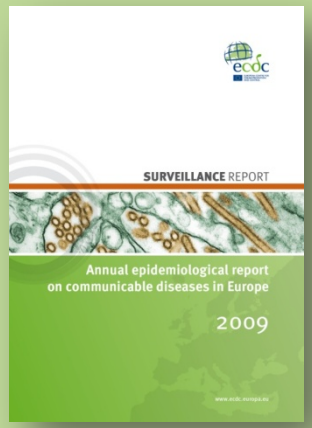
Disease monitoring

Cases

collect, analyse, interpret

assess

investigate



EWRS[2]

Event monitoring

Events

capture, filter, validate

disseminate

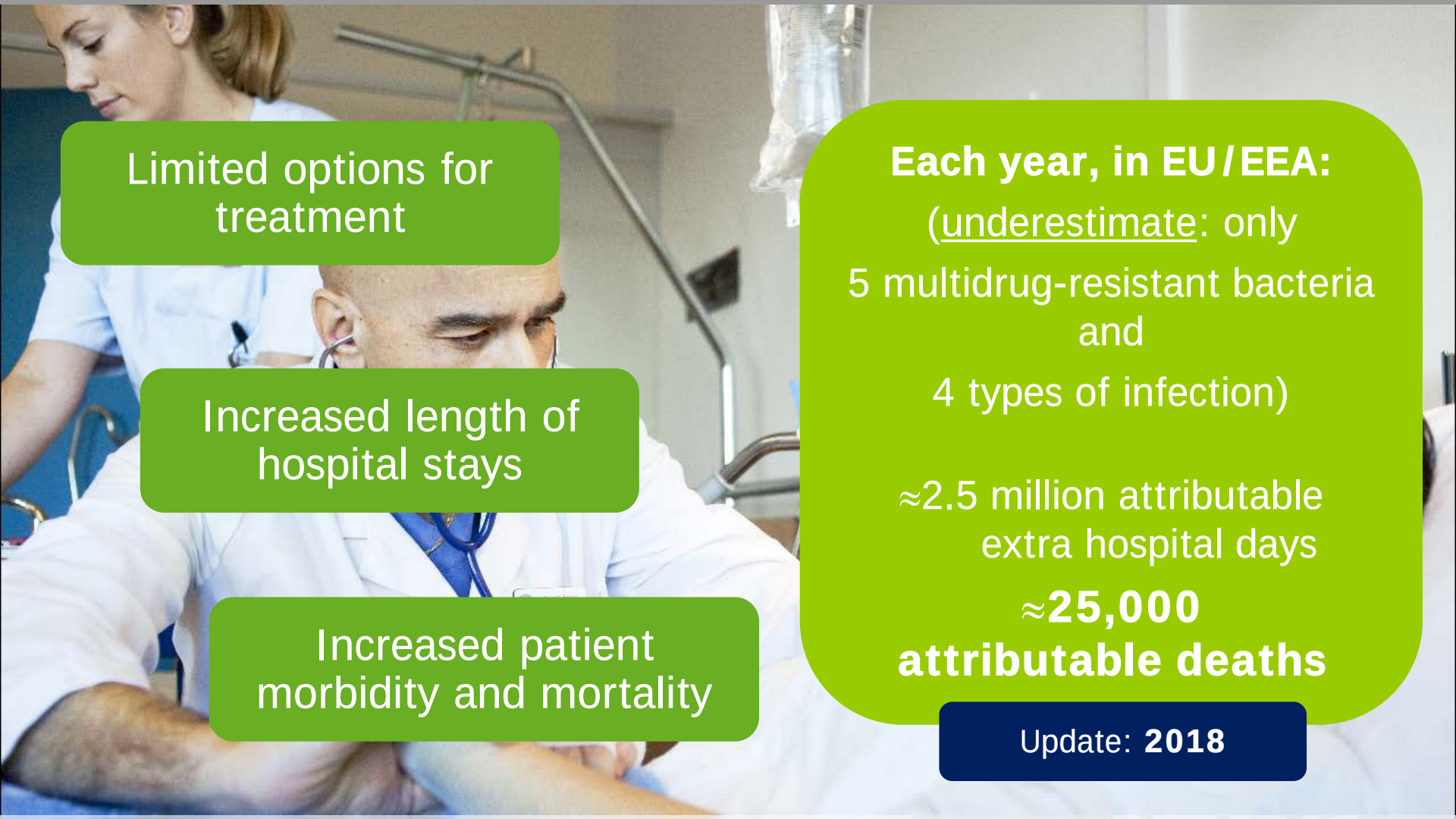
Signal

Alert

Communicate and control

[1] The European Surveillance System – a database system
[2] Early Warning Response System

Antimicrobial resistance
A threat to patient safety



Limited options for treatment

Increased length of hospital stays

Increased patient morbidity and mortality

Each year, in EU/EEA:

(underestimate: only

5 multidrug-resistant bacteria and

4 types of infection)

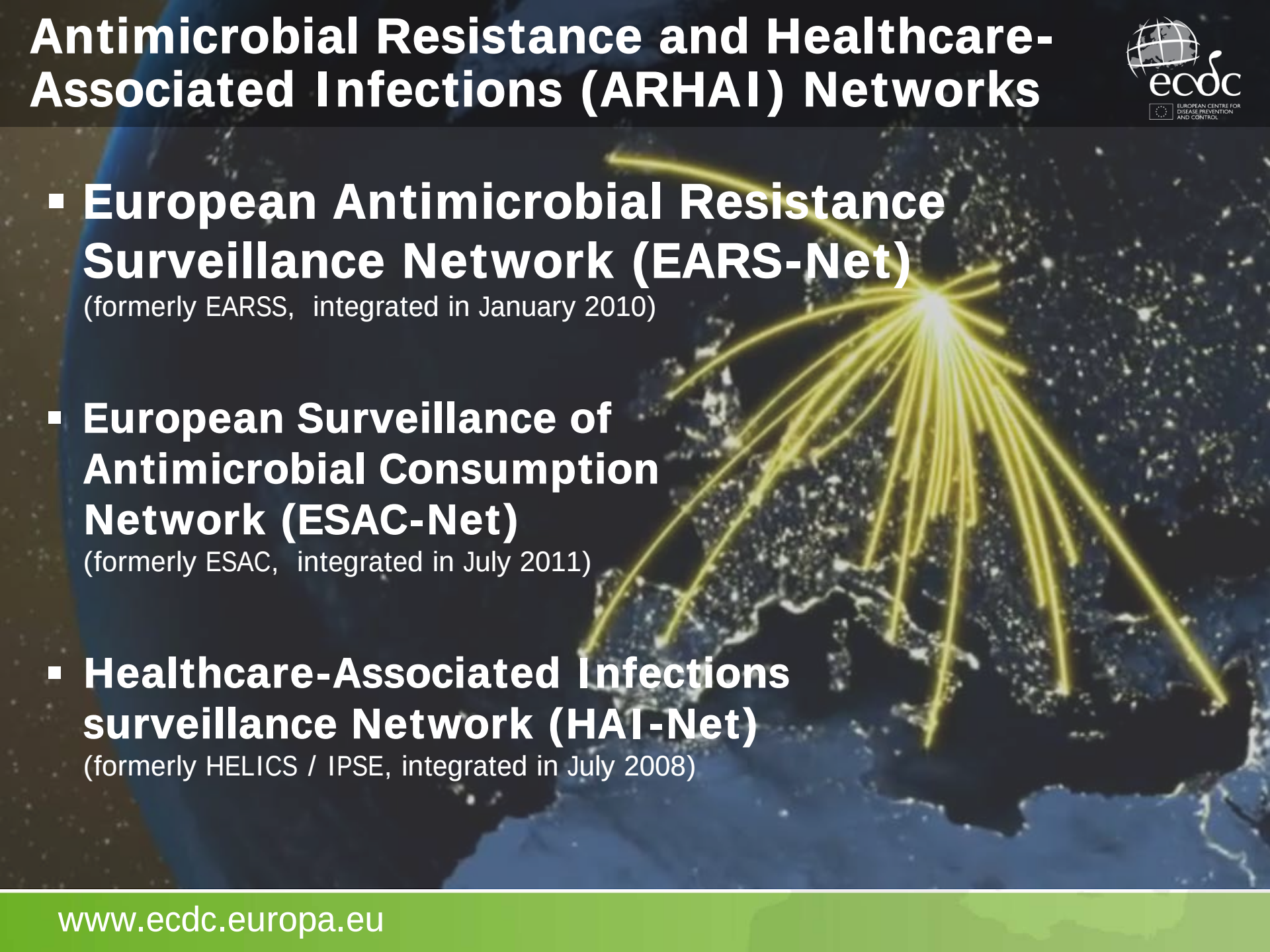
≈2.5 million attributable extra hospital days

≈25,000 attributable deaths

Update: **2018**

Source: ECDC, 2009.
In: http://ecdc.europa.eu/en/publications/Publications/0909_TER_The_Bacterial_Challenge_Time_to_React.pdf

Antimicrobial Resistance and Healthcare-Associated Infections (ARHAI) Networks



- **European Antimicrobial Resistance Surveillance Network (EARS-Net)**
  (formerly EARSS, integrated in January 2010)

- **European Surveillance of Antimicrobial Consumption Network (ESAC-Net)**
  (formerly ESAC, integrated in July 2011)

- **Healthcare-Associated Infections surveillance Network (HAI-Net)**
  (formerly HELICS / IPSE, integrated in July 2008)

How are surveillance data collected?

EARS-Net
(antimicrobial resistance)

Electronically, from laboratory information system (LIS) – isolate level

ESAC-Net
(antimicrobial consumption)

Electronically, from medicines agencies / pharmacies / national insurance system – aggregated data

HAI-Net
(healthcare-associated infections)

In the wards, at patient bed – patient level

Community

Defined daily doses
(DDD) per 1000 inh. and per day

Country	2015	Trends in antimicrobial consumption, 2011–2015
Netherlands	10.7	↓
Estonia	11.6	
Sweden	12.3	↓
Latvia	13.3	
Austria	14.0	
Germany	14.3	
Slovenia	14.5	
Norway	15.8	
Denmark	16.1	
Lithuania	16.7	
Hungary	17.0	
Finland	17.2	↓
Czech Republic	19.6	
Iceland	19.9	
United Kingdom	20.1	
Portugal (a)	21.3†	
Bulgaria	21.4	
Croatia	21.8	
Malta	22.2	
Spain	22.2†	
EU/EEA	**22.4**	
Slovakia	24.5	
Ireland	25.6	
Poland (a)	26.2	
Luxembourg	26.3	
Italy	27.5	
Belgium	29.2	
France	29.9	
Cyprus	31.1*	
Romania	33.3*	
Greece	36.1	

Packages
per 1000 inh. and per day

Country	2015	Trends in consumption of antibiotics, 2011–2015
Sweden	0.99	↓
Denmark	1.58	↓
Estonia	1.68	↓
Latvia	1.71	
Austria	1.73	
Finland	1.79	↓
Slovenia	1.94	
Spain	1.95†	↓
Lithuania (a(b)	1.98	
Czech Republic	2.00	
Iceland (a(b)	2.09	
Portugal	2.14†	
Luxembourg	2.48	↓
Ireland	2.53	
Croatia	2.65	
Belgium	2.76	
Bulgaria	3.01	
Slovakia (a(b)	3.05	
EU/EEA	**3.13**	
Italy	3.65	
Greece	3.89	
France	4.74	

Update with 2016 data:
15 Nov. 2017

* Total care data, including the hospital sector.

