Latest scientific developments on AMR

Joint presentation

Overview

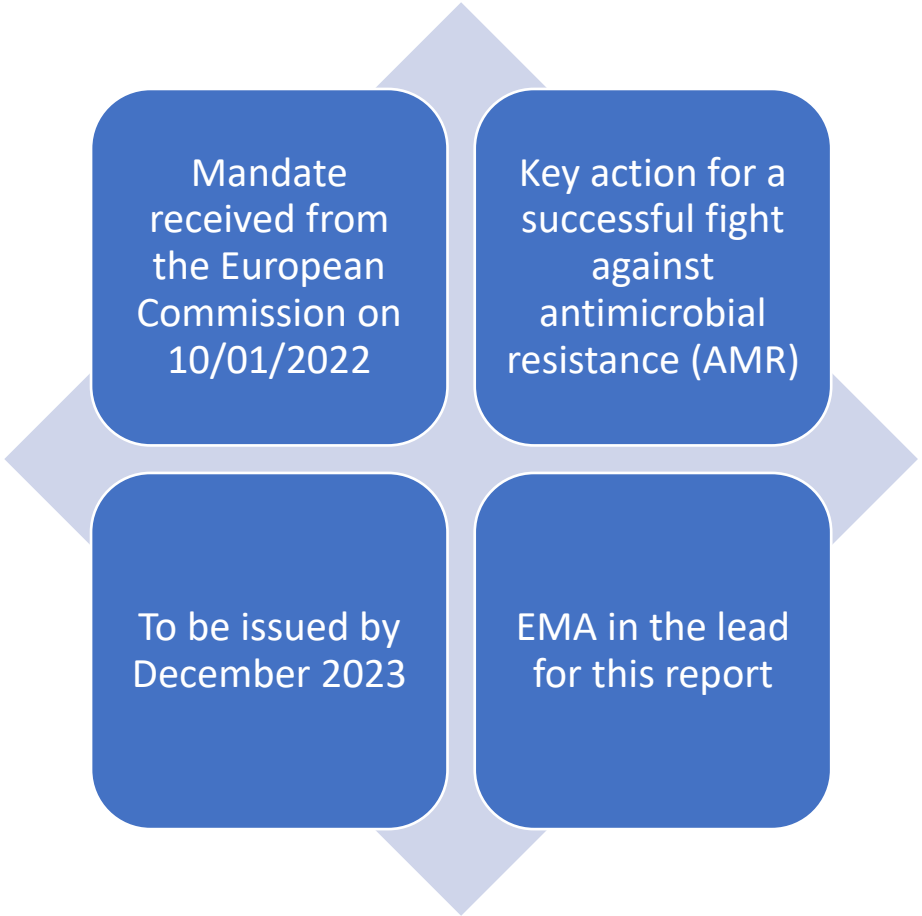
Topics

- JIACRA IV report
- Azoles
- Surveillance
  - Resistance
  - Consumption
- Implementation of Regulation EU 2019/6
  - EMA opinions
  - IT systems
- AMR in the environment
- Other topics

Integrated analysis of surveillance data: JIACRA IV report – EMA, EFSA, ECDC

Mandate and timelines

JIACRA IV report



Reg. (EU) 2019/5 integrated JIACRA into the EMA core tasks

Terms of Reference

a) data on the consumption of antimicrobials in human and veterinary medicine as well as on AMR in the Union based on contributions received by Member States, as an overview of the situation;

b) an integrated analysis of possible relationships between AMC in humans and food-producing animals and the occurrence of AMR in bacteria from humans and food-producing animals focusing on relevant EU outcome indicators;

c) an integrated analysis of relevant trends at EU and national level in AMC and AMR in humans and food-producing animals;

d) advice for policy makers on trends that require for policy measures to be taken in priority, based on the outputs of the integrated analyses of trends in AMC and AMR;

e) simplified summary of the conclusions that could be easily used by Member States for policy making purposes.

Azoles

Impact of the use of azole fungicides, other than as human medicines, on the development of azole-resistant *Aspergillus spp*.

EFSA, ECDC, EMA, EEA, ECHA, JRC

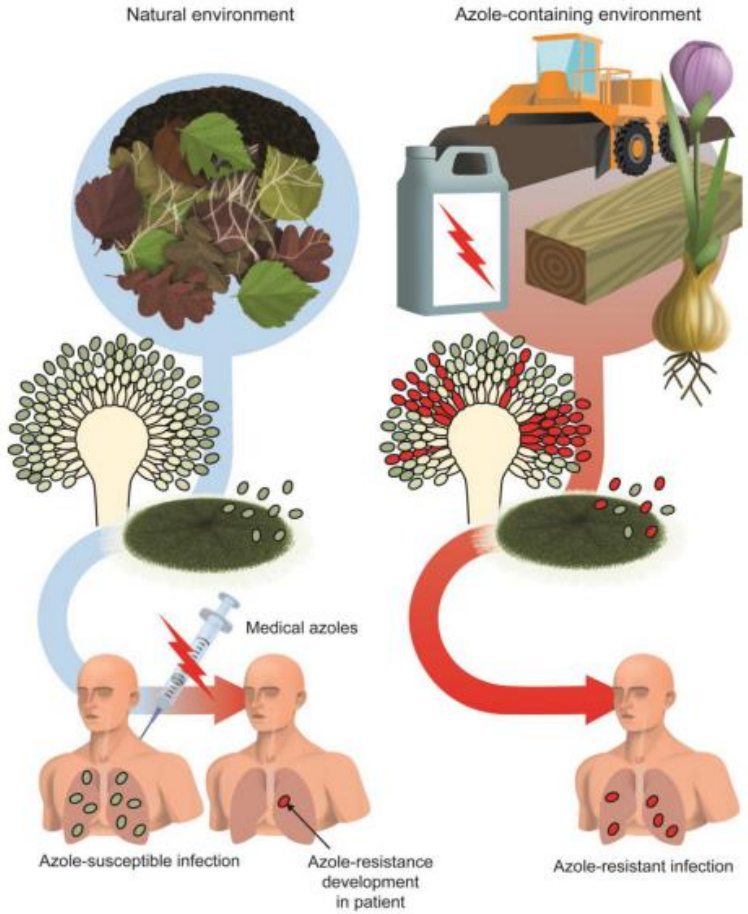
Azole fungicides

- Health issue: infection in human with *Aspergillus* spp. resistant to treatment with azoles
- Resistance may develop following:

  i) therapeutic treatment

  ii) environmental exposure (for which there is growing evidence)

- Use of azole fungicides in the environment, 4 regulatory regimes:
  - Plant protection products (EFSA)
  - Biocides (ECHA)
  - Industrial chemicals (ECHA), e.g. wood preservatives, cosmetics
  - Veterinary medicines (EMA)

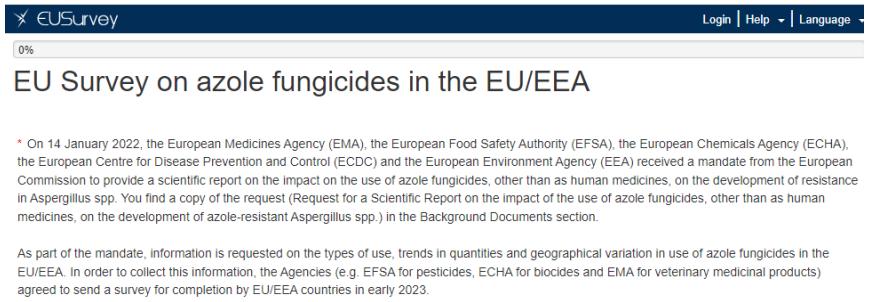


source: Verweij et al., 2020

Azole fungicides

- Joint EC Mandate to ECDC-ECHA-EFSA-EEA-EMA(+JRC), overall coordination by EFSA (BIOHAW+PREV)
  - Collect data about use of azole fungicides in all domains other than human medicines
  - Identify causative link between environmental use and resistance development and describe epidemiology
  - Assess risks
  - Identify risk factors and control options
  - Identify type of studies to be provided by applicants for approval of azole substances for different types of use (affecting applications to ECHA, EFSA, EMA)
  - Identify data gaps and research needs

Extensive survey launched by ECHA-EFSA-EMA with MSs on 7 February 2023 for 2 months



Deadline for the interagency report: **July 2024**

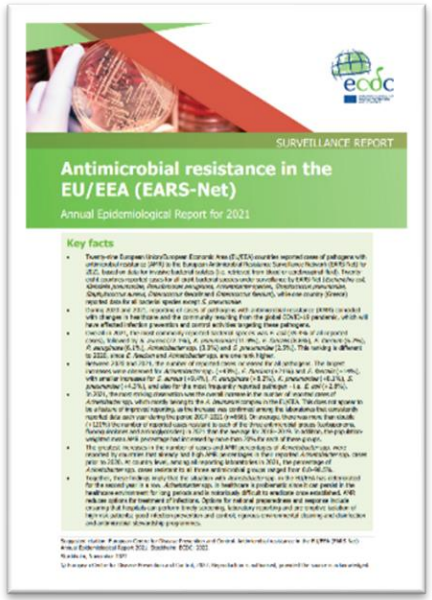
Surveillance

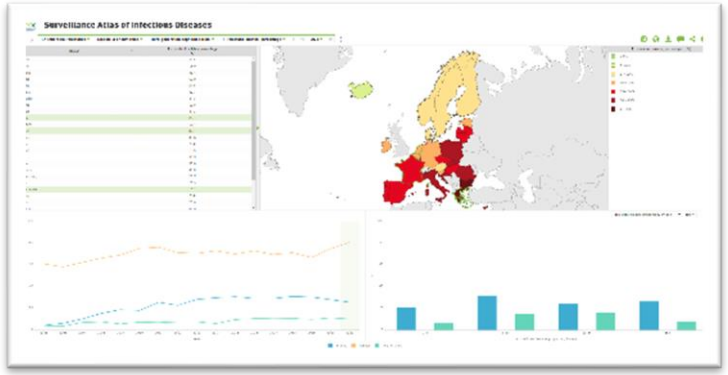
Resistance [ECDC, EFSA]

