Consumers International recommendations to reduce the use of antibiotics in farm animals

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"A post-antibiotic era means, in effect, an end to modern medicine as we know it."
Margaret Chan, director general of the WHO, Copenhagen, 2012.

Introduction

Antibiotic resistance is developing and spreading at a rate that cannot be contained by the development of new drugs. If measures are not taken urgently to reduce global consumption of antibiotics, we could face a return to an era where simple infections can kill.

The widespread practice of routinely dosing farm animals (including aquaculture) with antibiotics is contributing to this threat. Around half of the antibiotics produced globally are used in agriculture, with much of this being used to promote faster growth and to prevent, rather than treat, disease.[i] Studies comparing bacteria from farm animals that are administered antibiotics with bacteria from antibiotic-free or organic farms consistently find less resistant bacteria and less multidrug-resistant bacteria on the antibiotic-free animals.[ii,iii,iv,v]

Resistant microorganisms carried by farm animals can spread to humans through consumption of contaminated food, from direct contact with animals, or by environmental spread, for example in contaminated water or soil.

The genes coding for antimicrobial resistance (AMR) can be transferred from microbes carried by animals to microbes that cause disease in humans.

Recent tests on meat and poultry carried out by consumer organisations and national authorities have found alarmingly high levels of antibiotic resistant bacteria. This includes the recognised foodborne pathogens Campylobacter and Salmonella which cause gut infections, but also methicillin-resistant Staphylococcus Aureus, Escherichia coli, and Enterococcus and others that cause serious infections in other parts of the body. Resistance to last-line drugs including carbapenems, linezolid and vancomycin can be found in bacteria from farm animals.

The following recommendations set out the measures Consumers International want to be taken to reduce the use of antibiotics in farming. This document focuses on the use of antibiotics in farming including aquaculture, but CI acknowledges that the problem must be tackled alongside efforts to reduce consumption of antibiotics in human health, companion animal medicine, and crop production and as part of efforts to tackle antibiotic resistance in general.

Use of antibiotics in animal farming

Antibiotics have been routinely used in farm animal production since the 1950s. The same classes of antibiotics used in humans are frequently used in animals. In some countries, consumption of antibiotics by animals exceeds that of humans. In the US, livestock accounts for 80% of total antibiotic consumption. Antibiotics are used mainly on intensively farmed animals for disease treatment, for disease prevention, disease control and for growth promotion.

Treatment of sick animals

This refers to the treatment of animals that already have infections. Antibiotics are mostly used to treat respiratory and enteric infections in groups of intensively fed animals. Antibiotics are also used to treat infections in individual animals that are caused by a variety of bacterial pathogens. In particular, antibiotics are often used to treat mastitis in dairy cows, which are common infections in cows with a high milk output.

The global increase in intensive fish farming has also been accompanied by bacterial infections that are usually treated with antibiotics added to fish foodstuffs. Similar to other industrialised food-animal production, the usage of antibiotics in aquaculture can be substantial.

Disease control

This refers to administration of antibiotics to intensively reared animals that may be at risk of infection because an infected animal has been discovered in a group. Thus, an entire herd of animals or flock of chickens get an antibiotic as soon as an infection is seen in any single animal.

Disease prevention

This refers to the administration of antibiotics to intensively reared animals thought to be at risk of infection before there is a clinical diagnosis of disease. Preventative antibiotics, often at low levels, are also given routinely to all animals at a certain stage of production at a farm – for instance in the early life stage of broiler chickens and weaning pigs. Preventive antibiotics are also frequently administered for long periods of time. This type of low-dose, long-duration administration of antibiotics to large groups of animals is, in practice, often indistinguishable from antibiotics for growth promotion.

Growth promotion

Banned in 51 countries, this practice is still common in many parts of the world, including the US, although the US is in the process of trying to phase out growth promotion uses. Low

levels of antibiotics are administered to farm animals through their feed. This makes the animals grow faster with less feed, which is seen as favourable for greater production levels.

