Executive Summary

Since the previous AGISAR meeting (2011, Aix-en-Provence, France) a number of events related to antimicrobial resistance (AMR) in the food chain have been reported, and there is more new evidence of the link between antimicrobial use in food animals and AMR in human infections. The Fifth Meeting of AGISAR was convened in Bogota, Colombia on 3-5 September 2013 in order to review new evidence, discuss past and future activities of AGISAR, and revise the WHO List of CIA, amongst others.

The first part of the meeting focused on sharing information on recent AMR initiatives at the international, regional and national levels, and on reviewing progress on AGISAR country pilot projects. After an overview of various initiatives and efforts, and new approaches and technologies that may potentially change the way AMR problems are tackled, the group discussed the future of AGISAR. It was agreed that AGISAR should continue to support WHO Member States to implement integrated surveillance of AMR and strengthen multisectoral collaboration, and that existing AMR surveillance activities should be expanded to include, as appropriate, novel approaches to molecular typing, such as whole genome sequencing.

The second part of the meeting was devoted to the review of worldwide updates on issues concerning critically important antimicrobials (CIA) from both human and animal health perspectives, and to revising the WHO CIA list for the fourth time. The 4th revision of the WHO CIA list for human medicine led to minor changes in the 3rd revision. Quinolones, 3rd and 4th generation cephalosporins, macrolides and ketolides, and glycopeptides were considered as highest priority CIAs:

**Prioritization within the critically important category**

Antimicrobials within the critically important category are prioritized to assist in allocating resources towards agents for which risk-management strategies are needed most urgently. The following three criteria are used for prioritization:

*Prioritization criterion 1 (P1):* High absolute number of people affected by diseases for which the antimicrobial class is the sole or one of few alternatives to treat serious infections in humans.

*Prioritization criterion 2 (P2):* High frequency of use of the antimicrobial class for any indication in human medicine, since use may favour selection of resistance.
Prioritization criterion 3 (P3): The antimicrobial class is used to treat infections in people for which there is evidence of transmission of resistant bacteria (e.g., non-typhoidal Salmonella and Campylobacter spp.) or resistance genes (high for E. coli and Enterococcus spp.) from non-human sources.

Highest-priority critically important antimicrobials: Antimicrobial classes that meet all three prioritization criteria (P1, P2, and P3) are considered the highest priority critically important antimicrobials.

**Highest-priority critically important antimicrobials in the 4th revision of the WHO-CIA list**

These are the classes of drugs that met all three prioritization criteria (P1, P2, and P3): quinolones, third- and fourth-generation cephalosporins, macrolides and ketolides, and glycopeptides.

**Quinolones** are known to select for quinolone-resistant Salmonella and E. coli in animals. At the same time, quinolones are one of few available therapies for serious Salmonella and E. coli infections. Given the high incidence of human disease due to Salmonella and E. coli, the absolute number of serious cases is substantial.

**Third and fourth generation cephalosporins** are known to select for cephalosporin-resistant Salmonella and E. coli in animals. At the same time, third- and fourth-generation cephalosporins are one of few available therapies for serious Salmonella and E. coli infections in humans, particularly in children. Given the high incidence of human disease due to Salmonella and E. coli, the absolute number of serious cases is substantial.

**Macrolides and ketolides** are known to select for macrolide-resistant Campylobacter spp. in animals, especially Campylobacter jejuni in poultry. At the same time, macrolides are one of few available therapies for serious Campylobacter infections, particularly in children, for whom quinolones are not recommended for treatment. Given the high incidence of human disease due to Campylobacter spp., especially Campylobacter jejuni, the absolute number of serious cases is substantial.

**Glycopeptides** are known to select for glycopeptide-resistant Enterococcus spp. in food animals (e.g. when avoparcin was used as a growth promoter, vancomycin-resistant enterococci (VRE) developed in food animals and were transmitted to people). At the same time, glycopeptides are one of few available therapies for serious enterococcal infections. Given the high number of cases, the previously documented occurrence of transmission of VRE to people from food animals, and the very serious consequences of treatment failures in such cases, glycopeptides are classified as being of the highest priority.

The group agreed to advise WHO to undertake the revision of the CIA list every five years (instead of the current frequency of every two years); therefore, the next revision of the CIA list would take place in 2018. Finally, the group advised WHO on possible approaches for the publication of the CIA list as a formal WHO guideline.