6 March, 2023

Antimicrobial Resistance in Zoonotic and Indicator Bacteria from Humans, Animals, and Food in 2020/2021

Disclaimer

- This plain language summary (PLS) is a simplified communication of ECDC/EFSA's Summary Report on Antimicrobial Resistance in Zoonotic and Indicator Bacteria from Humans, Animals, and Food in 2020/2021.
- The purpose of the PLS is to enhance transparency and inform interested parties on ECDC/EFSA's work on the topic and using simplified language.
- Anyone interested in the detailed results, analysis and interpretation, should consult the full ECDC/EFSA report.

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 in humans and animals can lead to the emergence and spread of microorganisms which are resistant to them, rendering antimicrobial treatment ineffective and posing a serious risk to public health.
- When AMR occurs in zoonotic bacteria (that is, bacteria causing human infections present n animals and food), it can also compromise the effectiveness of 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).
- 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 analyzed data on isolates from food-producing animals and food while ECDC collected and analysed data on isolates from human cases to provide an overview of the current AMR 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, United Kingdom (Northern Ireland), 2 European Economic Area (EEA) countries (Iceland and Norway), Switzerland and the United Kingdom.
- EFSA and ECDC jointly analyzed the food-related data – reported to EFSA- and public health data, from ECDC.
- Data for poultry and turkeys are from 2020 while those on pigs and bovines are from 2021.
- Measures are in place to ensure outputs are robust and comparable between countries.

What were the limitations of the currently available data?

- While the data are representative of the situation across all Member States, they are limited to antimicrobial 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)

- 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.

What are the main outcomes?

- The reported findings and trends are consistent with those from the preceding years.
- AMR in *Campylobacter* (particularly in *C. coli*) and in some strains of *Salmonella* bacteria remains high.
- Campylobacteriosis was the most reported zoonosis in the EU in 2021 and the most frequently reported cause of foodborne illness.
- *Campylobacter* bacteria from humans and food-producing animals (poultry, fattening turkeys, fattening pigs and calves) 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 – was found to be low, in general, in *Salmonella*, *Campylobacter* and *E. coli*.
- While individual variations across the EU were found, key outcome indicators show that significant progress has been made in reducing AMR in food-producing animals in several Member States.
- The reporting of a number of CP-producing *E. coli* isolates (harbouring $bla_{\text{OXA-48}}$, $bla_{\text{OXA-181}}$, and $bla_{\text{NDM-5}}$ genes) in pigs, bovines and meat thereof by a limited number of MSs in 2021, requests a thorough follow-up.

Key implications and recommendations

- Caution in the use of antimicrobials in all sectors, including agriculture, is needed and recommended.
- CP resistant isolates need to be monitored closely as CP are a last line antimicrobials for human therapy, not used in food-producing animals. Sources of CP resistant isolates in livestock should be investigated.
- Differences in the occurrence of AMR in MSs can relate to historical or current patterns of antimicrobial use; however, may also highlight differences in husbandry and/or other practices or strategies that may assist in the prevention of AMR.

ISSN: 1831-4732

The EFSA Journal is a publication of the European Food Safety Authority, an agency of the European Union.