

**Press Release**  
**Parma / Stockholm, 25 March 2014**

## **Antimicrobial resistance remains commonly detected in bacteria in humans, animals and food: EFSA -ECDC report**

Bacteria most frequently causing food-borne infections, such as *Salmonella* and *Campylobacter*, show significant resistance to common antimicrobials, according to the *EFSA-ECDC European Union Summary Report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2012*. Data show that combined resistance (co-resistance) to critically important antimicrobials remains low. While this means that treatment options for serious infections with these zoonotic bacteria are available in most cases, the fact that antimicrobial resistance was commonly detected is cause for concern.

If bacteria become clinically resistant to several antimicrobials (multidrug-resistant), treating the infections they cause can become more difficult or even impossible. In addition, the development of antimicrobial resistance (AMR) in bacteria in animals and food can also compromise the effective treatment of human infections, as resistant bacteria and resistance genes may be transferred to humans from animals and food. “*That’s why a prudent use of antibiotics is crucial, not only in humans, but also in animals*”, warned Marta Hugas, Acting Head of EFSA’s Risk Assessment and Scientific Assistance Department.

“*In humans, the levels of clinical resistance to antimicrobials showed a great variability across the Member States, partly due to the use of different methods and criteria for interpreting data across the EU. In 2014, ECDC is launching the EU protocol for harmonised monitoring of antimicrobial resistance in human isolates of Salmonella and Campylobacter. Thus, we expect to get more accurate data from countries and as a result better comparability of data*”, said Johan Giesecke, Chief Scientist at ECDC.

### **Key findings**

The joint report shows that clinical resistance in humans to commonly used antimicrobials in *Salmonella* spp. isolates was frequently detected at the EU level, with almost half of the isolates being resistant to at least one antimicrobial, and 28.9% of isolates being multidrug-resistant. However, levels of clinical resistance and co-resistance in *Salmonella* spp. isolates to critically important antimicrobials were low (0.2% co-resistance across the 12 Member States that submitted data).

Microbiological resistance in animals to commonly used antimicrobials in *Salmonella* spp. isolates was frequently detected in the animal species monitored, especially in broilers, pigs and turkeys. Microbiological resistance to ciprofloxacin (a critically important antimicrobial), was frequently observed in broilers and turkeys. Co-resistance to the critically important

antimicrobials, ciprofloxacin and cefotaxime, was either not detected or reported at very low levels in reporting Member States [1].

In *Campylobacter* spp. isolates from human cases, clinical resistance to common antimicrobials was frequently detected. Very high proportions of isolates (47.4% EU average) were resistant to the critically important antimicrobial ciprofloxacin with increasing trends observed in several Member States.

Microbiological resistance to commonly used antimicrobials in *Campylobacter* spp. isolates was frequently detected in broilers. Co-resistance to critically important antimicrobials, ciprofloxacin and erythromycin, in *C. jejuni* in broilers was either not detected or reported at low levels.

Microbiological resistance to commonly used antimicrobials in *E. coli* isolates was frequently reported in broilers and pigs. Co-resistance to critically important antimicrobials in these animal species was mostly not detected or recorded at very low levels among the reporting Member States).

EFSA and ECDC monitor AMR in humans, animals and food. This is a pre-requisite to understanding how AMR develops and spreads. In its 2011 action plan against the rising threats from AMR, the European Commission identified key priority areas, including improved monitoring of antimicrobial resistance, to which this joint report makes an important contribution.

## Notes to editors

- Antimicrobials are essential in human and veterinary medicine to treat infections caused by bacteria. AMR is resistance of a bacterium to an antimicrobial to which it was previously sensitive. It is an inevitable consequence of antimicrobials use both in animals and humans.
  - Different interpretative criteria are used in the report to establish the levels of *microbiological resistance* (resistance reported in animals and foods) and *clinical resistance* (resistance reported in humans). Criteria used to assess ‘microbiological resistance’ are often more sensitive than those used to assess ‘clinical resistance’. Therefore, levels of microbiological resistance reported in animals and food are often greater than those reported in humans for a given combination bacteria/antimicrobial substance. Direct comparisons between findings in humans and in food/animals presented in the report should therefore only be made when the criteria for interpretation is at the same level.
  - EFSA and ECDC have analysed the information submitted by 26 EU Member States and three EFTA countries on antimicrobial resistance in 2012. EFSA has been analysing resistance to antimicrobials in zoonotic bacteria found in animals and food since 2004.
  - Some antimicrobials are defined by the World Health Organization as critically important for the treatment of serious human infections: these include ciprofloxacin and cefotaxime for salmonellosis (*Salmonella* infection), and ciprofloxacin and erythromycin for campylobacteriosis (*Campylobacter* infection). Antimicrobials used to treat various infectious diseases in food-producing animals may be the same or be similar to those used in humans.
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- Bacteria are multidrug-resistant if they are resistant to at least three different antimicrobial classes. In this report, co-resistance refers to combined resistance to two specific critically important antimicrobials.
- Antimicrobial resistance levels are the percentage of resistant isolates out of the isolates tested of that microorganism. The terms used to describe these levels are: rare (<0.1 %), very low (0.1 % to 1 %), low (>1 % to 10 %), moderate (>10 % to 20 %), high (>20 % to 50 %), very high (>50 % to 70 %) and extremely high (>70 %).

[1] Co-resistance to critically important antimicrobials in food and animals was established using the interpretative criteria for both clinical and microbiological resistance. This press release refers to co-resistance levels established with criteria for clinical resistance.

### More information

- [The European Union Summary Report on Antimicrobial Resistance in Zoonotic and Indicator Bacteria from Humans, Animals and Food in 2012](#)
- [Infographic](#)
- [EU Protocol for Harmonised Monitoring of Antimicrobial Resistance in Human Isolates of \*Salmonella\* and \*Campylobacter\*](#)

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