



ANTIMICROBIAL RESISTANCE IN FOOD

Antimicrobial resistance (AMR) is the capacity of microorganisms to resist medicines used to treat infections. It is a major global threat of increasing concern to human and animal health. It also has implications for the food safety, food security and economic well-being of millions of households.

There is clear scientific evidence that food can serve as a vehicle of foodborne exposure to antimicrobial-resistant bacteria. This includes, but is not limited to, foods from livestock and poultry, fish, and fruits and vegetables. Antimicrobials are important means

to keep animals and plants healthy and to maintain animal welfare and food security. At the same time, it is recognized that antimicrobial use (AMU) in agriculture contributes to the emergence of antimicrobial resistance.

Because food can become contaminated with antimicrobial-resistant bacteria and antimicrobial resistance genes anywhere along the food chain from primary production to consumption, both conventionally and organically produced products are potentially vulnerable to contamination with antimicrobial-resistant organisms.

When humans ingest antimicrobial-resistant microorganisms in food or water, some bacteria may cause illness. These and other species may also serve as a source of AMR genes that other microorganisms in the gastrointestinal tract, including human pathogens, can acquire.

The health and economic consequences of AMR are potentially enormous. However, its full impact remains hard to estimate.

FAO is working closely with key partners such as the World Organisation for Animal Health (OIE), the World Health Organization (WHO) and others in a global response to the threat of AMR.

HYGIENE PRACTICES AND SANITATION

Concerted efforts should be made to protect foods from contamination with pathogenic microorganisms, including those that carry genes for AMR. This includes the use of proper food sanitation and hygiene practices as well as the use of antimicrobials in agriculture only when needed, not as a

growth-promoting tool or as an attempt to solve shortcomings in husbandry practices.

The selection for AMR by sanitizers and biocides when used following manufacturers' recommendations has not been reported in practice. At this time, the benefits of using sanitizers and biocides to ensure sanitation far outweigh the risks associated with the development of resistant organisms.

KEY FACTS

ANTIMICROBIAL RESISTANCE

AROUND 700 000 HUMAN DEATHS EACH YEAR ARE RELATED TO ANTIMICROBIAL RESISTANCE (AMR). SOME OF THESE DEATHS ARE RELATED TO FOODBORNE AMR

FOOD SYSTEMS PLAY AN IMPORTANT ROLE IN THE DEVELOPMENT AND SPREAD OF AMR

THE PRESENCE OF AMR MICROORGANISMS IN AGRICULTURAL PRODUCTION SYSTEMS AND FOOD CHAINS IS A POTENTIAL ROUTE OF EXPOSURE FOR EVERYONE

GOOD HYGIENE PRACTICES IN AGRICULTURE, FUNDAMENTAL IN ACHIEVING FOOD SAFETY, ARE ALSO KEY IN ADDRESSING AMR

SURVEILLANCE FOR AMR AND ANTIMICROBIAL USE IN PRIMARY FOOD PRODUCTION ENVIRONMENTS IS CRUCIAL TO OBTAIN DATA NECESSARY FOR RISK ASSESSMENT AND RISK MANAGEMENT

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MANAGEMENT OF AMR IN THE FOOD CHAIN

Management of AMR in the food chain is complex and requires the implementation of good practices, starting from primary production and continuing through to consumption. At the practical level, the overall aim of controlling the transmission of AMR through foods is similar to requirements for the control of other foodborne hazards. Emphasis should be placed on measures to manage microbial populations including those that harbour AMR genes in foods, as well as on the environmental factors that may contribute to development of resistance.

The most effective approach by far to limit the use of antimicrobials in agriculture is to reduce the need to treat animal and plant diseases. For terrestrial and aquatic animals, this includes the adoption of good management practices such as biosecurity, vaccination and proper nutrition. In plant production, the use of the well-established procedures of Integrated Pest Management (IPM) – a systems approach designed to minimize economic losses for crops, as well as to minimize risks to people and the environment, can both increase yield and reduce the need for antimicrobial treatments.

At the production level, FAO supports the implementation of good hygiene practices and measures for prevention of contamination, as well as the responsible use of antimicrobial medicines to help reduce food safety risks. This continues beyond the farm gate, where adherence to good hygiene and manufacturing practices by all food business operators, enforced through a risk-based inspection system, is equally important.

Effective monitoring and surveillance systems that track the use of antimicrobials and the presence of AMR in humans and in food chains are also necessary. One part of such an effort are existing veterinary drug residue monitoring programmes; these are currently in place in some countries only, and often need to be strengthened. FAO and the International Atomic Energy Agency (IAEA) are also providing governments with support and training on how to set up and effectively operate veterinary drug residue monitoring programmes. Another way FAO is helping countries is through its AMR laboratory mapping tool. With assistance from FAO, countries can assess their national surveillance and laboratory capacities and identify areas to prioritize when allocating investments.

THE RESPONSE

In response to the increased global attention to the serious threat of AMR to public health, and recognizing the need for a more general and multidisciplinary approach to AMR, in 2017 the Codex Alimentarius Commission, the risk management body of the Joint Food and Agriculture Organization/World Health Organization Food Standards Programme, re-established a Task Force on Antimicrobial Resistance.

The Task Force is developing science-based guidance on managing foodborne AMR, taking into account the work and standards of relevant international organizations and the One Health approach, to ensure that Member Countries have the guidance necessary to enable coherent management of AMR along the food chain.



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