Consumption [ECDC, EMA]

European Antimicrobial Resistance Surveillance Network (EARS-Net)

Well-established annual surveillance outputs for European Antibiotic Awareness Day (November)





https://atlas.ecdc.europa.eu/public/index.aspx

EUROPEAN ANTIBIOTIC AWARENESS DAY
A EUROPEAN HEALTH INITIATIVE

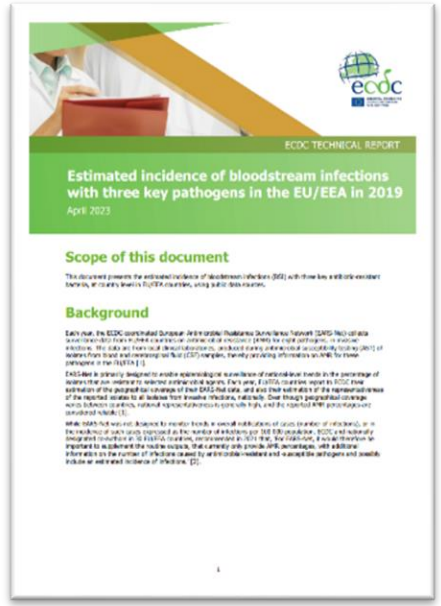
https://www.ecdc.europa.eu/sites/default/files/documents/AER-EARS-Net-2021_2022-final.pdf

New:

National recommended 2030 targets on incidence of bloodstream infections of selected AMR phenotypes:

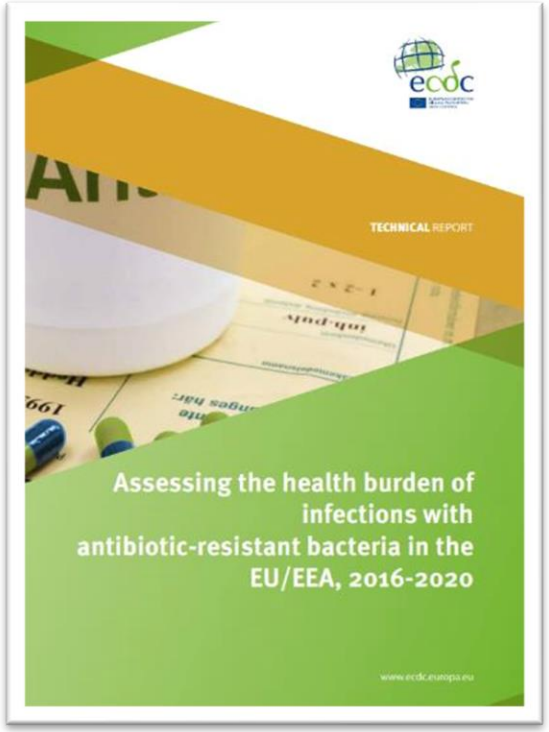
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Third-generation cephalosporin-resistant *Escherichia coli*
- Carbapenem-resistant *Klebsiella pneumoniae*

https://data.consilium.europa.eu/doc/document/ST-9581-2023-INIT/en/pdf



https://www.ecdc.europa.eu/sites/default/files/documents/bloodstream-infections-estimated-incidence-2019.pdf

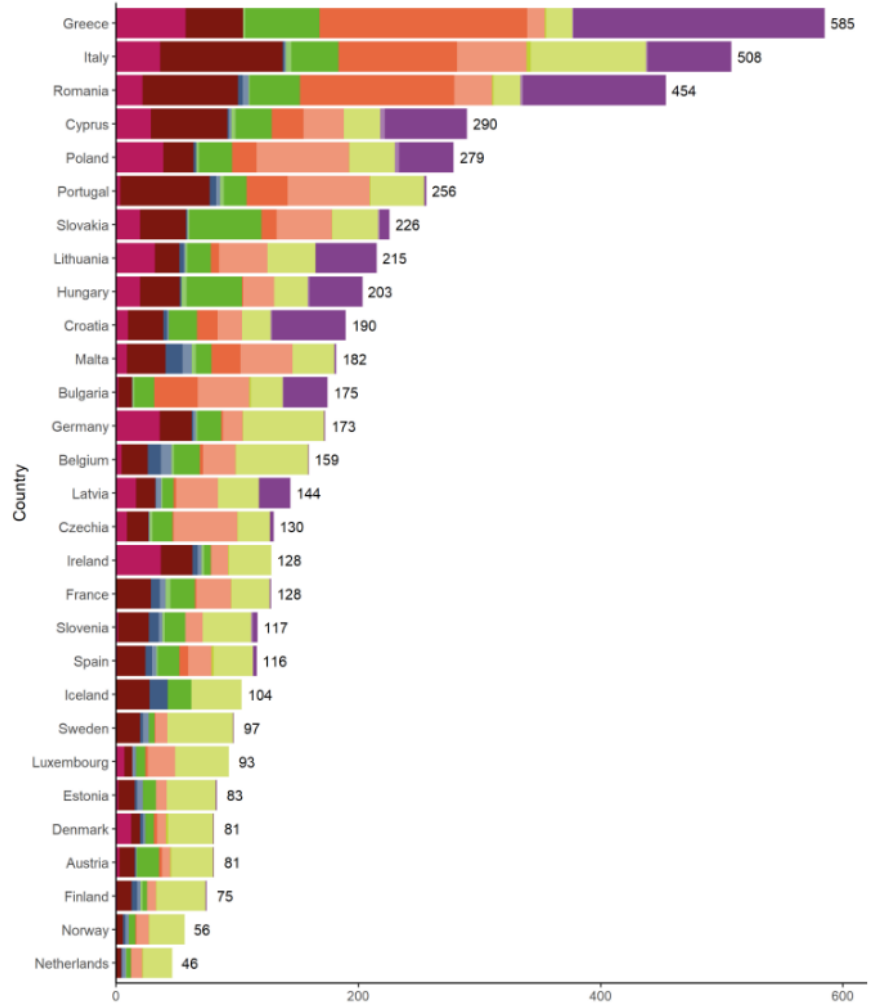
Human health burden of infections with antibiotic-resistant bacteria by country, EU/EEA, 2016-2020



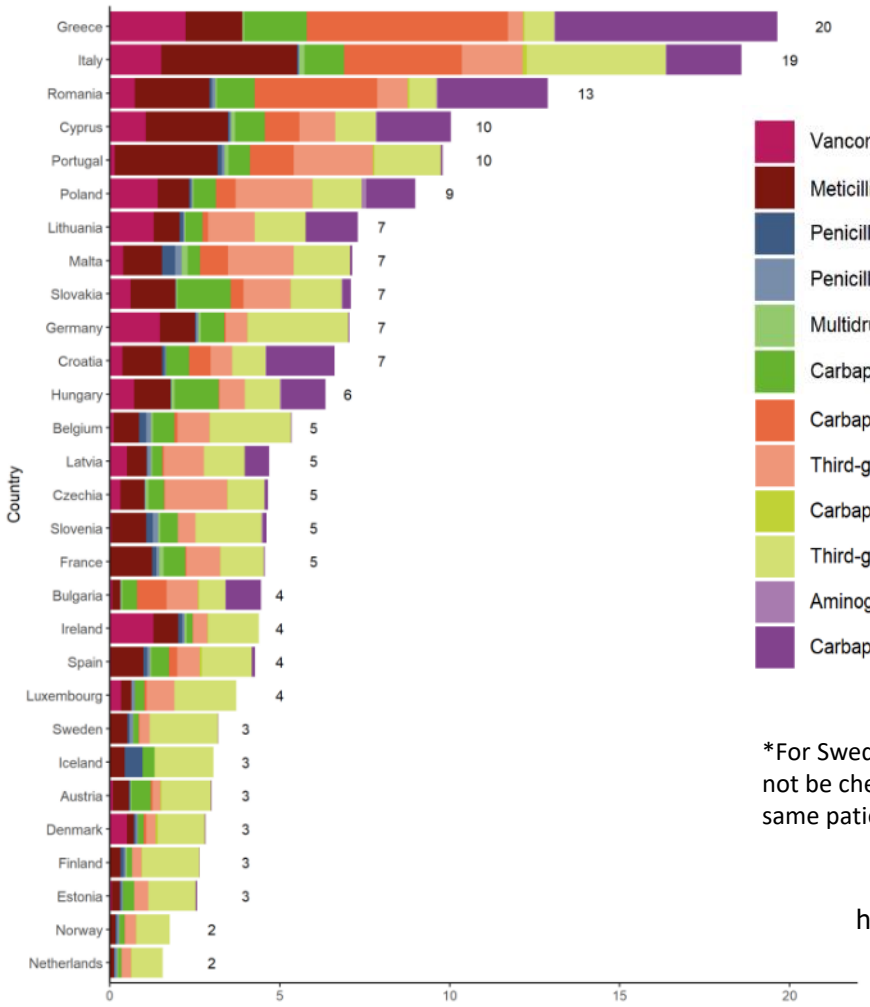
https://www.ecdc.europa.eu/sites/default/files/documents/Health-burden-infections-antibiotic-resistant-bacteria.pdf