† Reimbursement data (i.e. not including consumption without a prescription and other non-reimbursed courses).

(a) Countries that changed the type of reported data (reimbursement versus sales data) between 2011 and 2015.

(b) Countries that did not report data for all years during the period 2011–2015.

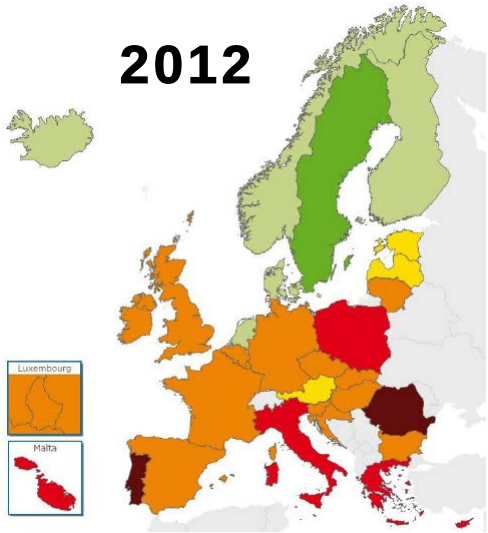
Consumption of antibiotics for systemic use (ATC group J01) in the community, EU/EEA, 2011-2015

Source: ESAC-Net, 2016. The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2011-2015, respectively.

Hospitals

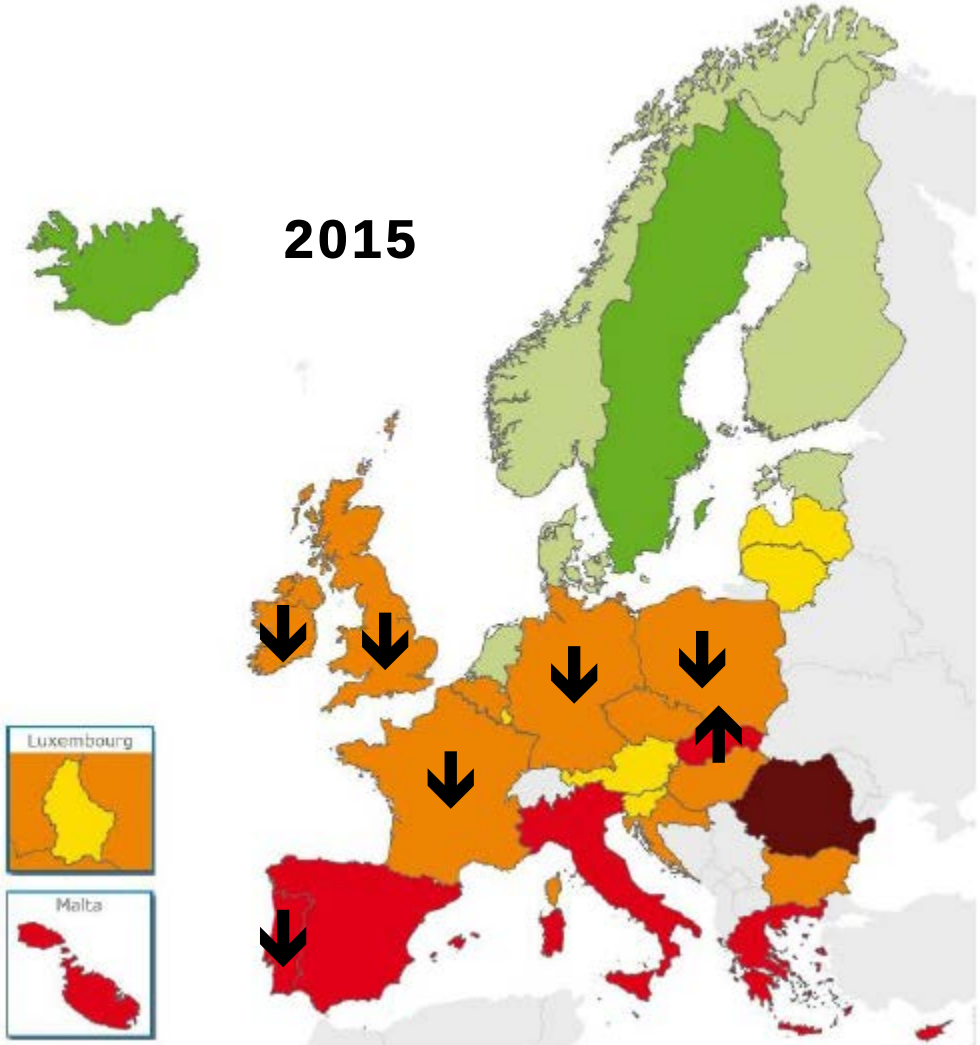
Photo: Luis García

Staphylococcus aureus: % of invasive isolates with resistance to meticillin (MRSA), EU/EEA, 2012 & 2015



< 1%
1% to <5%
5% to <10%
10% to <25%
25% to <50%
≥ 50 %
Less than 10 isolates reported
No data

Update with 2016 data:
15 Nov. 2017

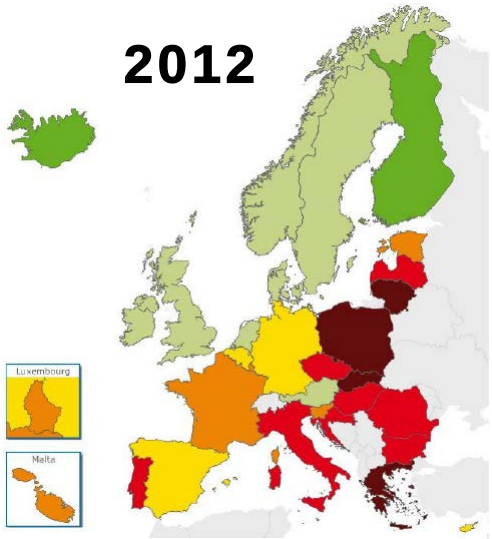


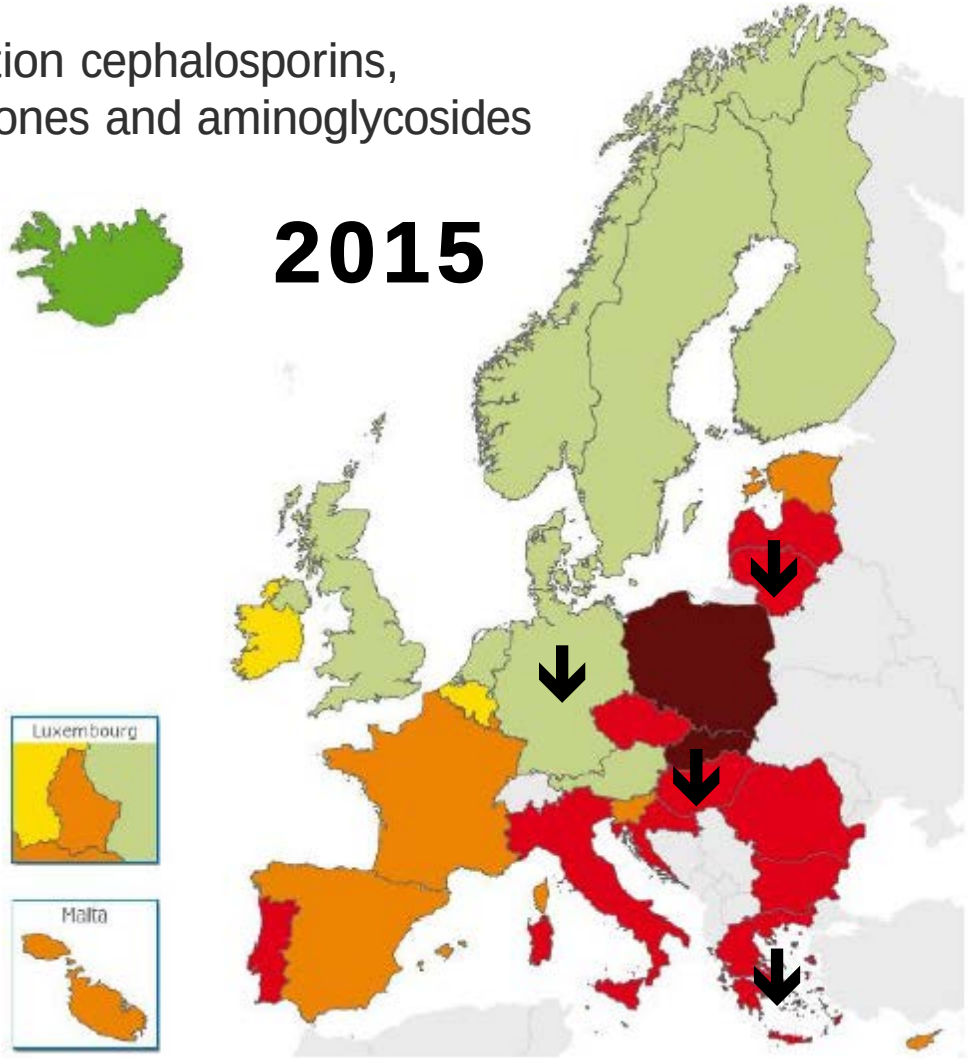
Source: EARS-Net, 2016.

The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2012-2015, respectively. These trends were calculated on laboratories that consistently reported during this period.

Klebsiella pneumoniae: % of invasive isolates with combined resistance* EU/EEA, 2012 & 2015

*Third-generation cephalosporins, fluoroquinolones and aminoglycosides





- < 1%
- 1% to <5%
- 5% to <10%
- 10% to <25%
- 25% to <50%
- ≥ 50 %
- Less than 10 isolates reported
- No data

Update with 2016 data: **15 Nov. 2017**

Source: EARS-Net, 2016.

The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2012-2015, respectively. These trends were calculated on laboratories that consistently reported during this period.

Consumption of last-line antibiotics in the hospital sector, EU/EEA, 2011-2015 (1)

Carbapenems

(DDD per 1000 inh. and per day)

Country	2015	Trends in consumption of carbapenems, 2011–2015	
Bulgaria	0.019		↑
Poland (a)	0.020		
Netherlands	0.021		↑
Latvia	0.033		
France	0.035		
Norway	0.039		
Hungary	0.046		↑
Lithuania (a)	0.046		
Slovakia (a)	0.048		
Romania	0.049*		
Estonia	0.050		
Sweden	0.050		
EU/EEA	**0.054**		
Italy	0.056		
Finland (b)	0.065		
Belgium	0.065		
United Kingdom (a)	0.071		
Slovenia	0.072		
Croatia	0.079		↑
Denmark	0.083		
Luxembourg	0.089		
Ireland	0.091		
Malta	0.107		
Cyprus	0.132*		↑
Portugal (c)	0.133		
Greece	0.137		↑

Update with 2016 data: **15 Nov. 2017**

* Cyprus and Romania: total care data, including consumption in the community. These data were not used to calculate the EU/EEA population-weighted average.

