EFSA explains ***ZOONOTIC DISEASES***

Antimicrobial Resistance

European Food Safety Authority

What is **antimicrobial resistance**?

- Antimicrobials, such as antibiotics, are substances used to kill micro-organisms or to stop them from growing and multiplying. They are commonly used in humans and animals to treat a wide variety of infectious diseases.
- Antimicrobial resistance refers to the ability of micro-organisms to withstand antimicrobial treatments. A well known example of a bacterium that is resistant to multiple antibiotics is meticillin-resistant *Staphylococcus aureus* (MRSA).
- The overuse or misuse of antibiotics has been linked to the emergence and spread of micro-organisms that are resistant to them, rendering treatment ineffective and posing a serious risk to public health.
- Resistant bacteria can spread through many routes. When antimicrobial resistance occurs in zoonotic bacteria present in animals and food it can compromise the effective treatment of infectious diseases in humans and in animals.
- In the field of food safety, policy-makers need to protect consumers from risks related to the food chain and to establish the best control options to reduce such risks. Scientists and risk assessors are examining the factors which may lead to the presence of antimicrobial resistant bacteria in food and animals to provide appropriate scientific advice to decision-makers.

How EFSA **contributes to EU-wide cooperation** on antimicrobial resistance

EFSA provides independent scientific support and advice to risk managers on the possible emergence, spread and transfer to humans and animals of antimicrobial resistance through the food chain or from animals. EFSA takes an integrated approach to its work on antimicrobial resistance involving a number of its Scientific Panels and Units, as it is a concern for the entire food chain.

In its work, 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).

Monitoring and analysis of antimicrobial resistance in the food chain

EFSA's Biological Monitoring Unit monitors and analyses the situation on antimicrobial resistance in food and animals across Europe. The unit is assisted by EFSA's Task Force on Zoonoses Data Collection: a pan-European network of national representatives of EU Member States, other reporting countries, as well as the World Health Organisation (WHO) and World Organisation for Animal Health (OIE). >>>

Diagram: EU actors dealing with zoonoses

Bacillus bacteria cells

› ***Antimicrobials are used in human and veterinary medicine to treat a wide variety of infectious diseases.***

› ***Bacteria that are resistant to antimicrobials are an increasingly serious health problem.***

› ***EFSA protects consumers from this public health threat by providing independent scientific support and advice on the risks to human and animal health related to the possible emergence, spread and transfer of antimicrobial resistance in the food chain and in animal populations, and by monitoring progress.***

WHAT ARE ZOONOSES?

Zoonoses are infections or diseases that can be transmitted directly or indirectly between animals and humans, for instance by consuming contaminated foodstuffs or through contact with infected animals.

Food-borne zoonoses are a significant and widespread public health threat. Research indicates that between one third and one half of all human infectious diseases have a zoonotic origin, that is, are transmitted from animals, directly or indirectly.

EFSA is working with **key EU actors** to **reduce antimicrobial resistance**

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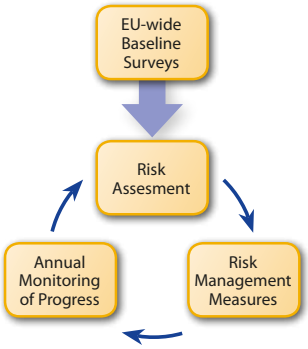
Based on data collected by the EU Member States, EFSA produces in cooperation with ECDC annual European Union Summary Reports on zoonotic infections, food-borne outbreaks and antimicrobial resistance illustrating the evolving situation in Europe. EFSA also publishes baseline survey reports on the prevalence of antimicrobial resistance in the EU in specific animal populations, for instance MRSA in pigs, and provides guidance to national authorities how to carry out their monitoring and reporting activities.

Risk assessments and recommendations

EFSA's Scientific Panels review the annual reports and make recommendations on prevention and reduction measures. This work has included risk assessments on antimicrobial resistance in the food and feed chain and on MRSA in animals and foods.



In **2001**, the European Commission launched an EU strategy to combat the threat of antimicrobial resistance to human, animal and plant health. It included the phasing out of antibiotics for non-medical use in animals, and covered a range of actions at EU and national level in the areas of data collection, surveillance, research and awareness-raising.

EU legislation on animal nutrition banned the use of antibiotics used for growth promotion in animal feed from January **2006**.

In **2007**, EFSA's Biological Monitoring Unit published specifications for the harmonised monitoring of antimicrobial resistance in two important zoonotic bacteria – *Salmonella* and *Campylobacter* – found in animals and foods.

In **2008**, EFSA's Panel on Biological Hazards issued an opinion examining how food may become a vehicle for transmitting antimicrobial resistant bacteria to humans. It made recommendations for preventing and controlling transmission, highlighting good hygiene practices at all stages of the food chain as a critical prevention and control factor. EFSA's Biological Monitoring Unit published further specifications for the harmonised monitoring of antimicrobial resistance in *Escherichia coli* and entercocci bacteria in animals and foods.

ECDC organised the first annual European Antibiotic Awareness Day (18 November) to raise awareness about the threat to public health of antibiotic resistance and prudent antibiotic use.

In **2009**, the Panel on Biological Hazards assessed the public health significance of MRSA in animals and foods. It concluded that livestock-associated MRSA represented only a small proportion of all reported MRSA infections in the EU with significant differences between Member States. EFSA's Biological Monitoring Unit also published the results of an EU-wide baseline survey on MRSA in pigs.

A joint opinion by EFSA, ECDC, EMA and the Scientific Committee on Emerging and Newly Identified Health Risks concluded that antimicrobial resistance was increasing worldwide and raised specific concern in human medicine about bacterial resistance to antibiotics used in the treatment of *Salmonella* and *Campylobacter* infections – the two most reported zoonotic infections in Europe.

In **2010**, EFSA published the first EU Summary Reports on antimicrobial resistance in zoonotic bacteria found in animals and foods covering the years 2004-2008.

In **2011**, EFSA and ECDC published their first joint report on antimicrobial resistance in zoonotic bacteria affecting humans, animals and food.

Committed to ensuring that Europe's food is safe

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