- In 2020 in the EU/EEA:
  - More than **800,000 human infections** with antibiotic-resistant bacteria
  - More than **35,000 attributable deaths**
  - More than **1 million disability-adjusted life years (DALYs) lost**
  - More than **70% linked to healthcare-associated infections.**
- This burden:
  - Remains comparable to that of influenza, tuberculosis and HIV/AIDS combined
  - Increased between 2016 and 2020, although there was a small decrease in 2020 compared to 2019

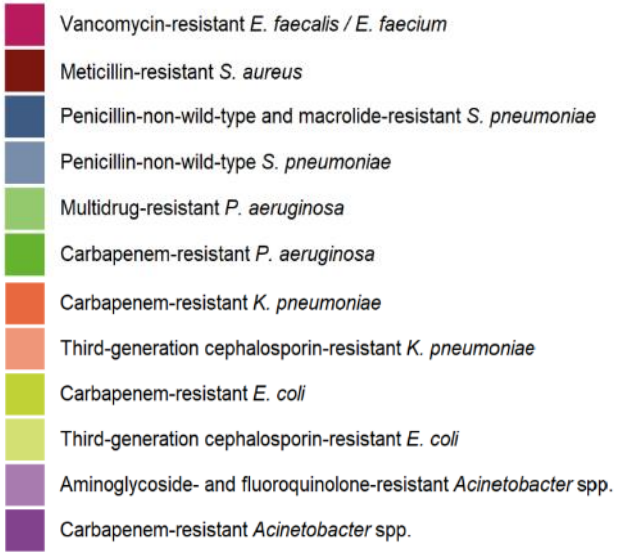
Human health burden of infections with antibiotic-resistant bacteria by country, EU/EEA, 2016-2020



DALYs per 100 000 population



Attributable deaths per 100 000 population

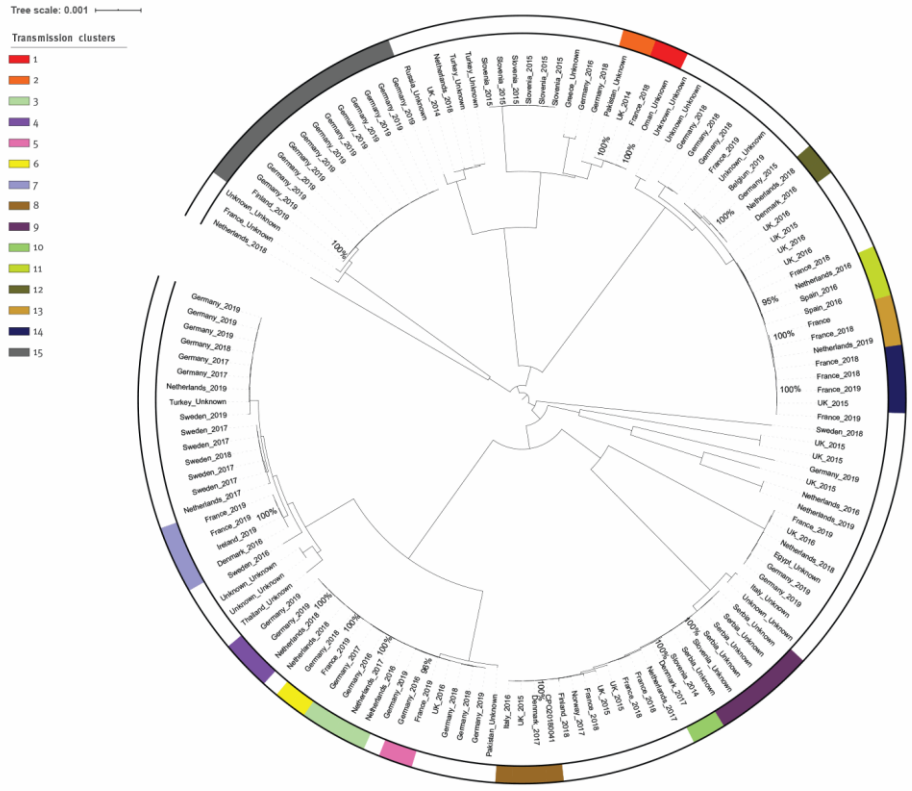


*For Sweden, data reported to EARS-Net for 2016-2020 could not be checked for possible duplicate cases reported from the same patient.

Source: https://www.ecdc.europa.eu/en/publications-data/health-burden-infections-antibiotic-resistant-bacteria-2016-2020

European Antimicrobial Resistance Genes Surveillance Network (EURGen-Net)

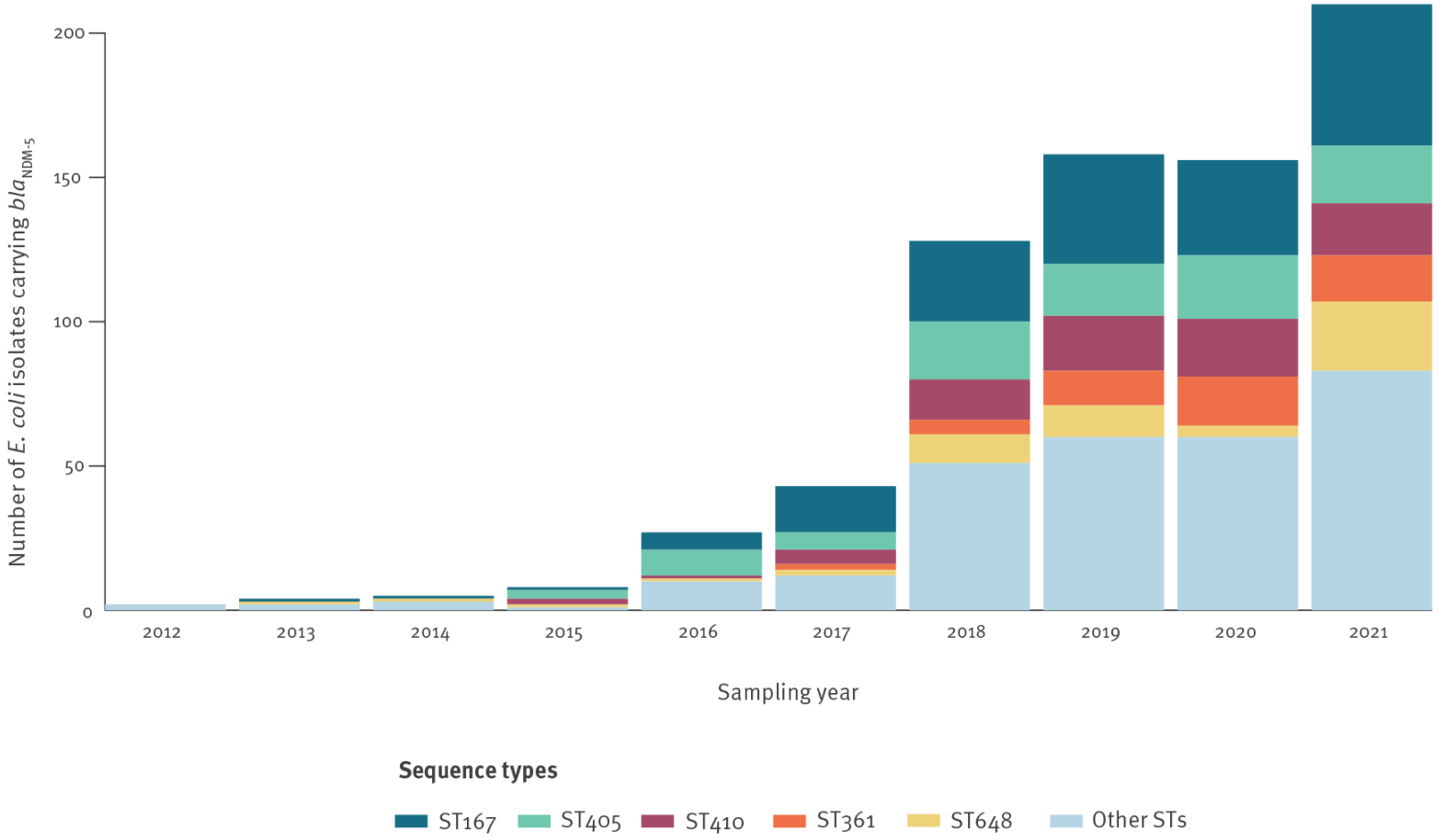
- **Aim**
  - Genomic-based surveillance of multidrug-resistant pathogens of public health importance
- **Objectives**
  - To monitor the occurrence and geographic distribution of high-risk clones and resistance genes of public health importance in the EU/EEA
  - To support cross-border investigations of outbreaks and emerging resistance
  - To develop technical capability and proficiency for genomic-based surveillance
- **Main activities**
  - Molecular survey of carbapenem- and/or colistin-resistant Enterobacterales (CCRE survey)
  - Investigations and risk assessments based on national WGS data
  - Planned expansion of molecular surveillance to include carbapenem-resistant *Acinetobacter baumannii* (CRAb) and carbapenem-resistant *Pseudomonas aeruginosa* (CRPa)



https://www.ecdc.europa.eu/en/about-us/who-we-work/disease-and-laboratory-networks/EURGen-net

Frequency of sequence types of *Escherichia coli* isolates carrying *bla* $_{NDM-5}$ over time by year of sampling, EU/EEA, 2012–2021[a] (n = 741)

- Increasing frequency of detection 2012–2021.
- Predominance of sequence types ST167, ST405, ST410, ST361 and ST648.
- Nearly a third of the isolates were associated with infections and more than half were predicted to be multidrug-resistant.