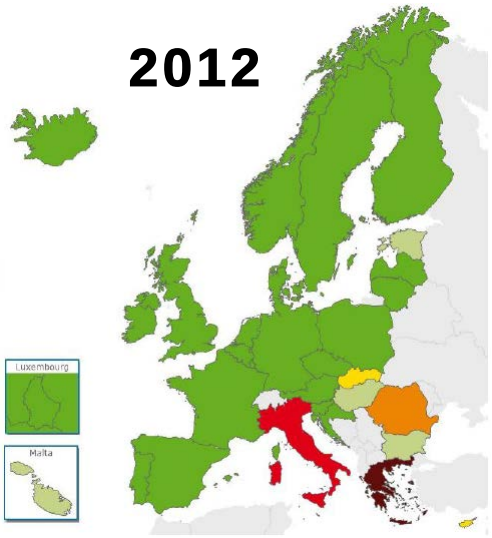
(a) These countries did not report data for all years during the period 2011–2015.

(b) Finland: data include consumption in remote primary healthcare centres and nursing homes.

(c) Portugal: data relate to public hospitals only.

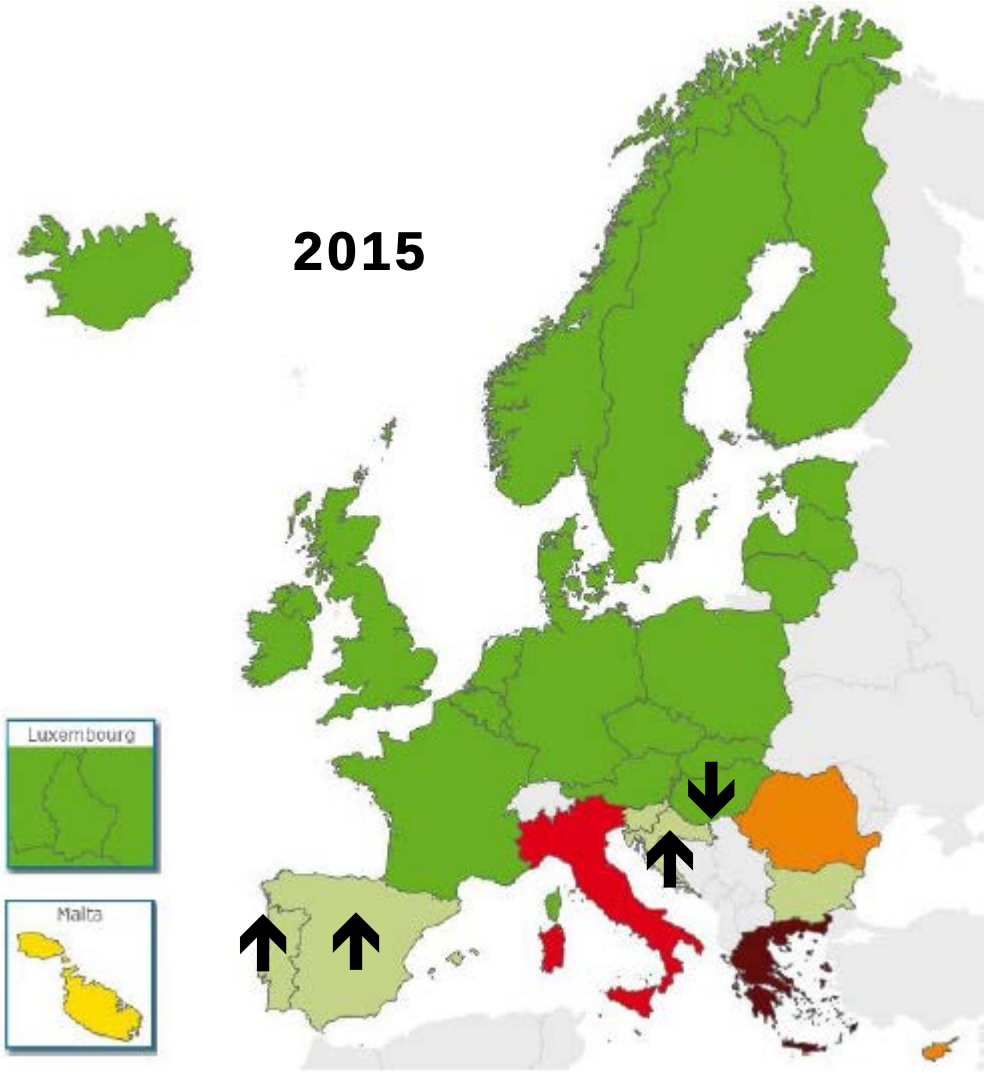
Source: ESAC-Net, 2016. The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2011-2015, respectively.

Klebsiella pneumoniae: % of invasive isolates with resistance to carbapenems, EU/EEA, 2012 & 2015



< 1%
1% to <5%
5% to <10%
10% to <25%
25% to <50%
≥ 50 %
Less than 10 isolates reported
No data

Update with 2016 data:
15 Nov. 2017



Source: EARS-Net, 2016.

The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2012-2015, respectively. These trends were calculated on laboratories that consistently reported during this period.

Consumption of last-line antibiotics in the hospital sector, EU/EEA, 2011-2015 (2)

Carbapenems
(DDD per 1000 inh. and per day)

Country	2015	Trends in consumption of carbapenems, 2011–2015	
Bulgaria	0.019		↑
Poland (a)	0.020		
Netherlands	0.021		↑
Latvia	0.033		
France	0.035		
Norway	0.039		
Hungary	0.046		↑
Lithuania (a)	0.046		
Slovakia (a)	0.048		
Romania	0.049*		
Estonia	0.050		
Sweden	0.050		
EU/EEA	**0.054**		
Italy	0.056		
Finland (b)	0.065		
Belgium	0.065		
United Kingdom (a)	0.071		
Slovenia	0.072		
Croatia	0.079		↑
Denmark	0.083		
Luxembourg	0.089		
Ireland	0.091		
Malta	0.107		
Cyprus	0.132*		↑
Portugal (c)	0.133		
Greece	0.137		↑

Polymyxins (mainly colistin)
(DDD per 1000 inh. and per day)

Country	2015	Trends in consumption of polymyxins, 2011–2015	
Finland (b)	0		
Lithuania (a)	0		
Latvia	<0.001		↑
Norway	0.0007		
Sweden	0.001		
Netherlands	0.003		
Estonia	0.003		↑
Bulgaria	0.004		
Luxembourg	0.005		↑
Denmark	0.005		
Slovenia	0.005		
United Kingdom (a)	0.006		
Belgium	0.007		
France	0.007		
Ireland	0.008		↑
Hungary	0.008		
EU/EEA	**0.015**		
Croatia	0.018		↑
Malta	0.020		
Poland (a)	0.020		
Portugal (c)	0.022		
Cyprus	0.023*		
Slovakia (a)	0.024		
Italy	0.027		↑
Romania	0.034*		↑
Greece	0.095		↑

Update with 2016 data:
15 Nov. 2017

* Cyprus and Romania: total care data, including consumption in the community. These data were not used to calculate the EU/EEA population-weighted average.

(a) These countries did not report data for all years during the period 2011–2015.

(b) Finland: data include consumption in remote primary healthcare centres and nursing homes.

(c) Portugal: data relate to public hospitals only.

Source: ESAC-Net, 2016. The symbols ↑ and ↓ indicate a significant increasing or decreasing trend for the period 2011-2015, respectively.

ECDC
POLICY BRIEFING

Last-line antibiotics are failing: options to address this urgent threat to patients and healthcare systems

Source: ECDC, 2016

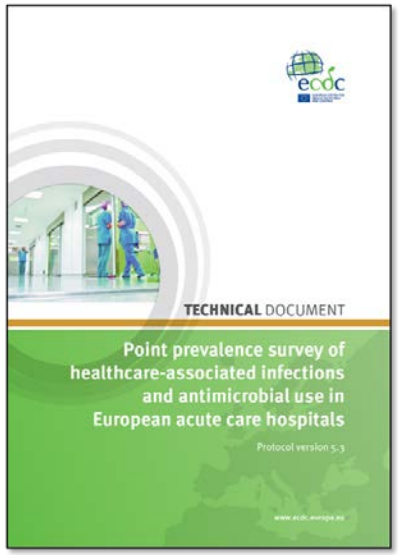
Options to address the threat of bacteria resistant to last-line antibiotics

- **National multidisciplinary task force** (experts, with political support)
- Adequate ratio of appropriately trained **infection control practitioners**
- **Active screening** of ‘at risk’ patients upon admission to a hospital
- **Isolation of patients** who are carriers of highly resistant bacteria (single rooms, ‘cohort wards’)
- **Hand hygiene** – the ‘single most important measure’ to prevent transmission of bacteria in hospitals

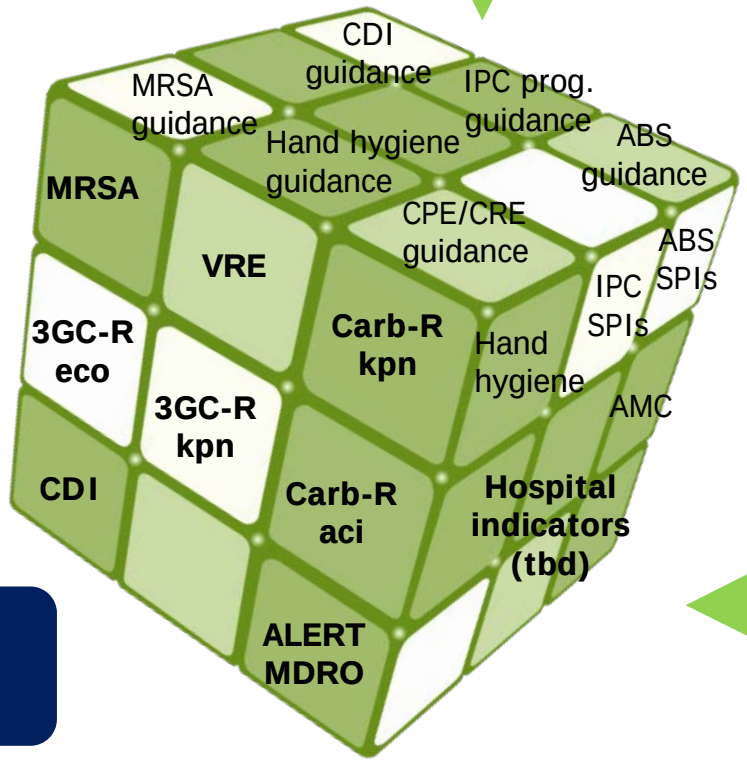
Source: ECDC Policy Briefing, 2016.

