



DIRECTOR-GENERAL STATEMENT

When the first antibiotics were introduced in the 1940s, they were hailed as “wonder drugs”, the miracles of modern medicine. And rightly so. Widespread infections that killed many millions of people every year could now be cured. Major diseases, like syphilis, gonorrhoea, leprosy, and tuberculosis, lost much of their sting. The risk of death from something so common as strep throat or a child’s scratched knee virtually vanished.

The powerful impact of these medicines sparked a revolution in the discovery of new drugs. The human condition took a dramatic turn for the better, with significant jumps in life expectancy.

The message on this World Health Day is loud and clear. The world is on the brink of losing these miracle cures.

The emergence and spread of drug-resistant pathogens has accelerated. More and more essential medicines are failing. The therapeutic arsenal is shrinking. The speed with which these drugs are being lost far outpaces the development of replacement drugs. In fact, the R&D pipeline for new antimicrobials has practically run dry.

The implications are equally clear. In the absence of urgent corrective and protective actions, the world is heading towards a post-antibiotic era, in which many common infections will no longer have a cure and, once again, kill unabated. The implications go beyond a resurgence of deadly infections to threaten many other life-saving and life-prolonging interventions, like cancer treatments, sophisticated surgical operations, and organ transplantations. With hospitals now the hotbeds for highly-resistant pathogens, such procedures become hazardous.

While hospital “superbugs” make the biggest headlines, these especially deadly pathogens are just the extreme expression of a much broader, and more disturbing picture.

The development of resistance is a natural biological process that will occur, sooner or later, with every drug. The use of any antimicrobial for any infection, in any dose, and over any time period, forces microbes to either adapt or die in a phenomenon known as “selective pressure”. The microbes which adapt and survive carry genes for resistance, which can be passed on from one person to another and rapidly spread around the world.

This natural process has been vastly accelerated and amplified by a number of human practices, behaviours, and policy failures. Collectively, the world has failed to handle these fragile cures with appropriate care. We have assumed that miracle cures will last forever, with older drugs eventually failing only to be replaced by newer, better and more powerful ones. This is not at all the trend we are seeing.

4D. REDUCE USE OF ANTIMICROBIALS IN FOOD-PRODUCING ANIMALS

Antibiotics are widely used in healthy food-producing animals to promote growth and prevent disease. This practice favours the emergence and spread of resistant bacteria in both animal and human populations.

WHY ADDRESSING THE USE OF ANTIMICROBIALS IN FOOD-PRODUCING ANIMALS?

- > The routine use of antimicrobials in vast numbers of healthy animals is likely to result in the emergence and spread of antimicrobial-resistant bacteria, and cause resistant infections in animals and humans.
- > Resistant microorganisms carried by food-producing animals can spread to humans through consumption of contaminated food, from direct contact with animals, or by environmental spread, for example in contaminated water.
- > The genes coding for antimicrobial resistance can be transferred from microbes carried by animals to microbes that cause disease in humans.

- > Food animals and foods of animal origin are traded worldwide; as a result, antimicrobial resistance (AMR) affecting the food supply of one country becomes a potential problem for other countries.

CHALLENGES TO OVERCOME

- > **Lack of information:** data on the occurrence of resistance and on antimicrobial use in animals are essential for risk analysis and to assess the effectiveness of control measures. However, few countries have systems to monitor antimicrobial resistance and even fewer have systems to monitor the use of antimicrobials in animals.
- > **Lack of standardized data collection:** the data collected are often difficult to interpret and compare because the methods used to obtain them are not standardized.

Examples

The use of a glycopeptide (avoparcin) as a growth promoter in food animals in Europe resulted in the development of vancomycin-resistant *Enterococci* (VRE) in the commensal flora of food animals, on meat from these animals and in the commensal flora of healthy humans, despite the limited use of glycopeptides such as vancomycin only in hospitalized patients. A subsequent ban on the use of avoparcin in food animals in the European Union reduced the occurrence of VRE in animals and its presence in the general population.

The use of fluoroquinolones (e.g. enrofloxacin) in food-producing animals has resulted in the development of ciprofloxacin-resistant *Salmonella*, *Campylobacter* and *Escherichia coli*, which have caused human infections that proved difficult to treat. In several instances, such bacteria have spread worldwide through travel and food trade.

- > **Lack of intersectoral collaboration:** without coordinated AMR surveillance in bacteria from humans, food and animals it is difficult to assess the public health impact of antimicrobial use in food-producing animals and to take corrective measures.
- > **Inadequate training:** lack of training on appropriate use of antimicrobial agents in food-producing animals, and insufficient understanding of their potential contribution to AMR in humans, are common among farmers, veterinary prescribers and dispensers.
- > **Perverse incentives:** the unnecessary use of antimicrobials is often encouraged by financial incentives, such as achieving sales profits by veterinarians, or perceived benefits, such as promoting the growth of food-producing animals.
- > **Gaps in legal and regulatory controls:** insufficient legislation and regulation to restrict the approved use of licensed antimicrobials, and to control the supply of antimicrobials, facilitates the excessive use of antibiotics.

CORE ACTIONS

A. PROVIDE NATIONAL LEADERSHIP AND PROMOTE INTERSECTORAL COLLABORATION

- 1) Establish a formal mechanism of interaction between the Ministry of Health and other relevant ministries and authorities to address the issue of AMR in the agricultural sector.
- 2) Include agricultural and veterinary authorities in the national intersectoral steering committee on AMR.