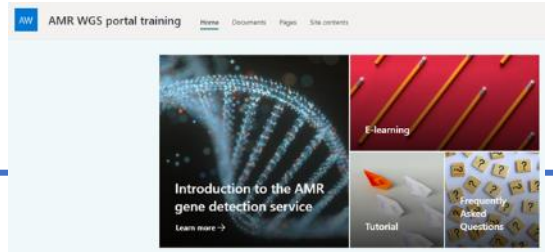
2021 EUSR on AMR

new requirements in the new AMR legislation

Commission Implementing Decision 2020/1729/EU

Lays down specific tech. requirements **2021 - 2027**

- Mandatory AMR data for *Salmonella* spp. and isolates from:
  - Samples of **caecal content** taken at **slaughter** for fattening pigs
  - Samples of **caecal content** taken at **slaughter** from bovine animals <1 year of age
- **Imported** fresh **meat** at **Border Control Post** (BCPs) for *E.coli*
- New antimicrobial substances
  - **Amikacin** → *Salmonella* spp. and indicator *E.coli*
  - **Chloramphenicol** and **Ertapenem** → *Campylobacter* spp.
- WGS results




SCIENTIFIC REPORT

JOURNAL

APPROVED: 31 January 2023

doi: 10.2903/j.efsa.2023.7867

The European Union Summary Report on Antimicrobial Resistance in zoonotic and indicator bacteria from humans, animals and food in 2020/2021

European Food Safety Authority (EFSA) and
European Centre for Disease Prevention and Control (ECDC)

Abstract

Antimicrobial resistance (AMR) data on zoonotic and indicator bacteria from humans, animals and food are collected annually by the EU Member States (MSs) and reporting countries, jointly analysed by EFSA and ECDC and presented in a yearly EU Summary Report. This report provides an overview of the main findings of the 2020-2021 harmonised AMR monitoring in *Salmonella* spp., *Campylobacter jejuni* and *C. coli* in humans and food-producing animals (broilers, laying hens and turkeys, fattening pigs and bovines under 1 year of age) and relevant meat thereof. For animals and meat thereof, indicator *E. coli* data on the occurrence of AMR and presumptive Extended spectrum β-lactamases (ESBL)-/AmpC β-lactamases (AmpC)-/carbapenemases (CP)-producers, as well as the occurrence of

https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2023.7867

Data on AMR addressed

- AMR data received from 27 MSs, United Kingdom (Northern Ireland) and 5 non-Mss
- 2020 AMR from poultry flocks and derived meat
- 2021 AMR data from fattening pigs and calves and derived meat

Online visualisation tools

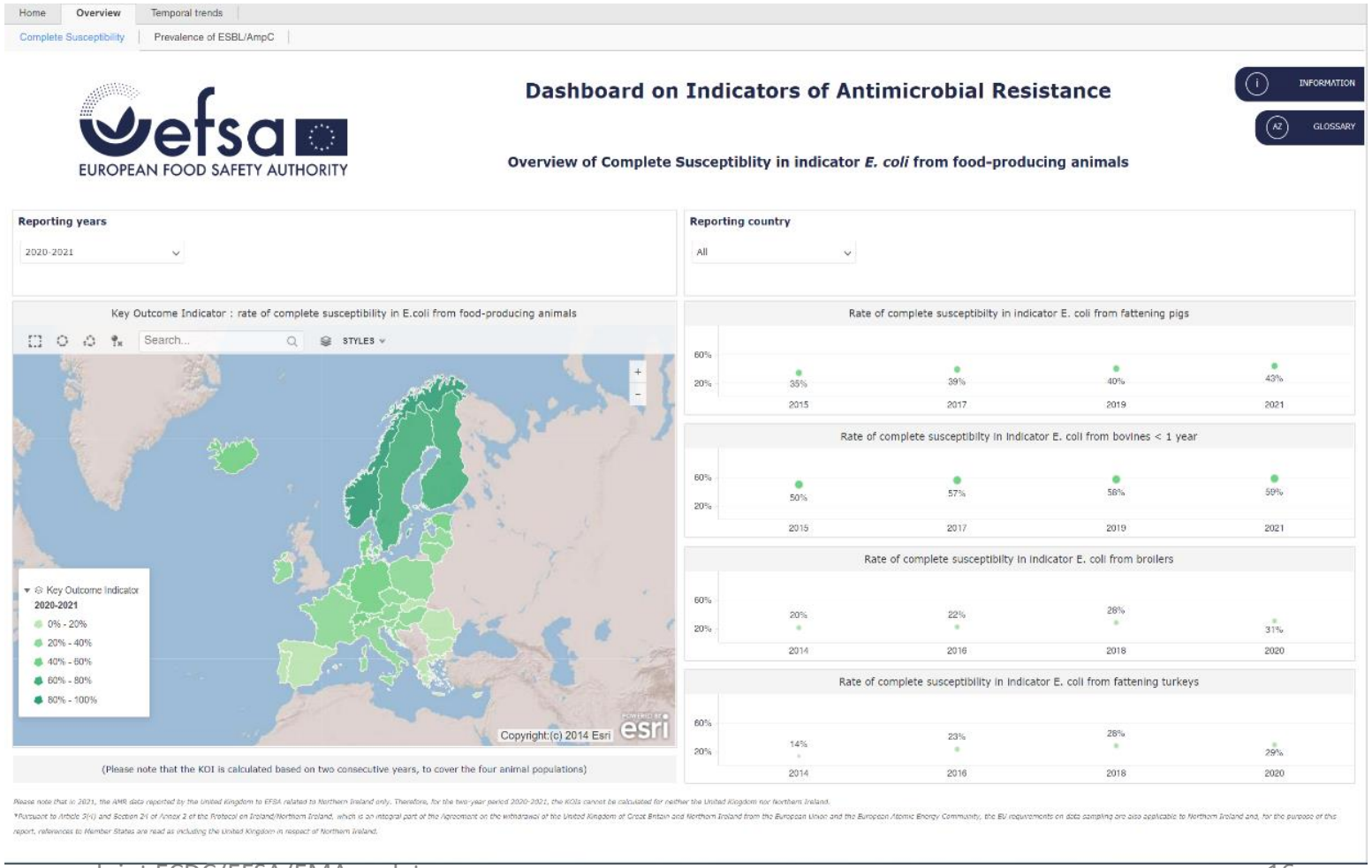
story maps

[Monitoring antimicrobial resistance (arcgis.com)]

[Monitoring AMR in *Escherichia coli* (arcgis.com)]

Online visualisation tools

dash boards



[Dashboard on Indicators of Antimicrobial Resistance | EFSA (europa.eu)]

- KOI_{CS}
- KOI_{ESBL}
- Prevalence of ESBL-AMPC- producing *E.coli* from food

E coli carbapenemase-producers in animals

2020 and before

2020, **Austria**: 1 isolate from broilers (*bla*VIM-1)

2019, **Germany**: 3 isolates from pigs (*bla*VIM, *bla*OXA-48 and *bla*GES-5)

2018, no CP-resistance *E. coli* were detected

Previously, 2 isolates from broilers and 1 from meat from broilers reported in 2016 by **Romania** (*bla*OXA-162)

2021

Hungary: 2 isolates from bovine meat and 1 isolate from pig meat (*bla*NDM-5).

Spain: 2 isolates from pigs (*bla*OXA-48)

Italy: WGS revealed 26 isolates (21 from pigs and 5 from bovines).

Czechia: WGS revealed 3 isolates (from pigs)

WGS results included:

*bla*OXA-181
*bla*OXA-48
*bla*NDM-5

2022

Several presumptive CP-producing isolates identified (will be included in 2022 EUSR on AMR)

Routine monitoring:

Italy: 1 isolate from a turkey (*bla*OXA-181)

Specific monitoring:

Austria: 2 isolates from broilers (*bla*VIM-1)

Italy: WGS revealed 1 isolate from a broiler (*bla*VIM-1), 1 isolate from a turkey (*bla*OXA-181)

Bulgaria: 2 isolates from broilers (suspected CP-producers, pending of confirmation)

CarbaCamp project (EFSA GP/EFSA/BIOHAW/2023/04

carbapenem non-susceptibility in Campylobacter

DTU

Beneficiary - DTU (Art. 36)

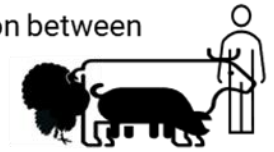
Subcontractor - EDL

Budget - 357.000 €

Duration – 24 months

Purpose of the study

wild-type distribution between C. jejuni and C. coli



ECOFF values

the comparability between the EUCAST and CLSI recommended media for MIC determination of Campylobacter.