2nd ECDC point prevalence survey (PPS) of healthcare-associated infections and antimicrobial use in European acute care hospitals, 2016-2017

Guidance



Outcome indicators (Infections, resistance)



Structure and process indicators (antimicrobial consumption, infection control)

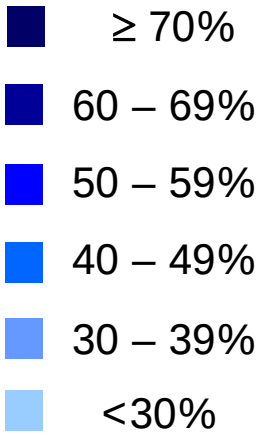
ECDC report: **November 2018**

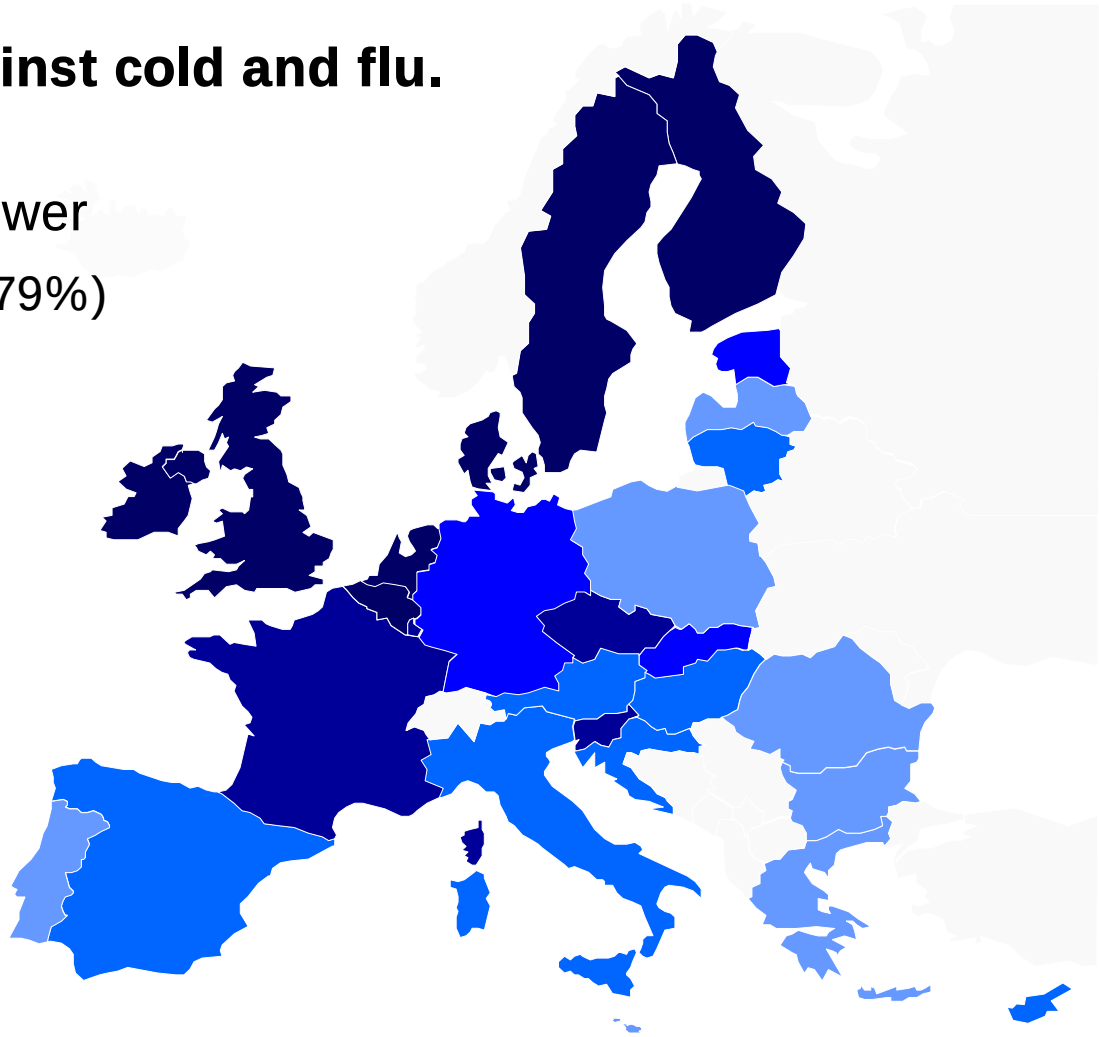
Source: ECDC, 2015.

Special Eurobarometer opinion poll, April 2016

Antibiotics are effective against cold and flu. True or false?

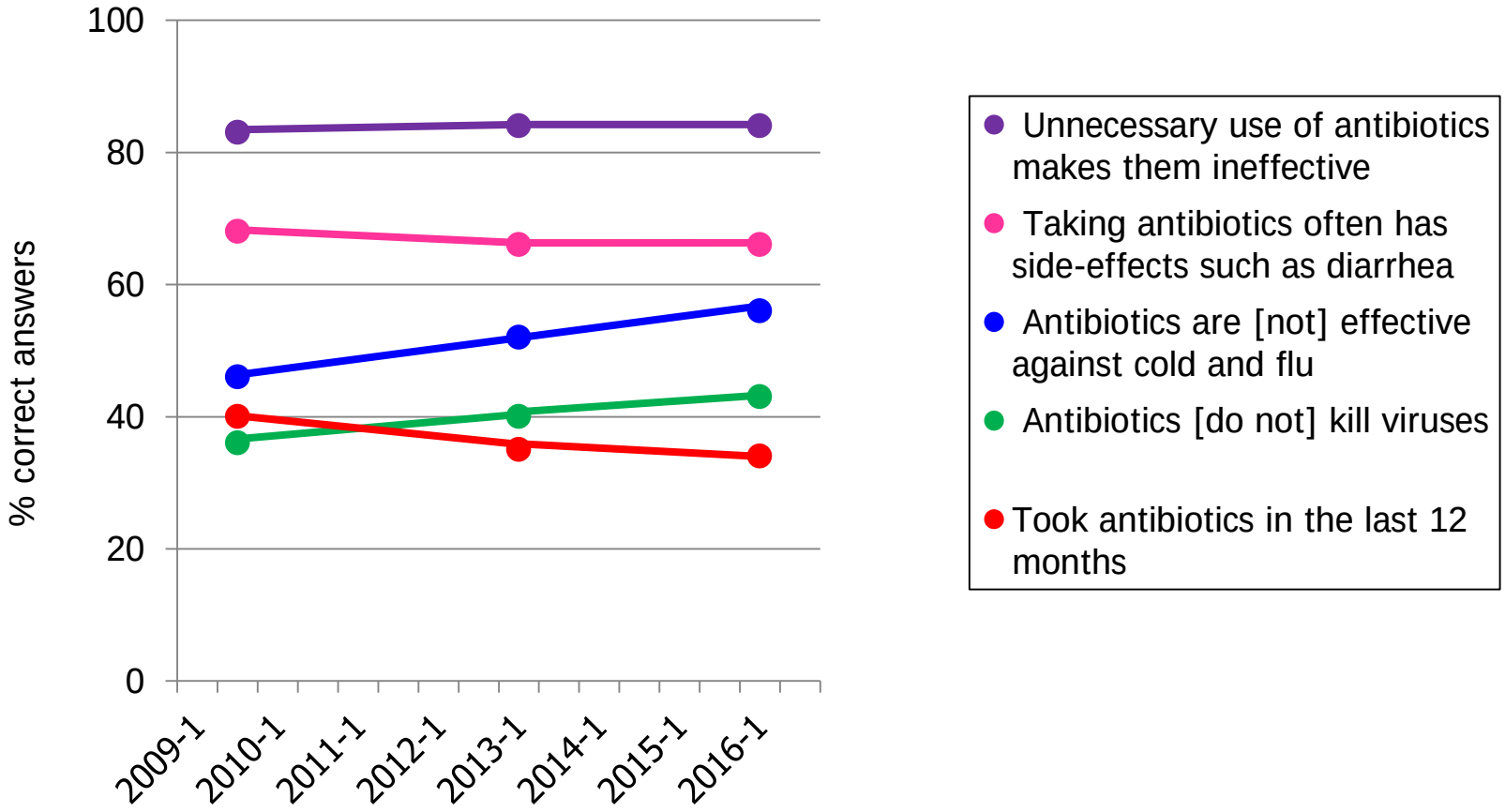
% respondents with correct answer (i.e., ”false”): 56% (range: 30 – 79%)





Source: Special Eurobarometer 445 ”Antimicrobial resistance”, April 2016.

Special Eurobarometer ”Antimicrobial Resistance”, 2010, 2013 & 2016



Source: Special Eurobarometer surveys 338, 407 & 445, European Commission, 2009-2016

Directory of online resources for prevention and control of antimicrobial resistance (AMR) and healthcare-associated infections (HAI)

tool

The directory lists strategies, guidance documents and training courses on the prevention and control of antimicrobial resistance and healthcare-associated infections available online. These documents were published by ECDC, EU/EEA Member States, international and national agencies and professional societies to support healthcare professionals, hospital administrators and public health professionals. In addition, the directory lists ongoing research projects and their corresponding websites.

ECDC welcomes suggestions and further information on existing guidance. Comments can be provided to: arhai@ecdc.europa.eu .

Guidelines for specific infections and organisms

Healthcare-associated infections | Multidrug-resistant organisms


Carbapenem-resistant Enterobacteriaceae (CRE)

Methicillin-resistant Staphylococcus aureus (MRSA)

Prevention and control measures in healthcare settings

Strategies, action plans, projects | Prudent use of antibiotics | Infection and control measures | Training


Organisation of infection prevention and control in healthcare settings


Hand hygiene

Useful links

- European Commission - Antimicrobial resistance - Policy
- European Commission - Patient safety (including Healthcare-associated infections) - Policy
- Responses to the Antimicrobial Resistance Threat: A comparative study of selected national strategies and policies
- World Health Organization - Worldwide country situation analysis: Response to antimicrobial resistance

Antibiotic/Antimicrobial resistance (AMR) | Europe | healthcare-associated infections

Directory: Guidance on prevention and control
Antimicrobial resistance strategies and action plans
Antimicrobial stewardship
Carbapenem-resistant Enterobacteriaceae (CRE)
Clostridium difficile
Hand hygiene
Infections during endoscopic procedures
Methicillin-resistant Staphylococcus aureus (MRSA)
Organisation of infection prevention and control
Peri-operative antimicrobial prophylaxis
Projects: Antimicrobial resistance and healthcare-associated infections
Surgical site infections
Training courses on antimicrobial resistance
Training courses on antimicrobial stewardship
Training courses on infection prevention and control (IPC)
Ventilator-associated pneumonia and HAIs

Carbapenem-resistant Enterobacteriaceae (CRE)

AGENCIES

EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL (ECDC)

- Systematic review of the effectiveness of infection control measures to prevent the transmission of carbapenemase-producing Enterobacteriaceae through cross-border transfer of patients (2014)
- Risk assessment on the spread of carbapenemase-producing Enterobacteriaceae (CPE) through patient transfer between healthcare facilities, with special emphasis on cross-border transfer (2011)

US CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

- CDC 2012 CRE Toolkit - Guidance for Control of Carbapenem-resistant Enterobacteriaceae (CRE)

US Agency for Healthcare Research and Quality (AHRQ)

- Carbapenem-resistant Enterobacteriaceae (CRE) Control and Prevention Toolkit

PROFESSIONAL SOCIETIES

EUROPEAN SOCIETY OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES (ESCMID)

- Suggestions for infection and control of carbapenemase-producing Enterobacteriaceae are part of the guidelines on multidrug-resistant Gram-negative bacteria (ESCMID, 2013)

  ESCMID guidelines for the management of the infection control measures to reduce transmission of multidrug-resistant Gram-negative bacteria in hospitalized patients

EU/EEA MEMBER STATES

AUSTRIA

- Control of carbapenemase-producing Enterobacteriaceae in Austria (Ministry of Health, 2011)

  CPE – Carbapenemase produzierende Enterobakterien in Österreich - Carbapenemasen Kontrollieren

BELGIUM

- Measures to apply following the emergence of carbapenemase-producing Enterobacteriaceae in Belgium (Hoge Gezondheidsraad/ Conseil Supérieur de la Santé, 2011)
  Mesures à prendre suite à l'émergence des entérobactéries productrices de carbapénémases (CPE) en Belgique
  Maatregelen te nemen naar aanleiding van de toename van carbapenemase producerende enterobacteriën (CPE) in België

CZECH REPUBLIC

- Control of imported cases of colonisation and/or infection by carbapenemase- producing Enterobacteriaceae (Ministry of Health, 2012)
  Kontrola výskytu importovaných případů kolonizace a/nebo infekce enterobakteriemi produkujícími karbapenemázu (CPE – Carbapenemase Producing Enterobacteriaceae)

FINLAND

- Guidance for the handling of infections by multiresistant bacteria. This document includes guidance for infection prevention and control of carbapenem resistant Enterobacteriaceae (Terveyden ja hyvinvoinnin laitos – THL, 2014)
  Ohje moniresistenttien mikrobien tartunnantorjunnasta.