B. CREATE AND ENFORCE AN ENABLING REGULATORY FRAMEWORK

- 1) Establish a regulatory framework for authorization and control of the quality of veterinary medicines.
- 2) Introduce pre-licensing safety evaluation of antimicrobials for veterinary use, with consideration of potential resistance to drugs used in human medicine.
- 3) Terminate non-therapeutic use of antimicrobials, such as the use of antimicrobials as growth promoters.
- 4) Restrict or eliminate the use in food-producing animals of antimicrobials identified as critically important in human medicine, especially the use of fluoroquinolones, and third- and fourth-generation cephalosporins.
- 5) Require obligatory prescriptions for all antimicrobials used for disease control in food-producing animals.

C. STRENGTHEN SURVEILLANCE AND MONITORING

- 1) Create national systems to monitor antimicrobial usage in food-producing animals.
- 2) Develop national integrated surveillance programmes to monitor current and emerging AMR patterns (including quantitative susceptibility data for zoonotic pathogens and indicator bacteria). Surveillance should involve close collaboration between public health, veterinary and food laboratories.
- 3) Set up a multidisciplinary task force involving authorities in public health, veterinary medicine and food safety to act on the surveillance data for identification of trends, assessment of risks and timely implementation of focused interventions.
- 4) Engage in the development and adoption of standardized protocols to facilitate global harmonization in surveillance of antimicrobial usage in humans and animals, and of antimicrobial resistance.

D. PROMOTE EDUCATION AND TRAINING ON ANTIMICROBIAL USE IN FOOD-PRODUCING ANIMALS

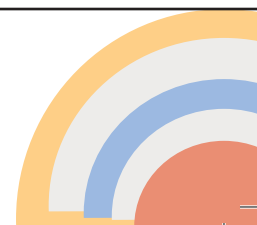
- 1) Develop and implement national guidelines on prudent use of antimicrobials in food-producing animals, with multidisciplinary involvement, taking into consideration antimicrobials categorized as critically important for human medicine.
- 2) Provide training for veterinarians and farmers on the use of these guidelines; and implement auditing and feedback to veterinarians and agricultural producers to improve compliance.
- 3) Develop and implement education strategies that emphasize the importance and benefits of prudent use principles, and provide relevant information on AMR to producers, stakeholders and the public.
- 4) Facilitate implementation of the Codex Alimentarius and OIE (World Organisation for Animal Health) guidelines related to antimicrobial resistance.

E. REDUCE THE NEED FOR ANTIMICROBIALS THROUGH BETTER ANIMAL HUSBANDRY

- 1) Introduce measures to improve animal health, and reduce the need for antimicrobial treatment, including application of effective vaccines.
- 2) Improve health management for food animal production by ensuring good hygiene practices and compliance with good farming practices.

For more information, go to: <http://www.who.int/world-health-day/2011>

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Faulty practices and flawed assumptions have clearly made the inevitable development of drug resistance happen much sooner, rather than later. For some diseases, like malaria, our options are very limited as we have only a single class of effective drugs -- artemisinin-based combination therapies -- with which to treat more than 200 million falciparum cases each year. Although new drugs are under development, especially through the Medicines for Malaria Venture, a public-private partnership, early signals of artemisinin-resistance have already been detected.

Similarly, gains in reducing child deaths due to diarrhoea and respiratory infections are at risk. And, while TB deaths are declining, in just the past year nearly half a million people developed multidrug-resistant TB, and a third of them died as a result. These are just a few of the stark warnings that must be heeded.

The responsibility for turning this situation around is entirely in our hands. Irrational and inappropriate use of antimicrobials is by far the biggest driver of drug resistance. This includes overuse, when drugs are dispensed too liberally, sometimes to “be on the safe side”, sometimes in response to patient demand, but often for doctors and pharmacists to make more money.

This includes underuse, especially when economic hardship encourages patients to stop treatment as soon as they feel better, rather than complete the treatment course needed to fully kill the pathogen. This includes misuse, when drugs are given for the wrong disease, usually in the absence of a diagnostic test.

In many countries, this includes a failure to keep substandard products off the market, to ensure that antimicrobials are dispensed only by a licensed prescriber, and to stop over-the-counter sales of individual pills.

And this includes the massive routine use of antimicrobials, to promote growth and for prophylaxis, in the industrialized production of food. In several parts of the world, more than 50% in tonnage of all antimicrobial production is used in food-producing animals. In addition, veterinarians in some countries earn at least 40% of their income from the sale of drugs, creating a strong disincentive to limit their use. The problem arises when drugs used for food production are medically important for human health, as evidence shows that pathogens that have developed resistance to drugs in animals can be transmitted to humans.

On this World Health Day, WHO is issuing a policy package to get everyone, especially governments and their drug regulatory systems, on the right track, with the right measures, quickly. Governments can make progress, working with health workers, pharmacists, civil society, patients, and industry. We all can plan and coordinate our response. We can expand surveillance efforts. We can improve drug regulatory and supply systems. We can foster improved use of medicines for human and animal health. We can actively prevent and control infections in health services and beyond. And, we must stimulate a robust pipeline for new antimicrobials, diagnostics and vaccines.

Drug resistance costs vast amounts of money, and affects vast numbers of lives. The trends are clear and ominous. No action today means no cure tomorrow. At a time of multiple calamities in the world, we cannot allow the loss of essential medicines – essential cures for many millions of people – to become the next global crisis.

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