Monitoring of Campylobacter ?

- Ertapenem
- Imipenem
- Meropenem

genomic diversity (clustering) of susceptible and non-susceptible C. jejuni and C. coli

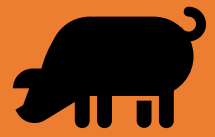
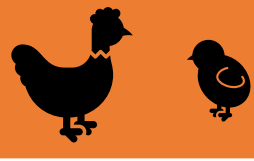
resistance phenomenon, role of blaOXA genes

An up-coming baseline survey (BLS) on AMR in aquaculture animals

- A mandate from the European Commission
- The EC intends to undertake a BLS on the presence of **AMR** in bacteria isolated from **aquaculture animals** to assess the epidemiological situation in the aquaculture sector, and from a **public health perspective**.
- EFSA is requested to provide technical and scientific support for the development this BLS and propose **technical specifications by June 2024.**
- An EFSA expert Working Group has been stablished

Listing and categorisation of AMR bacteria (Animal Health law)

8 ‘most relevant’ antimicrobial-resistant (AMR) bacteria in the EU:

Dogs and cats 	Horses 	Swine 	Poultry 	Cattle 	Sheep and goats 
Escherichia coli	*Escherichia coli*	*Escherichia coli*	*Escherichia coli*	*Escherichia coli*	*Escherichia coli*
	Staphylococcus aureus			*Staphylococcus aureus*	
Pseudomonas aeruginosa	*Rhodococcus equi*	*Brachyspira hyodysenteriae*	*Enterococcus cecorum*		
Staphylococcus pseudintermedius			*Enterococcus faecalis*		

AMR animal pathogens: EFSA outputs

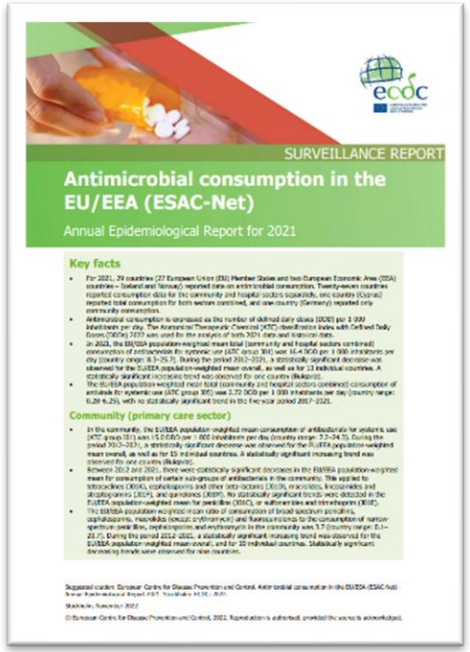
8 Scientific Opinions:

Antimicrobial-resistant bacterium	Animal species	Link	Date published	Outcome of the assessment on listing (probability range)
Staphylococcus pseudintermedius	Dogs and cats	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7080	01/02/2022	**Uncertain** (33–90%)
Rhodococcus equi	Horses	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7081	02/02/2022	**Uncertain** (10–66%)
Enterococcus faecalis	Poultry	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7127	21/02/2022	**Uncertain** (33–66%)
Enterococcus cecorum	Poultry	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7126	25/02/2022	**Uncertain** (33–75%)
Brachyspira hyodysenteriae	Swine	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7124	15/03/2022	**Uncertain** (33–66%)
Pseudomonas aeruginosa	Dogs and cats	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7310	03/05/2022	**Uncertain** (33–90%)
Escherichia coli	Dogs and cats, horses, swine, poultry, cattle, sheep and goats	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7311	10/05/2022	**Uncertain** (33–66%)
Staphylococcus aureus	Cattle and horses	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2022.7312	10/05/2022	**Uncertain** (60–90%)

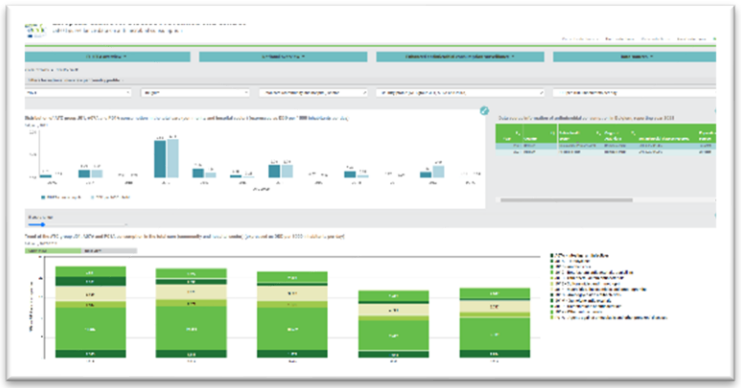
From recent Council Recommendations: "***Continue to assess, on the basis of follow-up to several recent scientific opinions EFSA, animal diseases caused by bacteria resistant to antimicrobials, to ascertain if it is needed to list any of those diseases in Regulation (EU) 2016/429 ('Animal Health Law') with a view to categorise them for any regulatory surveillance, control or other management measures***."

European surveillance of consumption network (ESAC-Net)

Well-established annual surveillance outputs for European Antibiotic Awareness Day (November)



https://www.ecdc.europa.eu/sites/default/files/documents/ESAC-Net_AER_2021_final-rev.pdf



https://qap.ecdc.europa.eu/public/extensions/AMC2_Dashboard/AMC2_Dashboard.html#eu-consumption-tab

EUROPEAN ANTIBIOTIC AWARENESS DAY
A EUROPEAN HEALTH INITIATIVE

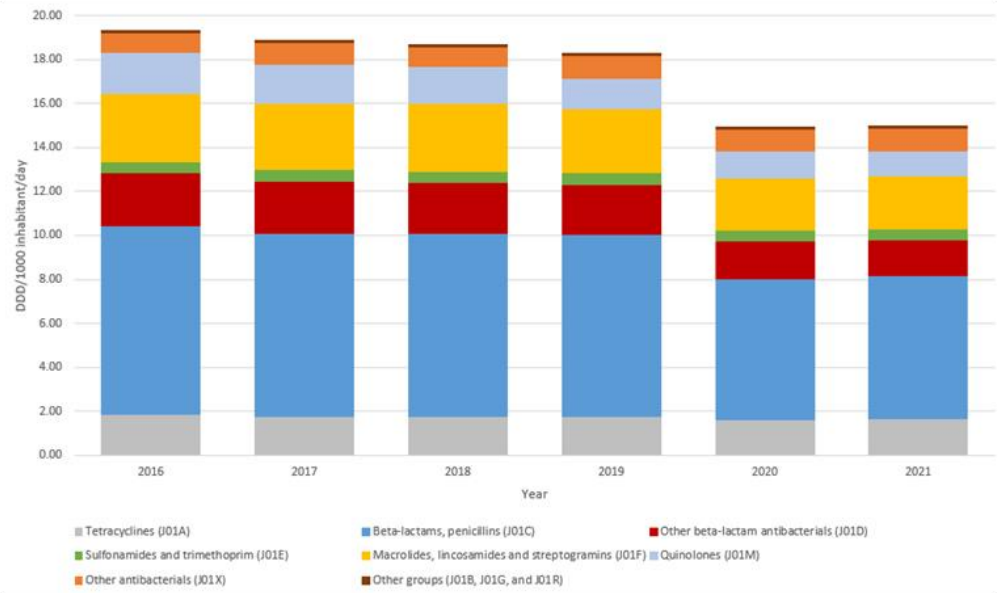
New:

National recommended 2030 targets:

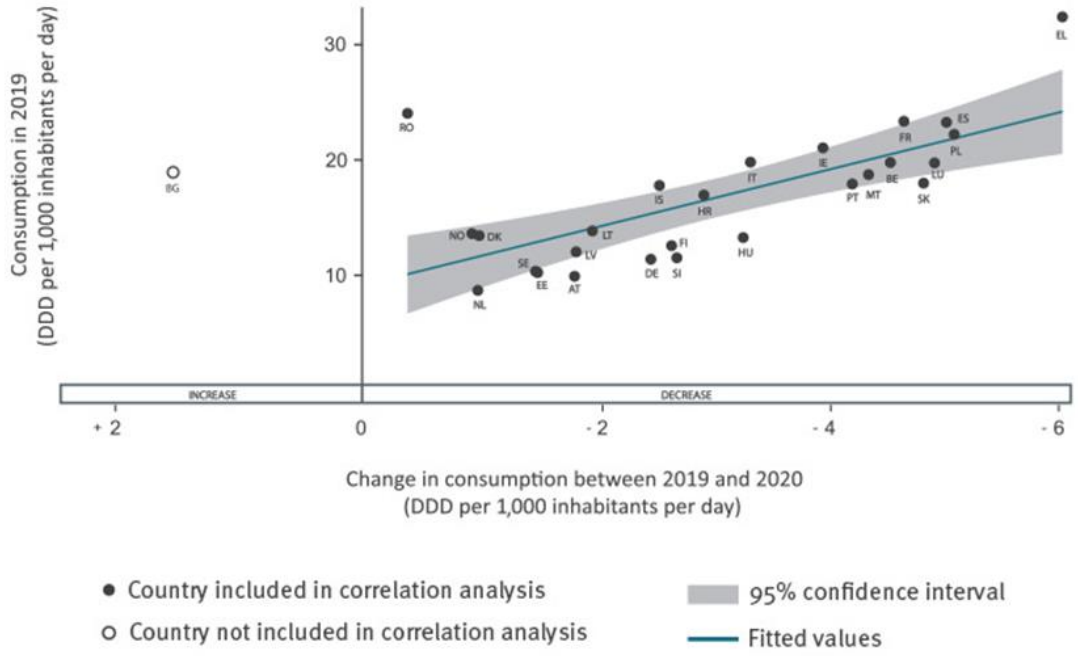
- Total consumption of antibiotics in the community and hospital sectors combined
- Percentage of consumption of Access group antibiotics out of consumption of all antibiotics (Access, Watch, Reserve, Unclassified) listed in the AWaRe classification of WHO

https://data.consilium.europa.eu/doc/document/ST-9581-2023-INIT/en/pdf

Decrease in human community antibiotic consumption* during the COVID-19 pandemic, EU/EEA