FRANCE

- Prevention of cross-transmission of emerging highly resistant bacteria. This document includes guidance targeting carbapenemase-producing Enterobacteriaceae (Haut Conseil de la Santé Publique, 2013)
  Prévention de la transmission croisée des 'Bactéries Hautement Résistantes aux antibiotiques émergentes' (BHRe)

GERMANY

- Infection control measures for infections or colonisation by multidrug-resistant Gram-negative bacteria. This document applies to carbapenem-resistant Enterobacteriaceae (Robert Koch Institute, Commission for Hospital Hygiene and Infection Prevention, 2012)
  Hygienemaßnahmen bei Infektionen oder Besiedlung mit multiresistenten gramnegativen Stäbchen

GREECE

- Action plan for the management of infections by multidrug-resistant Gram-negative pathogens in healthcare settings 'Prokroustis' Guidance on infection prevention and control of carbapenem- resistant Enterobacteriaceae is a part of the national action plan. (Hellenic Centre for Disease Control and Prevention, 2010)
  Σχέδιο δράσης για την αντιμετώπιση λοιμώξεων από πολυανθεκτικά Gram-αρνητικά παθογόνα σε χώρους παροχής υπηρεσιών υγείας 'Προκρούστης'

HUNGARY

- Guidance of National Center for Epidemiology on identification and prevention of spread of carbapenemase-producing Enterobacteriaceae in healthcare facilities (National Center for Epidemiology, 2011)
  Az Országos Epidemiológiai Központ ajánlása a karbapenemáz-termelő enterobacteriaceae törzsek azonosítására és terjedésük megelőzésére az egészségügyi intézményekben

IRELAND

- Guidance for detection and infection prevention and control of carbapenem-resistant Enterobacteriaceae is part of the guidelines on multidrug-resistant organisms (Royal College of Physicians / HSE Quality and Safety, 2012)
  Guidelines for the Prevention and Control of Multi-drug resistant organisms (MDRO) excluding MRSA in the healthcare setting

ITALY

- Surveillance and control of infections caused by carbapenemase producing bacteria (CPE) (Ministry of Health, 2013)
  Sorvegilanza, e controllo delle infezioni da batteri produttori di carbapenemasi (CPE)

LUXEMBOURG

- Control of the spread of multidrug-resistant bacteria: carbapenemase-producing Enterobacteriaceae (CPE) (Groupe National de Guidance en matière de Prévention de l'Infection Nosocomiale - GNPIN, 2013)
  Maîtrise de la diffusion de bactéries multirésistantes aux antibiotiques : Entérobactéries productrices de carbapénémases (EPC)

NETHERLANDS

- Guidelines for multidrug-resistant microorganisms (MDRO). This document includes guidance for infection prevention and control of carbapenem resistant Enterobacteriaceae. (Working Party on Infection Prevention, National Institute for Public Health and the Environment, 2011; updated 2013)
  WIP-richtlijn BRMO (Bijzonder Resistente Micro-Organismen)

NORWAY

- Prevention and control of transmission of multidrug-resistant Gram-negative and ESBL-producing bacteria in healthcare facilities. This document applies to carbapenemase-producing Enterobacteriaceae. (Norwegian Institute of Public Health, 2009)
  Forebygging og kontroll av spredning av multiresistente gramnegative stavbakterier og ESBL-holdige bakterier i helseinstitusjoner

POLAND

- Recommendations for the control of sporadic cases and outbreaks caused by Gram negative bacteria of the family Enterobacteriaceae. . This document focuses on carbapenemase-producing Enterobacteriaceae. (Ministry of Health, 2012)
  Zalecenia dotyczące postępowania w przypadku zachorowań sporadycznych i ognisk epidemicznych wywołanych przez Gram ujemne pałeczki z rodziny Enterobacteraceae

SLOVAKIA

- Guidance for the diagnosis, prevention and control of infections by bacteria with clinically and epidemiologically important resistance mechanisms. This document includes guidance targeting MRSA (Ministry of Health, 2014)
  OÚ MZ SR pre diagnostiku a protiepidemické opatrenia pri výskyte bakteriálnych pôvodcov infekčných ochorení s klinicky a epidemiologicky významnými mechanizmami rezistencie

SLOVENIA

- Recommendations for the control of ESBL-positive bacteria and carbapenemase-positive bacteria (Ministry of Health - National Commission for the prevention and control of healthcare associated infections, 2010)
  Priporočila za preprečevanje širjenja ESBL pozitivnih bakterij in karbapenemaza pozitivnih bakterij

SPAIN

- Prevention and control against infection with carbapenemase-producing Enterobacteriaceae (Autonomous Community of Madrid, 2013)
  Plan de Prevencion y control frente a la infeccion por enterobacterias productoras de carbapenemasas (EPC) en la Comunidad de Madrid

SWEDEN

- ESBL-producing enterobacteria - – Knowledge base with draft notices to limit the spread of Enterobacteriaceae with ESBL. This document applies to carbapenemase-producing Enterobacteriaceae (Public Health Agency of Sweden, 2013)
  ESBL-producerande tarmbakterier – Kunskapsunderlag med förslag till handläggning för att begränsa spridningen av Enterobacteriaceae med ESBL

UNITED KINGDOM

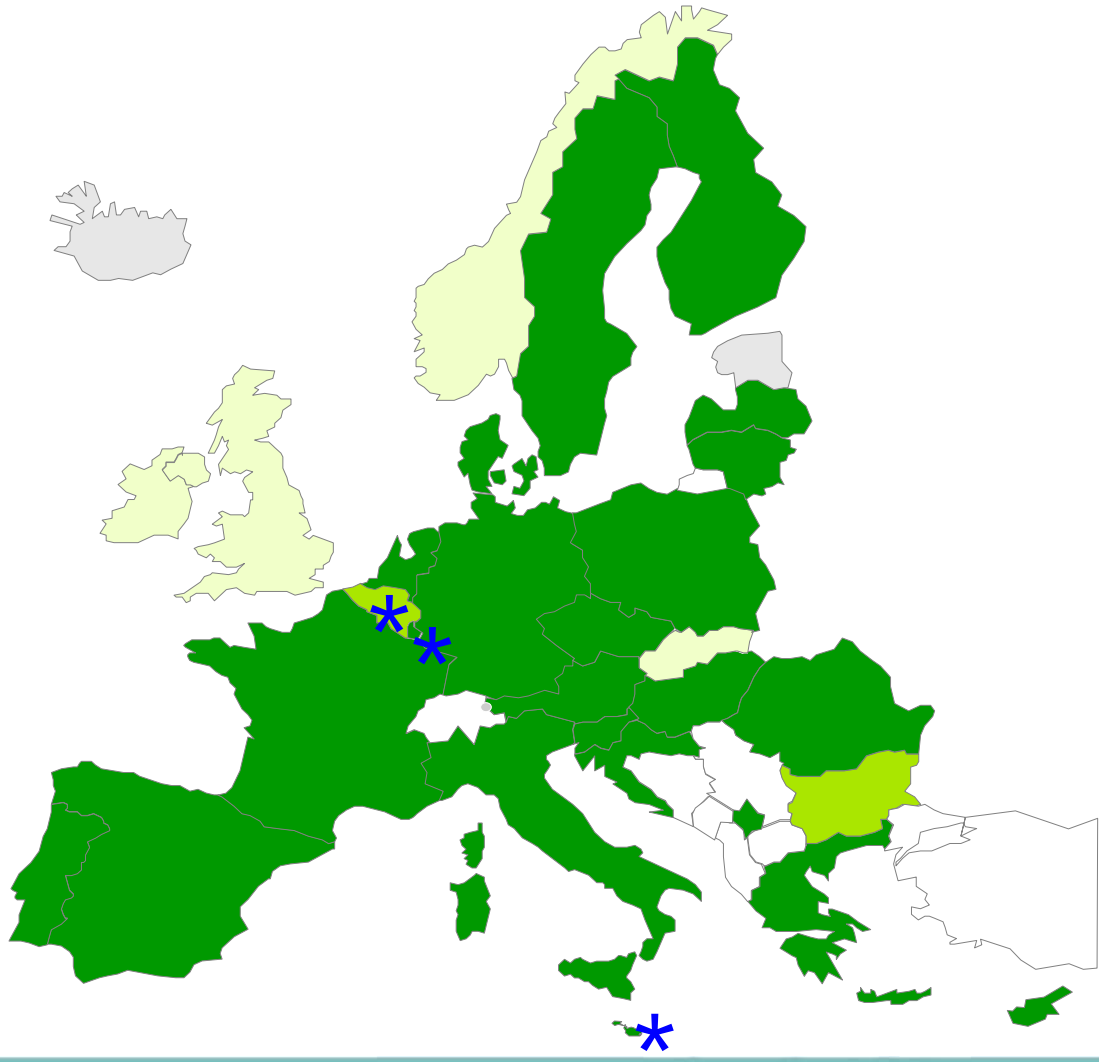
- Expert advice on the management of colonisation or infection due to carbapenemase-producing Enterobacteriaceae in England, to prevent or reduce their spread into (and within) health and residential care settings (Public Health England, 2013)
  Acute trust toolkit for the early detection, management and control of carbapenemase-producing Enterobacteriaceae
- Set of recommendations based on scientific evidence (where available) and consensus of expert opinion to prevent cross-transmission of carbapenemase-producing Enterobacteriaceae within acute healthcare settings in Scotland. Supporting materials include, e.g. a prevention and management toolkit for inpatient areas (Health Protection Scotland, 2013)
  Interim guidance: Non-prescribing control measures to prevent cross transmission of Carbapenemase-Producing Enterobacteriaceae in acute settings