Antibiotic resistant bacteria on the increase

Bacterial resistance to antibiotics is on the increase in all countries. This includes growing resistance to common food-borne pathogens, such as e-coli, Salmonella and Campylobacter. Food-safety tests undertaken by consumer groups over the past two years have indicated worrying levels of antibiotic-resistant bacteria on meat and poultry samples. Studies on farms have found some of the most disturbing types of resistant bacteria from carbapenem-resistant enterobacteriaceae to methicillin-resistant staphylococcus. Antibiotic resistance is associated with increasing severe illness including increased bloodstream infections, increased hospitalisation and increased death. Antimicrobial resistance is associated with an additional $20 billion in direct medical costs in the US each year.

Some global action to date

2000 WHO Global Principles for the containment of antimicrobial resistance in animals intended for food.

2001 WHO Global Strategy for Containment of AMR, including specific recommendations on the use of antimicrobials in animal husbandry based on the 2000 principles noted above.

2005 Codex Code of Practice to contain antimicrobial resistance.[vi] The code states:

'The responsible use of veterinary antimicrobial drugs in food producing animals…does not include the use for growth promotion of veterinary antimicrobial drugs that belong to or are able to cause cross resistance to classes of antimicrobial agents used (or submitted for approval) in humans in the absence of a risk analysis.'

2007 OIE adopts a list of 'Antimicrobials of Veterinary Importance'.[vii]

2011 WHO chooses antimicrobial drug resistance as the topic for World Health Day. As part of its work for this day, WHO produces a policy package to combat antimicrobial resistance, including specific action to reduce the use of antimicrobials in food-producing animals.[viii]

2011 Codex agrees guidelines for risk analysis of foodborne antimicrobial resistance.[ix] The scope is 'to provide science-based guidance on processes and methodology for risk analysis and its application to foodborne AMR related to non-human use of antimicrobial agents.'

2011 3rd revision of the WHO's antibiotics critical for human use.[x]

2012 WHO publish, 'The evolving threat of antimicrobial resistance: options for action,'[xi] including a chapter on reducing the use of antibiotics in animal husbandry.

January 2014 The Executive Board of the WHO acknowledges the recommendation, by the Strategic and Technical Advisory Group on Antimicrobial Resistance, that the WHO should lead the development and coordination of a global action plan on antimicrobial resistance.

May 2014 The World Health Assembly will consider a resolution to combat AMR. The resolution will call on the WHO to develop a global action plan for AMR.

Lack of national action

In December 2013, only 29 of 92 (32%) WHO Member States had reported having a comprehensive national action plan on antibiotic resistance. The proportion varies from about 60% among high-income countries, to less than 20% among low- and middle-income countries.[xii]

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. In many countries antibiotics can be given to animals without a prescription and antibiotics can be used 'off-label.'

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. Antibiotics are often used because they are cheaper than alternatives such as increasing sanitation or modifying diets. For example, poultry growers can clean manure from houses less frequently if antibiotics are used to manage the associated subclinical disease. Similarly cattle feed-lots can feed high-starch diets if they use antibiotics to manage the liver problems that these diets cause in cattle.

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 monitoring and of standardised data collection

Very few countries collect data on the use of antibiotics in farm animals. The data collected are often difficult to interpret and compare because the methods used to obtain them are not standardised. Countries that do collect data often do not collect it with sufficient detail to determine which animals are receiving antibiotics and for what reasons.

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.

Industrial farming depends on routine administration of antimicrobials

In large-scale production facilities for chicken and pigs, and feedlots for cattle, regular doses of antibiotics are used in lieu of appropriate diets, sound hygiene practices, good husbandry and adequate living environments.

