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# Antimicrobial resistance in zoonotic and indicator bacteria from humans, animals, and food in 2019/2020

## Disclaimer

- This plain language summary (PLS) is a simplified communication of EFSA's *Summary Report on Antimicrobial Resistance in Zoonotic and Indicator Bacteria from Humans, Animals, and Food in 2019/2020*.
- The purpose of the PLS is to enhance transparency and inform interested parties on EFSA's work on the topic using simplified language to present a summary of the main findings.
- Anyone interested in the detailed results, analysis and interpretation, should consult the full EFSA report, which can be found here.

## Antimicrobial resistance – an overview

- Antimicrobials, such as antibiotics, are substances used to kill microorganisms or to stop them from growing and multiplying.
- Antimicrobial resistance (AMR) refers to the ability of microorganisms to withstand antimicrobial treatments.
- The regular use of antimicrobials can lead to the emergence and spread of microorganisms which are resistant to them, rendering treatment ineffective and posing a serious risk to public health.
- When AMR occurs in zoonotic bacteria (that is, bacteria causing human infections present in animals and food), it can also compromise the effective treatment of infectious diseases caused by such bacteria in humans.

## What is EFSA's role in controlling AMR?

- EFSA provides independent scientific support and advice to risk managers on the risks to human and animal health related to the possible emergence, spread and transfer of AMR in the food chain and in animals.
- EFSA cooperates closely with other relevant EU agencies such as the European Centre for Disease Prevention and Control (ECDC) and the European Medicines Agency (EMA).

This plain language summary of this opinion is available under Supporting Information of the *Summary Report on Antimicrobial Resistance in Zoonotic and Indicator Bacteria from Humans, Animals, and Food in 2019/2020*. DOI: https://doi.org/10.2903/j.efsa.2022.7209

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- Since 2011, EFSA and ECDC have compiled a joint report on AMR in zoonotic bacteria affecting humans, animals. and food.

## How did EFSA carry out this work?

- EFSA collected and analysed data on isolates from animals and food and in isolates from human cases (via ECDC) to provide an overview of the current situation, including details of the evolution of AMR trends in Europe and robust evidence for decision making.
- The data were provided by the 27 EU Member States, 2 European Economic Area (EEA) countries (Iceland and Norway), Switzerland and the United Kingdom.
- EFSA and ECDC jointly analysed the food-related data - reported to EFSA - and public health data from ECDC.
- Data for pigs and bovines are from 2019 while those on poultry and turkeys are from 2020.
- Measures are in place to ensure outputs are robust and comparable between countries.

## What are the main outcomes?

- The reported findings and trends are consistent with those from the preceding years.
- AMR in *Campylobacter* and in some strains of *Salmonella* bacteria remains high.
- *Campylobacteriosis* was the most reported zoonosis in the EU in 2020 and the most frequently reported cause of foodborne illness.
- *Campylobacter* bacteria from humans and poultry continue to show very high resistance to ciprofloxacin, a commonly used antimicrobial in humans.
- Combined resistance to critically important antimicrobials - defined as resistance to two different antimicrobials - is low in *Salmonella*, *Campylobacter* and *E. coli*.
- While there are individual variations across the EU, key outcome indicators show that significant progress has been made in reducing AMR in food-producing animals in several Member States
- Resistance to carbapenem (CP) antimicrobials is extremely rare as seen by the small number (fewer than 5) of carbapenem (CP) resistant isolates identified. CP antimicrobials are reserved for treatment of severe, high-risk infections involving multidrug-resistant pathogens in humans and are not permitted to be used in food-producing animals.

## What were the limitations?

- While the data are representative of the situation across all Member States, they are limited to resistance only: for a recent analysis of associations between antimicrobial consumption and AMR in humans and food-producing animals please refer to the *Third Joint Inter-Agency Report on Integrated Analysis of Consumption of Antimicrobial Agents and Occurrence of Antimicrobial Resistance in Bacteria from Humans and Food-Producing Animals in the EU/EEA (JIACRA III)*
- Three countries were unable to report any data in *Campylobacter* isolates from human clinical cases due to the impact of the COVID-19 pandemic.
- Following the UK's exit from the EU, geographical coverage has changed and EU-level data after 2020 do not include data reported from the UK.

## Implications and recommendations

- Prudence in the use of antimicrobials in all sectors, including agriculture, is necessary.
- CP resistant isolates need to be monitored closely as it is a last line antimicrobial not used in food-producing animals. Sources of CP resistant isolates in livestock should be investigated.
- Differences in the occurrence of AMR in Member States can relate to historical or current patterns of antimicrobial use but may also highlight differences in husbandry or other procedures which assist in the prevention of AMR.