Country visits to discuss antimicrobial resistance (AMR) issues, 2006-2017

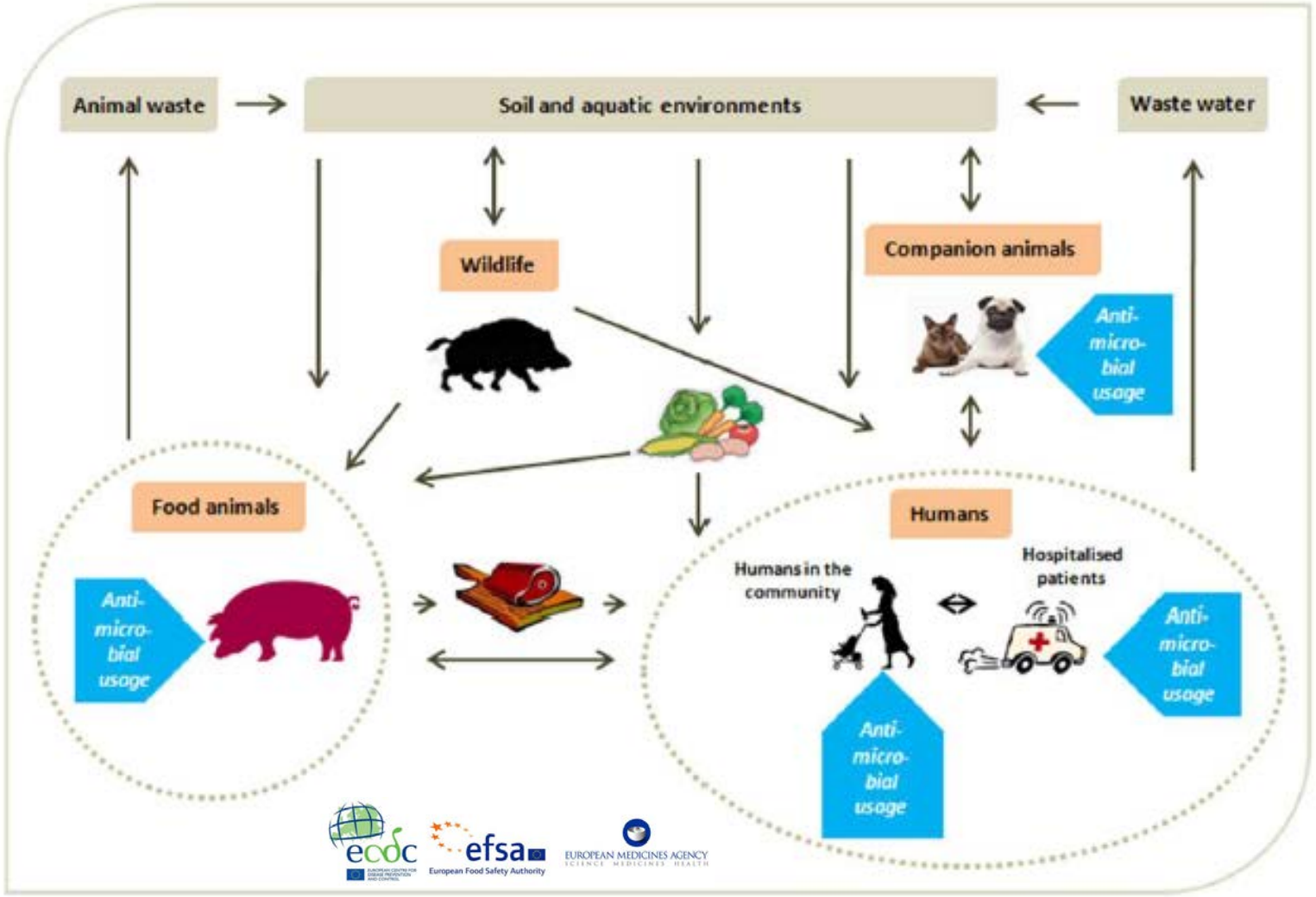
As of 8 September 2017

- Done
- Planned (invitation received)
- Discussed
- * Jointly with DG SANTE/F

- Based on Council Recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine (2002/77/EC)
- Reports (observations, conclusions, suggestions, examples of best practice)
- **22 EU Member States** and 1 EU enlargement country (see map)
- 5 follow-up visits (Greece × 2 and Hungary × 2, Malta)
- **2017: 1 additional visit** (Belgium)
- **2018:** 6 visits* jointly with DG SANTE/F, in a One Health perspective



Resistance spreads among humans, animals and the environment



Collaboration between ECDC, EMA and EFSA

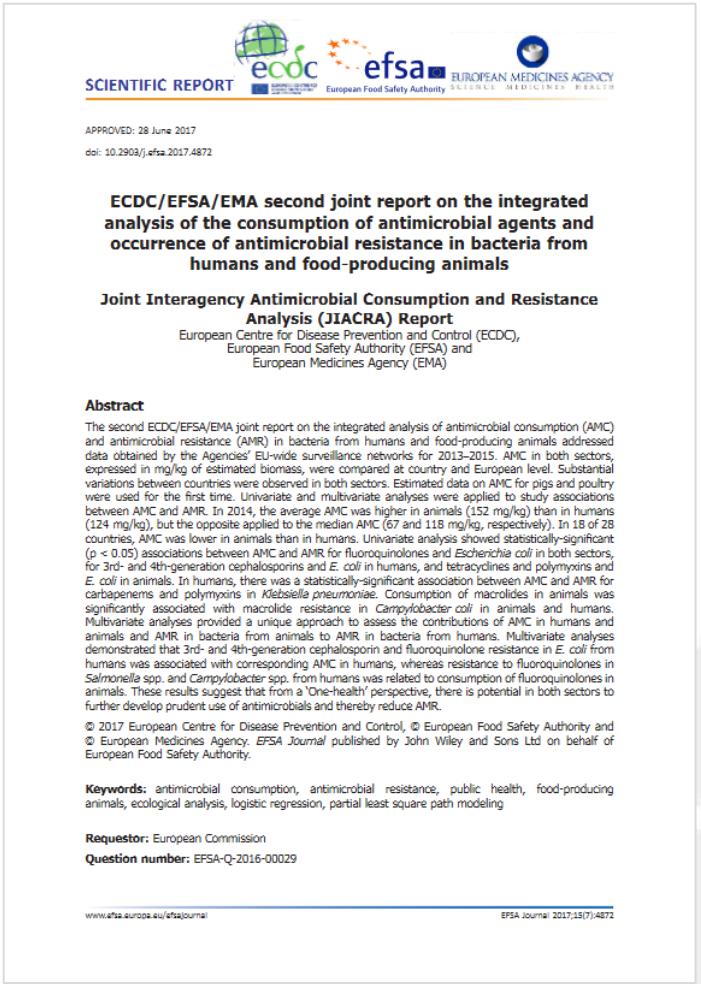
I. Together we paint the big picture of antibiotic resistance in the EU

II. We turn data into evidence for rational policy-making

III. We help make the EU a best practice region in the fight against AMR

IV. We help fight antibiotic resistance through research, development and innovation

2nd Joint Interagency Antimicrobial Consumption and Resistance Analysis (JIACRA) Report, 2017



SCIENTIFIC REPORT

APPROVED: 28 June 2017

doi: 10.2903/j.efsa.2017.4872

ECDC/EFSA/EMA second joint report on the integrated analysis of the consumption of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from humans and food-producing animals

Joint Interagency Antimicrobial Consumption and Resistance Analysis (JIACRA) Report

European Centre for Disease Prevention and Control (ECDC),
European Food Safety Authority (EFSA) and
European Medicines Agency (EMA)

Abstract

The second ECDC/EFSA/EMA joint report on the integrated analysis of antimicrobial consumption (AMC) and antimicrobial resistance (AMR) in bacteria from humans and food-producing animals addressed data obtained by the Agencies' EU-wide surveillance networks for 2013–2015. AMC in both sectors, expressed in mg/kg of estimated biomass, were compared at country and European level. Substantial variations between countries were observed in both sectors. Estimated data on AMC for pigs and poultry were used for the first time. Univariate and multivariate analyses were applied to study associations between AMC and AMR. In 2014, the average AMC was higher in animals (152 mg/kg) than in humans (124 mg/kg), but the opposite applied to the median AMC (67 and 118 mg/kg, respectively). In 18 of 28 countries, AMC was lower in animals than in humans. Univariate analysis showed statistically-significant ($p < 0.05$) associations between AMC and AMR for fluoroquinolones and *Escherichia coli* in both sectors, for 3rd- and 4th-generation cephalosporins and *E. coli* in humans, and tetracyclines and polymyxins and *E. coli* in animals. In humans, there was a statistically-significant association between AMC and AMR for carbapenems and polymyxins in *Klebsiella pneumoniae*. Consumption of macrolides in animals was significantly associated with macrolide resistance in *Campylobacter coli* in animals and humans. Multivariate analyses provided a unique approach to assess the contributions of AMC in humans and animals and AMR in bacteria from animals to AMR in bacteria from humans. Multivariate analyses demonstrated that 3rd- and 4th-generation cephalosporin and fluoroquinolone resistance in *E. coli* from humans was associated with corresponding AMC in humans, whereas resistance to fluoroquinolones in *Salmonella* spp. and *Campylobacter* spp. from humans was related to consumption of fluoroquinolones in animals. These results suggest that from a 'One-health' perspective, there is potential in both sectors to further develop prudent use of antimicrobials and thereby reduce AMR.

Keywords: antimicrobial consumption, antimicrobial resistance, public health, food-producing animals, ecological analysis, logistic regression, partial least square path modeling

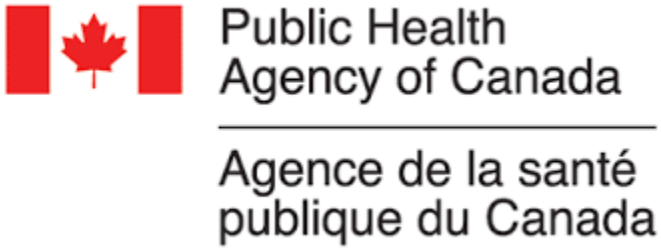
Requestor: European Commission

Question number: EFSA-Q-2016-00029

Published 29 July 2017.

http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2017.4872/epdf

International partners



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

CDC A-Z INDEX

Transatlantic Task Force on Antimicrobial Resistance (TATFAR)

Recommend Tweet Share

TATFAR Purpose

The Transatlantic Taskforce on Antimicrobial Resistance (TATFAR) was created in 2009 with the goal of improving cooperation between the U.S. and the EU in three key areas: (1) appropriate therapeutic use of antimicrobial drugs in medical and veterinary communities, (2) prevention of healthcare and community-associated drug-resistant infections, and (3) strategies for improving the pipeline of new antimicrobial drugs.

ABOUT TATFAR

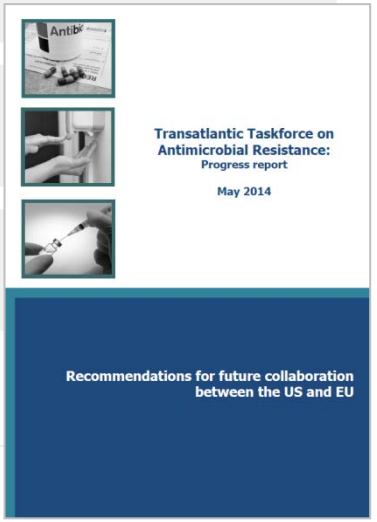
TATFAR PROGRESS REPORT 2014

TATFAR MEMBERS

TATFAR LINKS AND RESOURCES

LATEST NEWS

CONTACT



2016-2020

EU, U.S., Canada, Norway

Page last reviewed: July 14, 2014
Page last updated: July 14, 2014
Content source: Centers for Disease Control and Prevention

Source: CDC, 2016 (http://www.cdc.gov/drugresistance/tatfar/).

Thank you!