Consumption of antibacterials for systemic use (ATC group J01) in the community, population-weighted mean, by ATC group, 29 EU/EEA countries, 2016–2021



Consumption of antibacterials for systemic use (ATC group J01) in the community in 2019 vs change between 2019 and 2020, 27 EU/EEA countries

* Antibacterials for systemic use (ATC J01)

Adapted from Diaz Högberg et al. Eurosurveillance 2021 https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2021.26.46.2101020

Antimicrobial consumption in humans, EU/EEA:

indicators of use of 'broad-spectrum' and last-resort antibiotics

Indicator	EU/EEA [country range] 2021	Long-term trend 2012-2021	Short-term increase/decrease 2019 *vs.* 2021
Community indicator*	3.7 [0.1 – 20.7]	↑ +37%	+16%
Hospital sector indicator†	40.3 [19.5 – 70.9]	↑ +15%	**+13%**
Hospital sector consumption of carbapenems (DDD per 1,000 inhabitants per day)	0.06 [0.01 – 0.17]	↑ +34%	**+23%**
Hospital sector proportion of 'Reserve' antibiotics‡ (% of hospital sector consumption)	3.7 [0.5 – 15.5]	↑ +170%	+25%

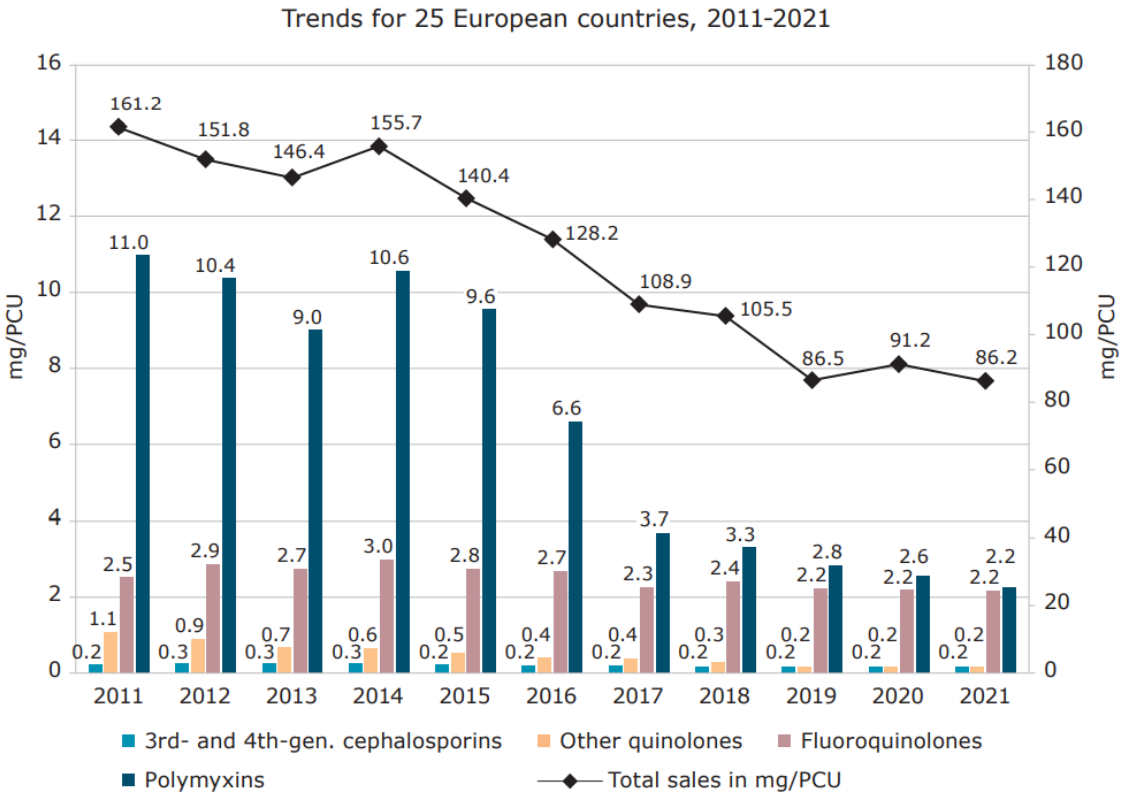
Data source: ECDC TESSy https://www.ecdc.europa.eu/sites/default/files/documents/ESAC-Net_AER_2021_final-rev.pdf

*Ratio of consumption (DDD per 1 000 inhabitants per day) of broad-spectrum penicillins, cephalosporins, macrolides (except erythromycin) and fluoroquinolones to consumption of narrow-spectrum penicillins, cephalosporins and erythromycin in the community

†Proportion (%) of glycopeptides, third- and fourth-generation cephalosporins, monobactams, carbapenems, fluoroquinolones, polymyxins, piperacillin and enzyme inhibitor, linezolid, tedizolid and daptomycin out of total hospital consumption (DDD per 1 000 inhabitants per day) of antibacterials for systemic use

‡Antibiotics that should be reserved for treatment of confirmed or suspected multidrug-resistant infections (according to WHO AWaRe classification)

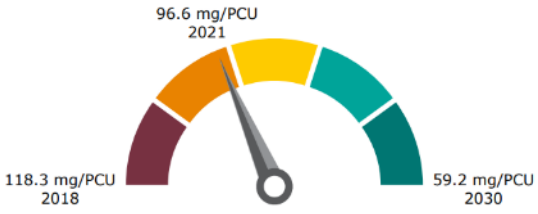
Consumption in animals



Farm-to-Fork goal: reduce EU sales of antimicrobials for farmed animals + aquaculture by 50% by 2030

↓ 47% overall decrease

↓ 38% for 3rd-and 4th-gen. cephalosporins;
↓ 80% for polymyxins;
↓ 14% for fluoroquinolones;
↓ 83% for other quinolones



RONAFA

Reducing need for antibiotics in food-producing animals

efsa
European Food Safety Authority

EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

SCIENTIFIC OPINION

EUROPEAN MEDICINES AGENCY SCIENCE MEDICINES HEALTH

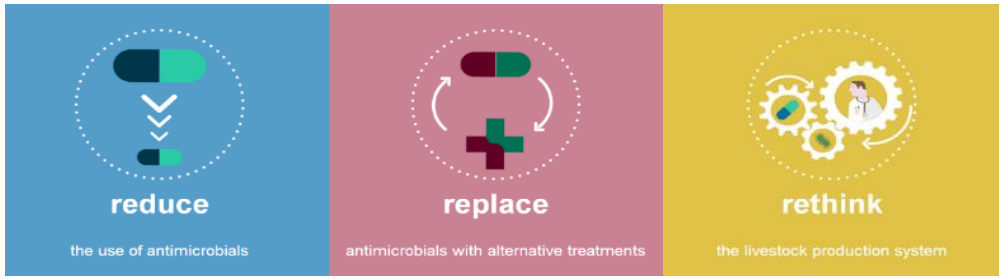
EFSA Journal

ADOPTED: 1 December 2016 (EFSA BIOHAZ Panel), 8 December 2016 (EMA CVMP)

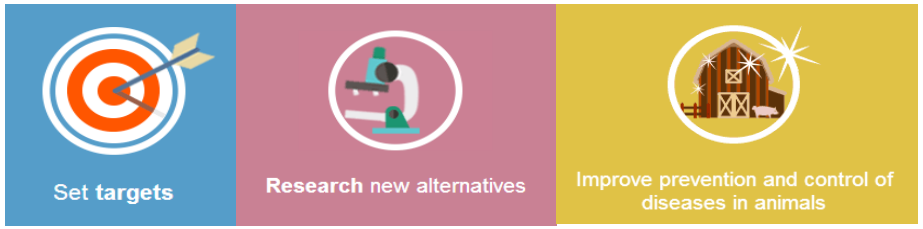
doi: 10.2903/j.efsa.2017.4666

EMA and EFSA Joint Scientific Opinion on measures to reduce the need to use antimicrobial agents in animal husbandry in the European Union, and the resulting impacts on food safety (RONAFA)