Recommendations

Supragovernmental

Develop a global action plan on antimicrobial resistance

- Urgent global action is needed. Consumers International supports the recommendation by the Strategic and Technical Advisory Group on Antimicrobial Resistance, and endorsed by the WHO Executive Board,[xiii] that the WHO should lead in the development and co-ordination of a global action plan on antimicrobial resistance. This plan must include:
    - the reduction of the use of antimicrobials in all sectors
    - the integration of prevention of antimicrobial resistance in all animal and human-health systems
    - an emphasis on hygiene and infection prevention and control in animal husbandry as well as human-health systems, and
    - ending the use of antimicrobials for growth promotion and phasing out use for routine disease prevention in livestock production.
- WHO must consider pursuing a legally binding treaty in order to ensure full cooperation from all Member States.

Governments

Provide national leadership and promote intersectoral collaboration

- Establish and enforce targets to end the use of antimicrobials for growth promotion and phase out use for routine disease prevention in livestock production.
- Establish a formal mechanism of interaction between the Ministry of Health and other relevant ministries and authorities to address the issue of antimicrobial resistance in the agricultural sector.
- Include agricultural and veterinary authorities in the national intersectoral steering committee on antimicrobial resistance, alongside healthcare professionals and consumer advocates.Ensure that any food served in hospitals, schools and other public institutions, is not produced from animals administered with antibiotics for growth promotion or routine disease prevention.

Create and enforce an enabling regulatory framework

- Establish a regulatory framework for authorisation and control of the quality of veterinary medicines, ensuring a separation between the selling and the prescribing of veterinary medicines.
- Introduce pre-licensing safety evaluation of antimicrobials for veterinary use, with consideration of potential resistance to drugs used in human medicine. Drugs that were approved without such evaluations should be reassessed and withdrawn from the market or have their use conditions modified, if needed, based on the evaluations.
- Limit the use in food-producing animals of antimicrobials identified as critically important in human medicine by either prohibiting use or by putting restrictions on use such as prohibiting extra label use or prohibiting use in groups of animals.
- Targeted reductions leading to termination of all growth-promoting and routine disease-prevention use of antibiotics in animals by 2020.
- Require prescriptions for all antimicrobials used in farm animals.
- Regulate labelling to ensure that any product labelled as 'antibiotic free' does not contain meat from animals that have been given antibiotics.

Strengthen surveillance, monitoring and public reporting

- Create national systems to monitor and make public antimicrobial usage in food-producing animals, as well as prevalence of resistance.
- Develop national integrated surveillance programmes to monitor current and emerging AMR patterns (including quantitative susceptibility data for zoonotic pathogens and indicator bacteria), which are integrated across animal and human use. Surveillance should involve close collaboration between public health, veterinary and food laboratories.
- 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.
- Engage in the development and adoption of standardised protocols to facilitate global harmonisation in surveillance of antimicrobial usage in humans and animals, and of antimicrobial resistance.

Promote education and training on antimicrobial use in food-producing animals

- Remove incentives for vets to prescribe antibiotics, and develop and implement national guidelines on prudent use of antimicrobials in food-producing animals, with multidisciplinary involvement.
- 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.

Reduce the need for antimicrobials through better animal husbandry

- Introduce measures to improve animal health, and reduce the need for antimicrobial treatment, including application of effective vaccines.

- Improve health management for food-animal production by ensuring good-hygiene practices and compliance with good-farming practices.

Multinational food manufacturers, retailers and restaurant chains

- Use massive global purchasing power to affect faster change than government action alone
- Refrain globally from using any meat that has been produced from animals administered with antibiotics for growth promotion.
- Refrain globally from using any meat that has been produced from animals administered with antibiotics for routine disease prevention.
- Create purchasing policies that encourage suppliers to take steps to reduce the need for antimicrobials through better animal husbandry.

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[vii] OIE, List of antimicrobial agents of veterninary importance http://www.oie.int/our-scientific-expertise/veterinary-products/antimicrobials/

[viii] WHO, World Health Day 2011, Reduce the use of antimicrobials in food producing animals http://www.who.int/world-health-day/2011/presskit/whd2011_fs4d_subanimal.pdf

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[xiii] EB134.R13: http://apps.who.int/gb/ebwha/pdf_files/EB134/B134_R13-en.pdf