EUROPEAN ANTIBIOTIC AWARENESS DAY

A EUROPEAN HEALTH INITIATIVE

18 November 2017

EU event, Brussels, 15 November 2017

E-mail: EAAD@ecdc.europa.eu
Website: http://antibiotic.ecdc.europa.eu
Facebook: EAAD.EU
Twitter: @EAAD_EU (#EAAD)
Global Twitter: #AntibioticResistance

ecdc
EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

WORLD ANTIBIOTIC AWARENESS WEEK

13-19 NOVEMBER 2017

ANTIBIOTICS HANDLE WITH CARE

This presentation

I. ECDC work on AMR

II. European Antibiotic Awareness Day (EAAD)

- European Antibiotic Awareness Day
- Available campaign materials
- New toolkit for professionals in hospitals and other healthcare settings
- Ways for your organisation to contribute to EAAD in 2017

III. National perspective: UK and Antibiotic Guardian

European Antibiotic Awareness Day

- A **European health initiative** coordinated by ECDC.
- **Launched in 2008** with support from the European Commission, European Parliament, EU Member States and non-governmental health stakeholders across the EU.
- European Antibiotic Awareness Day is marked across Europe on **18 November.**
- The campaign builds on **successful national campaigns** to raise awareness about the threat to human health of antibiotic resistance and communicate about prudent use of antibiotics.

EAAD objectives

- Support national activities aimed at **raising awareness** of prudent antibiotic use among the general public as well as particular target audiences such as primary care prescribers and prescribers in hospitals and other healthcare settings.

- Support national activities aiming at **maintaining the efficacy** of antibiotics and **slowing down the emergence and spread** of resistant bacteria.

European Antibiotic Awareness Day provides a platform and support to national campaigns about prudent antibiotic use in the community and in hospitals.

Target audiences/topics so far

General public

Primary care prescribers

Hospital prescribers

Self-medication with antibiotics

European Antibiotic Awareness Day, 2008-2017

2008 Toolkit for the general public
32 countries participated

2009 Toolkit for primary care prescribers

2010 Toolkit for hospital prescribers and and hospitals
Matched Get Smart week in the U.S. and the campaign in Canada

2011 Patient stories and Euronews movie
Social media guidance
37 countries participated

2012 Collaboration with WHO/Europe:
43 countries participated
First EAAD Twitter chat
Australia becomes a partner

2013 Start work on self-medication with antibiotics, with PGEU and CPME
Training module and pilot course

2014 Toolkit for the general public on self-medication with antibiotics
New Zealand becomes a partner
European Twitter chat + Global Twitter conversation

2015 Participation in the first WAAW

2016 Start work on the update of the toolkit for hospital prescribers with professional organisations
Policy briefing on AMR, translated in all EU languages

2017 Toolkit for professionals in hospitals
Event marking the 10th European Antibiotic Awareness Day

EUROPEAN ANTIBIOTIC AWARENESS DAY

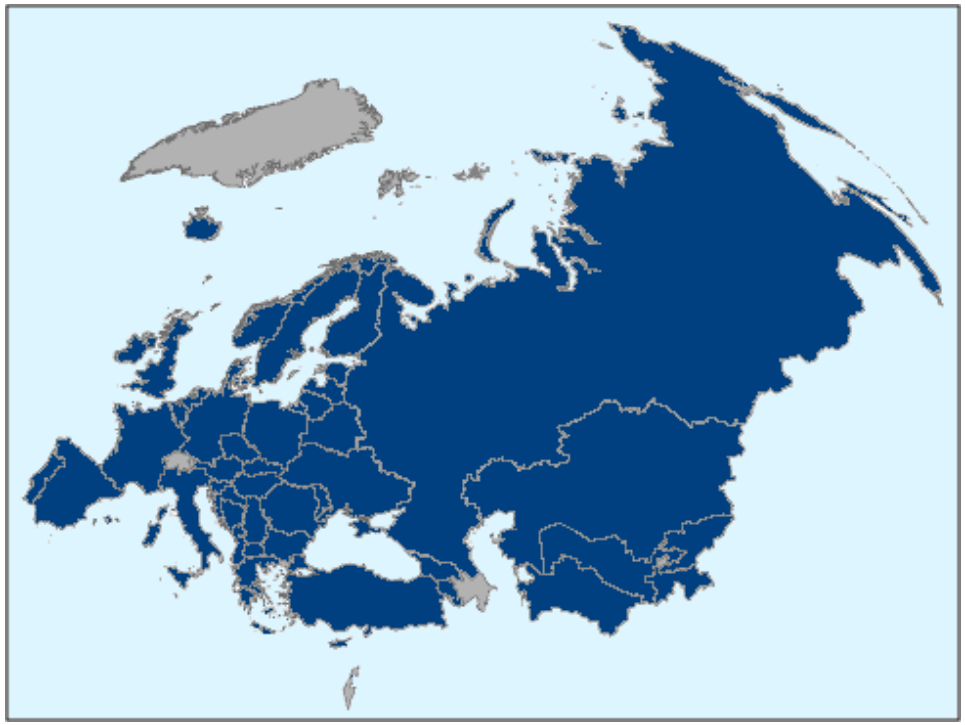
A European Health Initiative

Is this an effective protection against colds or flu?
Neither are antibiotics.

Antibiotics.
Use them wisely – and never against colds and flu.

EUROPEAN ANTIBIOTIC AWARENESS DAY

45 European countries join WAAW / EAAD (15 non-EU countries)



Albania, Armenia, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Kosovo*, Republic of Moldova, Russian Federation, Serbia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkmenistan, Turkey, Ukraine, Uzbekistan

* In accordance with UNSCR 1244, 1999

Toolkit on self-medication with antibiotics

- Key messages
- Template letters to pharmacists and primary care prescribers
- Posters
- Animation
- Visual for pharmacy bag

Visuals


Is this an effective protection
against colds or flu?
Neither are antibiotics.
Antibiotics.
Use them wisely –
and never against
colds and flu.
EUROPEAN
ANTIBIOTIC
AWARENESS DAY
A EUROPEAN
HEALTH INITIATIVE


40%
of all Europeans wrongly
believe that antibiotics
work against colds and flu.
Antibiotics.
Ask your doctor for advice:
other medicines can help
relieve your symptoms.
EUROPEAN
ANTIBIOTIC
AWARENESS DAY
A EUROPEAN
HEALTH INITIATIVE


SUN
protection
50
Is this an effective protection
against colds or flu?
Neither are antibiotics.
Antibiotics.
Use them wisely –
and never against
colds and flu.
EUROPEAN
ANTIBIOTIC
AWARENESS DAY
A EUROPEAN
HEALTH INITIATIVE

New EAAD toolkit for professionals in hospitals and other healthcare settings

- **Expansion** of the target audiences
- **Literature review** of published guidelines, systematic reviews and original articles for the object of interest to update key messages.
- **Consultation** with experts, ECDC networks, the European Commission, WHO Europe and professional organisations.
- **Focus groups** in 6 countries.
- **Timing of the launch**: to the countries in April/May, publicly available on the EAAD website as from October, with the key messages translated in all EU/EEA languages.

The template materials in this toolkit

- Aim at creating a sense of individual responsibility in tackling antibiotic resistance and at empowering professionals to take action.
- Include one slogan, linking all materials: “Antibiotics: handle with care”.
- Are based on scientific evidence, in the form of key messages.
- Are available in Adobe InDesign, Microsoft Word and Microsoft PowerPoint, which makes it easy to adapt them by anyone with experience in any of these three softwares.
- Need to be adapted to national contexts to better respond to specific communication needs.

What is in the new toolkit?

- **Key messages + guidance document**
- **Infographic** on antibiotic stewardship (all target audiences)
- **Letters** for hospital managers, hospital prescribers, nurses, hospital pharmacists, infectious disease specialists, clinical microbiologists
- **Presentation** (all target audiences)
- **Leaflets** for hospital prescribers, infection control teams, nurses, physicians in long-term care facilities
- **Checklists** general to be used by hospital pharmacists, junior doctors, microbiologists.
- **Posters** for hospital prescribers – adaptable for e.g. intensivists, emergency departments.
- **Factsheet** general for hospital pharmaceutical committees and hospital antibiotic stewardship committees.
- **Template social media info cards** / fact cards / support cards

Key messages are the cornerstone of any communication campaign. They provide a set of water-tight statements, each of which is accompanied by a reference, that will be used as basis for the content of the template materials.

Antibiotics: handle with care!

Hospital prescribers

Up to half of all antibiotic use in hospitals is unnecessary or inappropriate

As a hospital prescriber, you have a responsibility to use ant and to ensure that they remain effective. In your role, you mu

- Follow infection prevention and control guidance;
- Initiate antibiotic treatment as soon as possible in patients with severe infection;
- Ensure that relevant cultures are taken timely;
- Re-evaluate treatment after 48–72 hours, or when results from microbiological samples are availabl
- Prescribe according to evidence-based hospital antibio for common infections and for surgical prophylaxis;
- Inform your patients of any antibiotics prescribed, and their potential adverse effects.

EUROPEAN ANTIBIOTIC AWARENESS DAY

Insert logo of national institution

Insert logo of national institution

If you want to know more about the antibiotic stewardship programme in your hospital, contact [email address] or call [phone number]. See more information at [hospital website]

All the statements in this poster are supported by scientific evidence. Visit http://antibiotic.ecdc.europa.eu or scan the QR code.

Antibiotics: handle with care!

Nurses

Antibiotic resistance keeps increasing in Europe, threatening patient safety in all healthcare settings

As a nurse, you have a responsibility to use antibiotic prudently a ensure that they remain effective. In your role, you must:

- Follow infection prevention and control guidance
- Administer antibiotics to patients according to the prescription
- Coordinate the taking and sending of microbiological specimen and their reporting back to physicians
- Report adverse effects of antibiotic therapy to physicians and to appropriate review committees
- Manage antibiotic stocks on your ward, and ensuring the tracea of antibiotic use
- Provide information on treatments to patients and families

EUROPEAN ANTIBIOTIC AWARENESS DAY

Insert logo of national institution

Insert logo of national institution

If you want to know more about the antibiotic stewardship programme in your hospital, contact [email address] or call [phone number]. See more information at [hospital website]

All the statements in this poster are supported by scientific evidence. Visit http://antibiotic.ecdc.europa.eu or scan the QR code.

Antibiotics: handle with care!

Our hospital

In this hospital we are committed to use antibiotics prudently and to ensure that they remain effective

- We follow infection prevention and control guidance;
- We initiate antibiotic treatment as soon as possible in patients with severe infection;
- We ensure that relevant cultures are taken timely;
- We re-evaluate treatment after 48–72 hours, or when results from microbiological samples are available;
- We prescribe according to evidence-based hospital antibiotic guidelines for common infections and for surgical prophylaxis;
- We inform our patients of any antibiotics prescribed, and their potential adverse effects.