EMA Committee for Medicinal Products for Veterinary Use (CVMP) and EFSA Panel on Biological Hazards (BIOHAZ),



Some recommended control options:



EC Legislation, Veterinary Medicinal Products, Regulation 2019/6

7.1.2019 EN Official Journal of the European Union L 4/43

REGULATION (EU) 2019/6 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 11 December 2018

on veterinary medicinal products and repealing Directive 2001/82/EC

(Text with EEA relevance)

EU Green deal, F2F

Implementation of Regulation (EU) 2019/6

Scientific recommendations for

- a list of antimicrobials to be reserved for human use
- a list of substance not allowed for use or restricted use under Articles 112-114

Sales and use data collection [EMA]

Antimicrobials to be reserved for human use

Commission mandate to EMA for recommendations on the designation of antimicrobials to be reserved for certain infections in humans - Article 37(5)

- Account to be taken of **criteria** established under Article 37(4) in Commission Delegated Regulation (EU) 2021/1760
- No use in animals allowed, also applies to imports of animals and their produce (Art. 118)
- Veterinary medicinal products Regulation (EU)2019/6 => the Agency's veterinary medicines committee (CVMP) provided & adopted the advice
- Working group with experts nominated by the member states, EMA, ECDC, EFSA and a nomination from CHMP's Infectious Diseases Working Party
- Experts: medical doctors, veterinarians, microbiologists; additional experts from the European Society of Clinical Microbiology and Infectious Diseases and experts in antivirals, antifungals and antiprotozoals consulted
- Recommendations sent to Commission in **February 2022**
  Commission Implementing Regulation (EU) 2022/1255 of **19 July 2022** designating antimicrobials or groups of antimicrobials reserved for treatment of … humans

55 antibiotic classes/substances reviewed

> 50 antiviral substances considered

6 classes of antifungals (**12** diseases)

10 protozoal diseases (> **40** substances)

31 experts

923 references

<u>Reserved for human use</u>

Antibiotics: 11 classes & 6 substances

Antivirals: 18 substances

Antifungals & antiprotozoals: 0 substances

A significant step forward in keeping antimicrobials working

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List of substance not allowed for use or restricted use under Articles 112-114

- Scientific advice under Article 107(6) - a list of antimicrobials which either
  - a) shall not be used under Articles 112, 113, or 114, or
  - b) shall only be used under these Articles subject to certain conditions.
- Advice adopted at the June 2023 CVMP meeting with immediate transfer to the Commission
- Presented to Standing Committee on 26 June 2023
- Based on the criteria in Article 107(6)
- Complements list of antimicrobials reserved for use in humans
- Purpose of the list: '… to help preserve their (**the antimicrobials)* efficacy for humans and/or animals' while ensuring sufficient availability

(a) risks to animal or public health if the antimicrobial is used in accordance with Articles 112, 113 and 114;

(b) risk for animal or public health in case of development of antimicrobial resistance;

(c) availability of other treatments for animals;

(d) availability of other antimicrobial treatments for humans;

(e) impact on aquaculture and farming if the animal affected by the condition receives no treatment.

List of substance not allowed for use or restricted use under Articles 112-114

- **No** antimicrobials recommended as '**not to be used**' under Articles 112-114

AM class/ Recommended condition	Target pathogen identification and AST	Restricted around certain indications	Restricted to use for certain indications only	Restricted from use in certain species	Use in individual animals only	Restriction on route of administration	HMPs only for use in individual animals
Aminopenicillin-BLI combinations	✓						
3rd & 4th gen. cephalosporins	✓	Salmonella			✓		
Polymyxins	✓	Salmonella				✓	✓
Amphenicols	✓						
(Fluoro)quinolones	✓	Salmonella				✓	✓
Rifamycins (excl. EU-VMPs)	✓	Prophylaxis *R. equi*	Mycobacteria MDR Staph		✓		
TB drugs	✓				✓		
Riminofenazines	✓				✓		
Pseudomonic acids	✓	Not for decolonisation	MRSA/P		✓	Topical only	
Remdesivir			FIP only				
Echinocandins	✓	Last resort			✓		
Amphotericin B		Last resort					

Sales and use data collection

Requirement of Regulation (EU) 2019/6

Formalises and expands voluntary sales data collections for veterinary antimicrobials replacing the voluntary ESVAC network

Implements mandatory collection of data on use of antimicrobials in animals – step wise approach

IT system for data reporting by MS to the EMA developed with MS representatives, available for testing since January 2023

Linked to the Union product database for veterinary medicines and the human Article 57 database

ESUAvet Working Group established in 2023 to advise EMA and MSs

Legal basis

- Regulation (EU) 2019/6
- Commission Delegated Regulation (EU) 2021/578 of 29 January 2021 supplementing Regulation (EU) 2019/6 with regard to requirements for the collection of data on the volume of sales and on the use of antimicrobial medicinal products in animals
- Commission Implementing Regulation (EU) 2022/209 of 16 February 2022 establishing the format of the data to be collected and reported in order to determine the volume of sales and the use of antimicrobial medicinal products in animals

Step wise use data reporting by MS

- Cattle, pigs, chicken, turkey – yearly, starting 30 September 2024, then 30 June of each year
- + other poultry (Geese, ducks), sheep, goats, finfish (Atlantic salmon, Rainbow trout, Gilthead seabream, European seabass, Common carp), horses, rabbits, any other relevant food-producing species – yearly, starting from 30 June 2027
- + dogs, cats, and fur animals (minks and foxes) – yearly, starting from 30 June 2030
- EMA – first reports on sales and use by 31 March 2025, thereafter 31 December of each year

AMR in the environment

Environmental (food) compartment [EFSA]

AMR environment

SCIENTIFIC OPINION

EFSA Journal

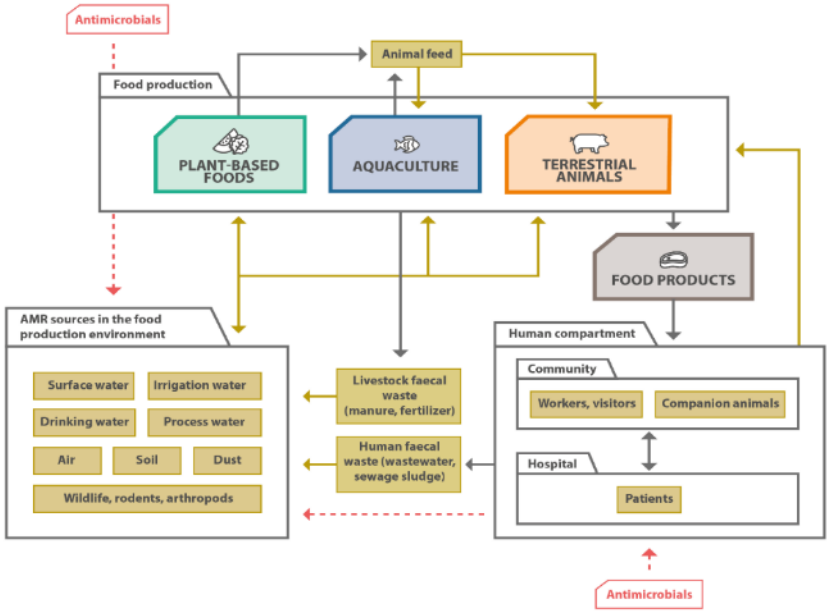
ADOPTED: 29 April 2021

doi: 10.2903/j.efsa.2021.6651

Role played by the environment in the emergence and spread of antimicrobial resistance (AMR) through the food chain

EFSA Panel on Biological Hazards (BIOHAZ),
Konstantinos Koutsoumanis, Ana Allende, Avelino Alvarez-Ordonez, Declan Bolton, Sara Bover-Cid, Marianne Chemaly, Robert Davies, Alessandra De Cesare, Lieve Herman, Friederike Hilbert, Roland Lindqvist, Maarten Nauta, Giuseppe Ru, Marion Simmons, Panagiotis Skandamis, Elisabetta Suffredini, Hector Arguello, Thomas Berendonk, Lina Maria Cavaco, William Gaze, Heike Schmitt, Ed Topp, Beatriz Guerra, Ernesto Liebana, Pietro Stella and Luisa Peixe

Sources and transmission routes



- Faecal matter (fertilisation and irrigation water)
- Feed, and humans
- Water (with human and animal faecal material)

Role of water* on the spread of antimicrobial resistance

Objective 1:

Validation Detection methods:

