Food and Agriculture Organization of the United Nations | **World Health Organization** | **World Organization for Animal Health**

Joint WHO/FAO/OIE Expert Workshop on Non-human Antimicrobial Usage and Antimicrobial Resistance

Geneva, 1 – 5 December 2003

Executive Summary

Antimicrobial agents are essential drugs for human and animal health and welfare. Antimicrobial resistance is a global public health concern that is impacted by both human and non-human antimicrobial usage. Antimicrobial agents are used in food animals, including from aquaculture, companion animals and horticulture to treat or prevent disease. Antimicrobial agents are sometimes used in food animals to promote growth. The types of antimicrobials used are frequently the same as, or closely related to antimicrobials used in humans.

Managing human health risks from non-human usage of antimicrobials and the resulting antimicrobial resistant bacteria requires national and international interdisciplinary cooperation. This consultation was convened by FAO, OIE and WHO to perform a scientific assessment of resistance risks arising from the usage of antimicrobials in animals (including aquaculture) and plants and to formulate recommendations and options for future risk management actions to be considered by the Codex Alimentarius Commission and OIE.

There is clear evidence of the human health consequences due to resistant organisms resulting from non-human usage of antimicrobials. These consequences include infections that would not have otherwise occurred, increased frequency of treatment failures (in some cases death) and increased severity of infections, as documented for instance by fluoroquinolones resistant human Salmonella infections. Evidence shows that the amount and pattern of non-human usage of antimicrobials impacts on resistant bacteria in animals and on food commodities and thereby human exposure to these resistant bacteria. The foodborne route is the major transmission pathway for resistant bacteria and resistance genes from food animals to humans, but other routes of transmission exist. There is much less data available on the public health impact of antimicrobial use in aquaculture, horticulture and companion animals.

The consequences of antimicrobial resistance are particularly severe when pathogens are resistant to antimicrobials critically important in humans. Therefore, the workshop recommends that an expert clinical medical group appointed by WHO define which antimicrobials are considered critically important in humans.

The expert workshop concluded that surveillance of non-human usage of antimicrobials and antimicrobial resistance in food and animals is important for the identification of resistance problems and as a basis for choosing interventions to limit the development and spread of resistance at all levels.

Several recent attempts to quantify the magnitude of related health impacts in the human population have been made. Estimates vary widely from small to large, depending on the organism and antimicrobial of interest, and are accompanied by considerable uncertainty.

The workshop concluded that residues of antimicrobials in foods, under present regulatory regimes, represents a significantly less important human health risk than the risk related to antimicrobial resistant bacteria in food.

Risk assessment approaches that adequately address the broad range of potential human health impacts need to be further developed with a view towards enabling efficient risk management of antimicrobial resistance in the international arena. OIE is invited to continue its work on risk analysis in coordination with FAO and WHO.

The Workshop recommended that the Codex Alimentarius Commission, where appropriate in collaboration with OIE, takes coordinated steps towards managing these risks focusing on the microbiological nature of the hazards.