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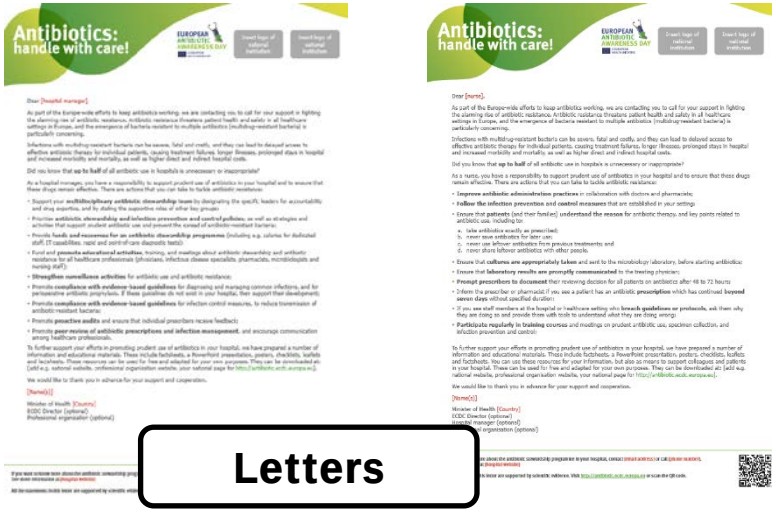
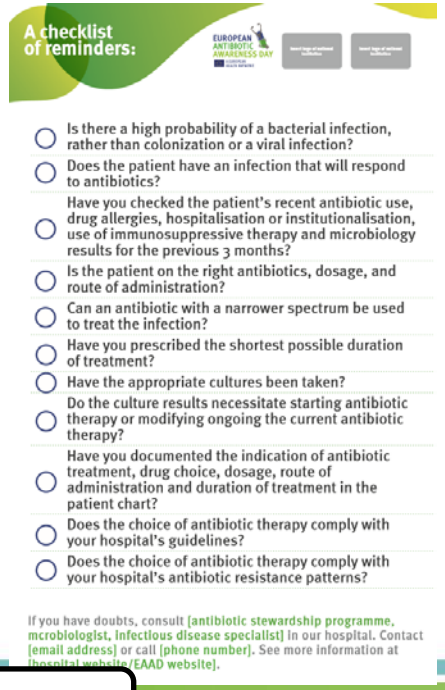
Posters



Letters



Factsheet

Leaflets

EUROPEAN ANTIBIOTIC AWARENESS DAY

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ecdc

Plan a campaign | For prescribers | Get informed | Get involved | Campaigns in Europe | News | About

- Do not self-medicate with antibiotics
- New infographic
- Patient stories
- Last-line antibiotics are failing
- What is antibiotic resistance?

TWEET #EAAD2016

#EAAD2016

dpurb . com Retweeted

Oxford Medicine @OUPMedicine

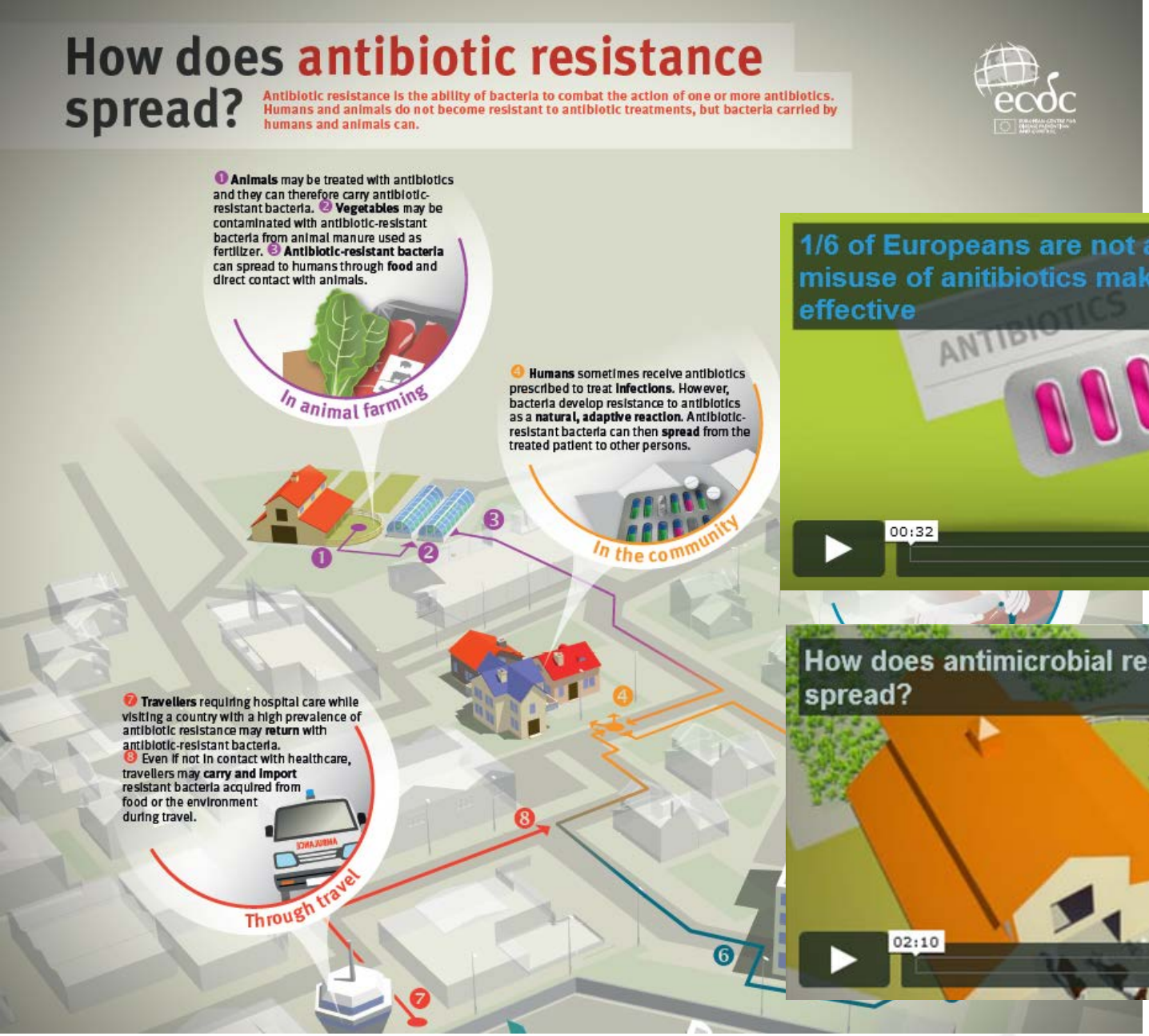
Join the fight against antibiotic resistance on #EAAD2016 @EAAD bit.ly/2fXWhRs @BSACandJAC @FEMSTweets

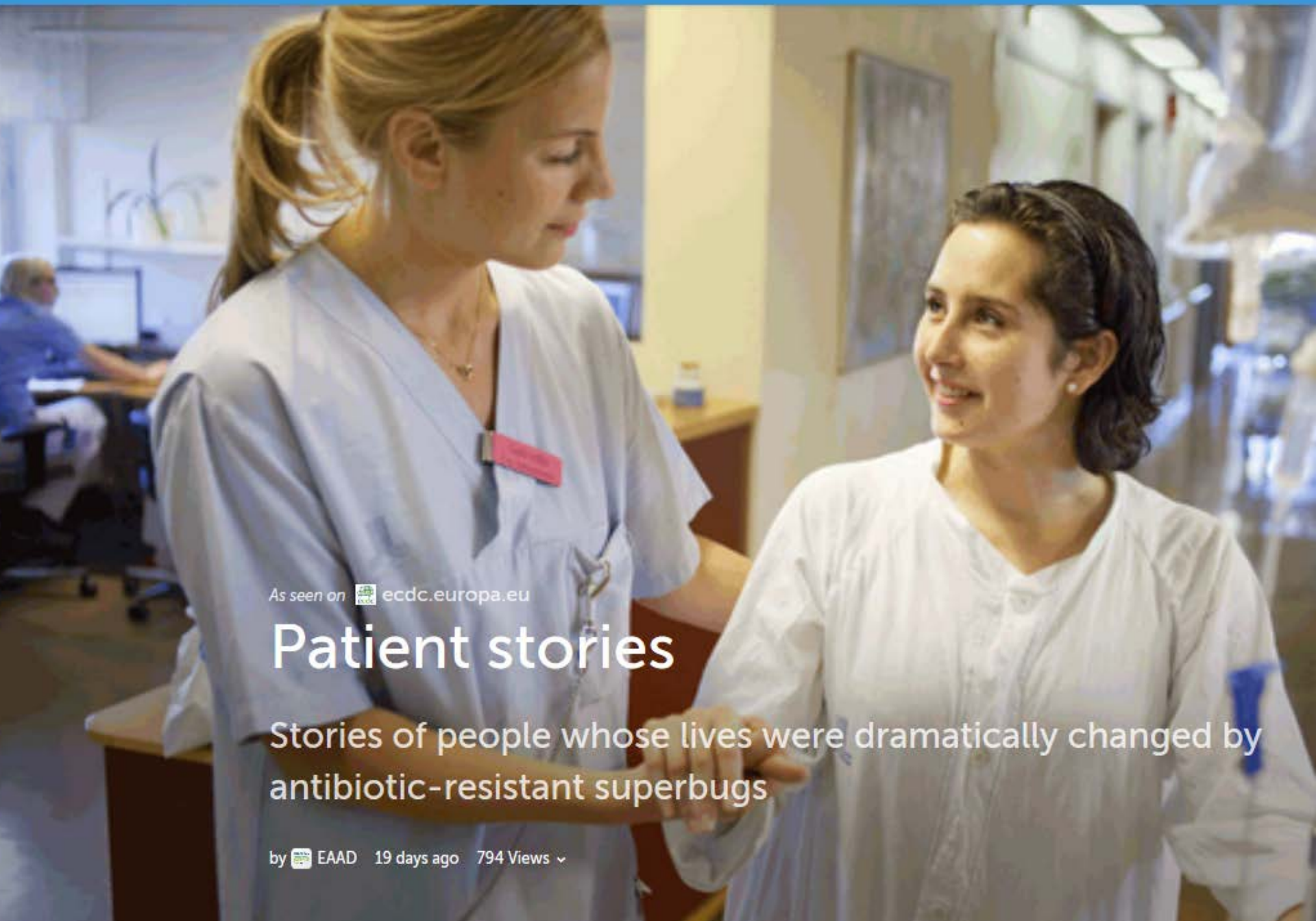
What is antibiotic resistance and prudent antibiotic use? How to use antibiotics responsibly?
See patient stories, infographics, videos

How to encourage your patients to use antibiotics responsibly? And how to manage antibiotic prescriptions in hospitals?
Materials for primary care and hospitals prescribers

How does antibiotic resistance spread?

Antibiotic resistance is the ability of bacteria to combat the action of one or more antibiotics. Humans and animals do not become resistant to antibiotic treatments, but bacteria carried by humans and animals can.





As seen on ecdc.europa.eu

Patient stories

Stories of people whose lives were dramatically changed by antibiotic-resistant superbugs

by EAAD 19 days ago 794 Views

Ways for your organisation to contribute to EAAD in 2017

1. Acting as **multipliers** of the EAAD messages, e.g. by using and sharing further the new toolkit and any other EAAD materials.
2. Sharing information about EAAD with your national member organisations.
3. Adding a **banner** on your website & communicating via your organisation's newsletter.
4. Attending the **launch event** in Brussels on 15 November, and making a short intervention about your organisation's role in tackling antibiotic resistance.
5. Contributing to the discussions on site and through **social media** using #EAAD.
6. Taking part and promoting participation to ECDC's social media campaign.
7. Producing a **video pledge**.
8. Contributing with an entry on the **EAAD blog**, starting in 2018

Thank you!

EUROPEAN ANTIBIOTIC AWARENESS DAY

A EUROPEAN HEALTH INITIATIVE

18 November 2017

EU event, Brussels, 15 November 2017

E-mail: EAAD@ecdc.europa.eu
Website: http://antibiotic.ecdc.europa.eu
Facebook: EAAD.EU
Twitter: @EAAD_EU (#EAAD)
Global Twitter: #AntibioticResistance

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