



Food and Agriculture Organization
of the United Nations



FAO INITIATIVES ON PREVENTION AND CONTROL OF ANTIMICROBIAL RESISTANCE (AMR)

ANTIMICROBIAL RESISTANCE (AMR) OCCURS WHEN MICROORGANISMS INCLUDING BACTERIA, FUNGI, VIRUSES, AND PARASITES EVOLVE RESISTANCE TO ANTIMICROBIAL SUBSTANCES, SUCH AS ANTIBIOTICS. THIS CAN OCCUR NATURALLY THROUGH ADAPTATION TO THE ENVIRONMENT OR THROUGH SELECTIVE PRESSURE WHEN MICROORGANISMS COME INTO CONTACT WITH ANTIMICROBIALS. THE PROCESS OF DEVELOPING AMR IS ACCELERATED WHEN THERE IS INAPPROPRIATE OR EXCESSIVE USE OF ANTIMICROBIALS. AS A RESULT OF AMR, MEDICINES THAT WERE ONCE EFFECTIVE TREATMENTS FOR DISEASE IN PEOPLE AND ANIMALS BECOME LESS EFFECTIVE OR NOT EFFECTIVE AT ALL, LEADING TO A REDUCED ABILITY TO SUCCESSFULLY TREAT INFECTIONS. THIS IN TURN LEADS TO MORE SEVERE OR PROLONGED ILLNESSES, INCREASED MORTALITY, PRODUCTION LOSSES IN AGRICULTURE AND REDUCED LIVELIHOODS AND FOOD SECURITY.

AMR IN THE FOOD AND AGRICULTURE SECTORS

World population growth is resulting in an increase in demand for food and products of animal origin. This in turn is putting pressure on food supply chains and systems. Global antimicrobial consumption in the agriculture sector is difficult to estimate due to a lack of appropriate and effective regulations on antimicrobial usage and poor data collection in many countries, but is estimated to be over 60 000 tons annually. This total volume is expected to rise over time with an increase in demand for food and for products of animal origin.

Antimicrobials play a critical role in the treatment of terrestrial and aquatic food producing animals, helping to assure food safety and quality, animal welfare and farmer livelihoods. In food production animals, antimicrobials can be used in various ways including: 1) for therapeutic purposes to treat sick animals, 2) for prophylaxis purposes

to prevent diseases from spreading within a farm or flock by administering antimicrobials to animals at risk of becoming sick and 3) for growth promotion by adding antimicrobials to animal feed. This third method is discouraged but still practiced in many countries. While the majority of antimicrobial use in agriculture tends to be for food animal production, antimicrobials such as antibiotics and fungicides are also increasingly applied on crops.

A large proportion of antimicrobials, following administration to terrestrial and aquatic animals, are excreted un-metabolized into the environment where selection pressure to develop resistance can occur to the environment where selection pressure to develop resistance can occur. Additionally, antimicrobial resistant microorganisms can be excreted into the environment in animal waste and transfer resistance genes to other microorganisms.

Various factors contribute to excessive or improper use of antimicrobials in agriculture. Best practices, which lead to healthier animals or crops and a reduced need for antimicrobials, are not always applied. There are cases of misuse, whereby antimicrobials are used and not based on correct diagnosis of the disease. The legal framework may not exist to ensure prudent use of antimicrobials in animal and crop production or their compliance is poor. As a result, prescriptions may not be required to purchase antimicrobials, allowing access to untrained individuals. Application of antimicrobials may be done without the supervision and guidance of professionals. Poor quality or counterfeit antimicrobials, containing a lower dose of active ingredient than that required may be used. Additionally, animal waste contaminated with antimicrobials may not be disposed of appropriately, or discharges kept clear of water sources.

FAO ACTION PLAN ON AMR AND TOOLS FOR COMBATTING AMR

FAO has developed an Action Plan on AMR in support of the WHO-led Global Action Plan on AMR. The FAO Action Plan focuses on four areas: 1) raising awareness of AMR and related threats, 2) providing evidence through development of capacity for surveillance and monitoring of AMR and antimicrobial use in food and agriculture, 3) strengthening governance related to antimicrobial use and AMR in food and agriculture, and 4) promoting good practices in food and agriculture systems to reduce the need to use antimicrobials and promoting the prudent use of antimicrobials when they are required.

FAO is developing and piloting tools to assist countries in their efforts to manage the risks associated with AMR. The Progressive Management Pathway for AMR offers a step-wise progression to guide efforts on each of the food production and agriculture sectors in the four focus areas

of the Action Plan (Awareness, Evidence, Governance and Practices). The Assessment Tool for Laboratory and AMR Surveillance Systems (ATLASS) can be used to assess the AMR surveillance systems in countries. Surveillance plays a very important role in the fight against AMR, both in assessing the quantities and types of antimicrobials being used, determining the burden of AMR, identifying emergence of new strains, guiding treatment strategies, as well as evaluating the efficacy of intervention strategies.

ONGOING PROJECTS ON AMR

FAO is working with Member States in Southeast Asia, Sub-Saharan Africa, Eurasia, Latin America and the Caribbean to combat AMR through focus on the four pillars of the Action Plan. Support is being provided to ensure that multi-sectoral National Action Plans are in place, being represented by all relevant health, agriculture and environmental sectors and that Plans are aligned with the Global Action Plan. Additionally, project activities focus on enhancing awareness, documenting antimicrobial usage, strengthening regulatory frameworks, strengthening surveillance capacities for detecting AMR and antimicrobial residues, and promoting good practices that reduce the need for antimicrobials.

KEY PLAYERS AND PARTNERS

FAO is uniquely positioned to contribute to international efforts to address AMR, having expertise in a variety of disciplines (aquatic and terrestrial animal health and production, animal welfare, food and feed safety, plant production, environment, and legislation). FAO also works closely in a tripartite with the World Health Organization (WHO) and the World Organisation for Animal Health (OIE) in support of the Global Action Plan on AMR, promoting a One Health approach to reducing AMR globally.