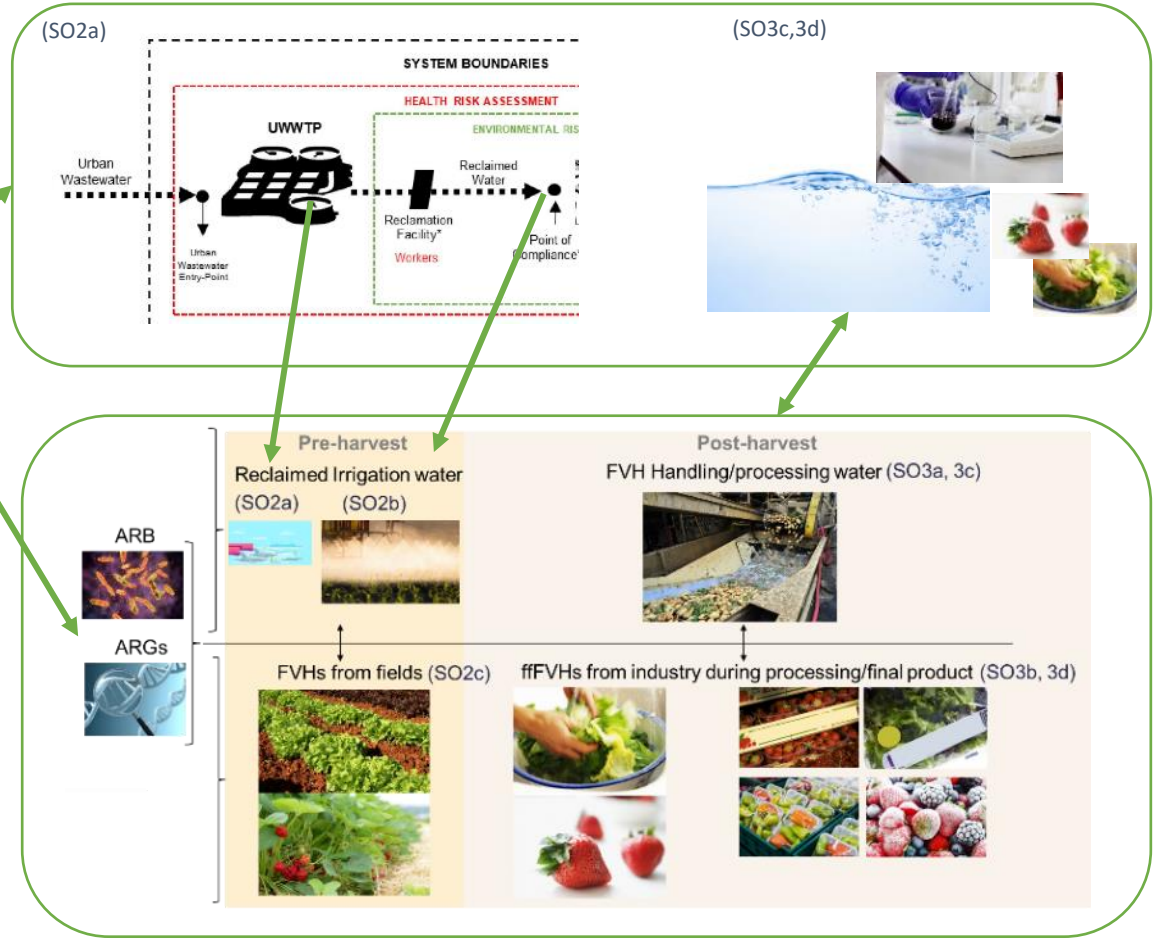
Culture-based,

PCR-based,

metagenomics-based

Objective 2: Occurrence ARB/ARGs, using reclaimed water for irrigation

Objective 3: Occurrence ARB/ARGs using recycled water during handling/processing



Webinar: 19 June from 15.00 to 16.00 CEST

Closing date and time for receipt of offers: 21 August 14.30 CEST

Contract signature estimated November 2023

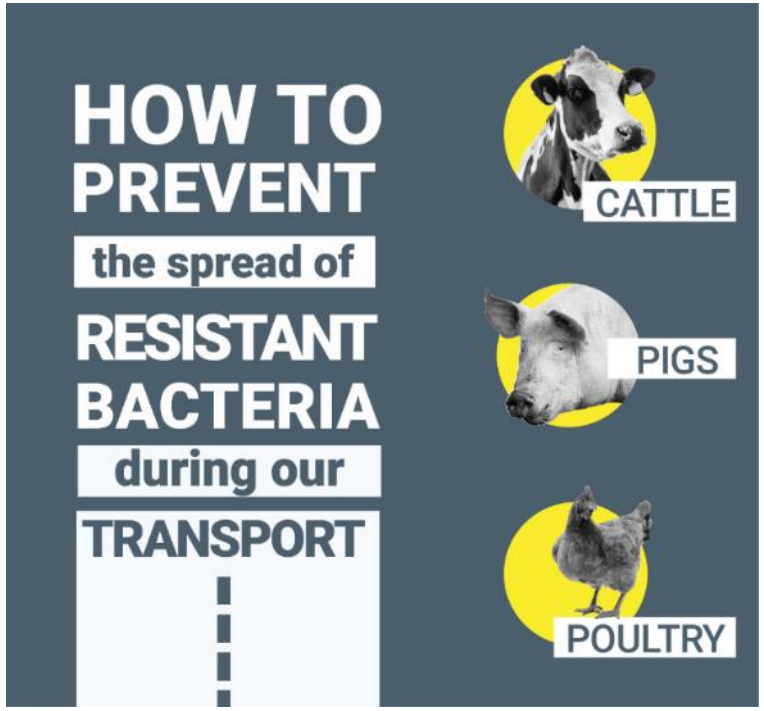
**** used in the growing, handling and processing of fruits, vegetables and herbs***

Other AMR related activities

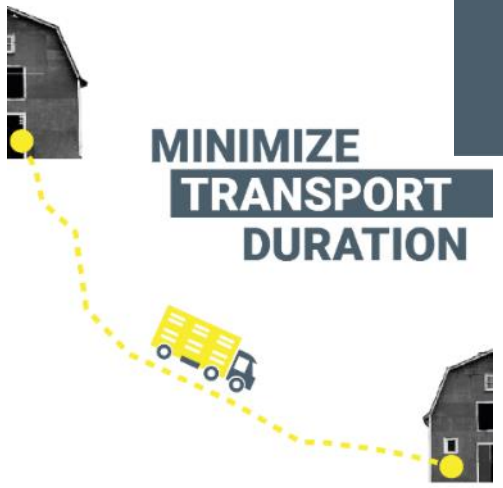
EFSA – use in plant health

Links to Animal welfare

European Parliament

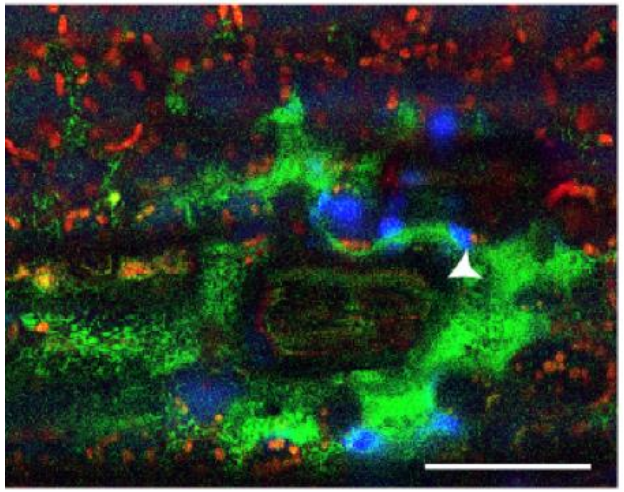


BIOHAZ Panel Opinion
Issued **November 2022**



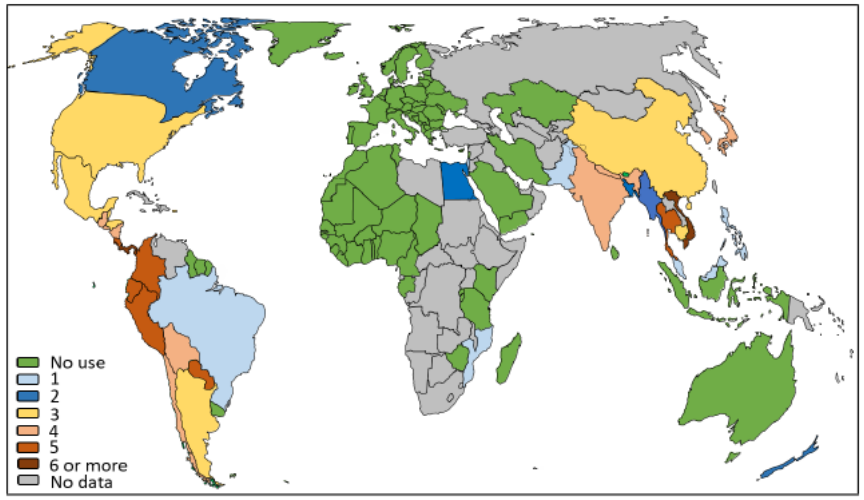
Antibiotics and plant pathogenic bacteria

- PPB responsible for major losses to crops worldwide (estimated over one billion dollars / year)
- Increasing trend in Emerging infectious plant diseases linked to bacteria (also of AMR in plant pathogenic bacteria)
- Antibiotic use in crop cultivation is **considered** as very low in comparison to use in both veterinary and medical fields (FAO and WHO, 2019)
- Recent review (Taylor and Reeder in 2020) suggested that the use for crop protection is much more widespread than thought



The PLANTIBIO project

Antibiotics used for PPB control



More than 30 countries are reported to use antibiotics on crops

Difficulty to list countries authorizing the use of antibiotics as plant protection products worldwide

8

Collection, analysis and synthesis of data about…

- Antibiotic use for control of PPB
- Antibiotic resistance in PPB
- Alternatives and innovative treatments for control of PPB

UCLouvain

Thank you for your attention

Any questions?

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Barbara Freischem	barbara.freischem@ema.europa.eu