Livestock pathways to 2030: One Health Brief no. 3

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Managing antimicrobial use in livestock farming promotes human and animal health and supports livelihoods

Prudent and safe use of antimicrobials in animal husbandry and aquaculture improves productivity and can help to curb the spread of drug-resistant infections.

Key Messages

Antibiotics and other antimicrobial drugs have been fantastically effective treatments for people and animals for nearly a century. Ironically, it is their use – and sometimes misuse – that has helped bacteria and other disease-causing agents (pathogens) to develop resistance to them.

The rise of Anti-microbial resistance (AMR) is fuelled largely by the overuse and misuse of antibiotics and other antimicrobial drugs in human medicine and agricultural production. Antimicrobial drug use in farmed animals is growing fastest in low-income countries to compensate for poor animal husbandry practices. Misuse is expected to increase in food producing animals, particularly as livestock production intensifies.

The misuse of antimicrobials in livestock and the resultant increase in AMR in animal pathogens can eventually lead to untreatable infections in animals, thereby reducing output and negatively affecting livelihoods of livestock keepers.

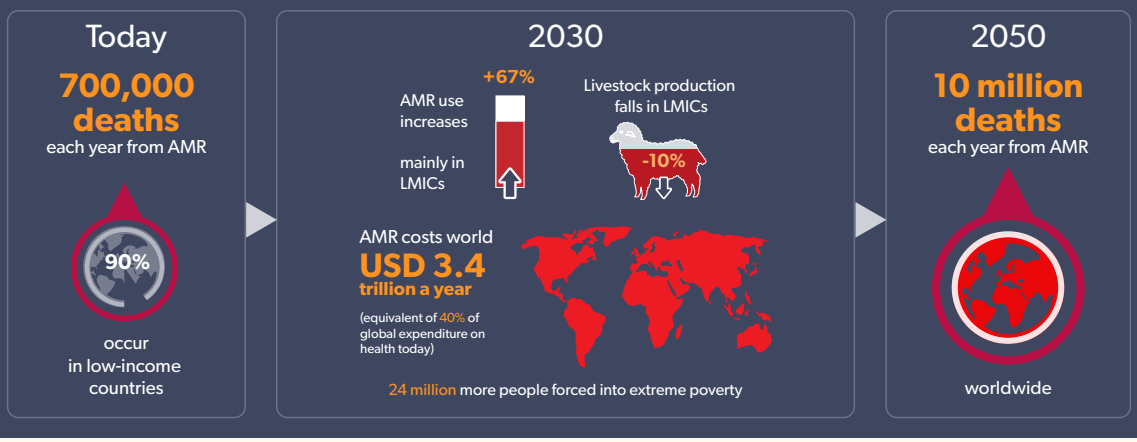
A post-antibiotic era would be disastrous for animal and human health. Taking a One Health approach is logical when addressing AMR.

Controlling the spread of AMR requires that antimicrobial use is prudent in both people and animals and that measures are followed to prevent transmission through food chains or the environment. One Health approaches that consider the whole system and simultaneously tackle the different hot spots from public health, veterinary, environmental and food safety perspectives are more likely to succeed in reducing AMR and maintaining the efficacy of existing and new antimicrobials.

Facts

- Antimicrobial resistance (AMR) is one of the top 10 most urgent global health challenges.
- 700,000 people die every year from formerly treatable infections caused by bacteria, viruses, fungi and parasites that have developed resistance to antimicrobial drugs.
- If no action is taken, drug-resistant infections could cause 10 million deaths a year by 2050.
- Livestock production accounts for more than two-thirds of antimicrobial use and aquaculture is another significant consumer.
- Global livestock output could fall by more than 10% with the rise of antimicrobial resistance.
- By 2030, shocks due to antimicrobial resistance could cost the world up to USD3.4 trillion a year and force an additional 24 million people into extreme poverty.

Consequences of antimicrobial resistance (AMR)



Research indicates that AMR is common in agricultural systems in low-income countries, where antimicrobials are poorly regulated and freely available. However, good policies to regulate access to and use of antimicrobials are not the only answer. Where regulations exist in low-income countries, factors such as limited government resources and poor access to veterinary services can make implementation challenging. Increasing AMR awareness, knowledge and best practices, as well as identifying incentives for behavioural change and cost-effective interventions, can prove more effective.



Vaccinating chicks in Thuy Phuong province, Vietnam. Photo credit: ILRI/Nguyen Ngoc Huyen.

Animal and human health

The emergence of AMR in livestock has been shown to affect human health. People in close contact with livestock are at risk of getting drug-resistant pathogens through direct contact with animals or indirectly through contamination of meat, milk, and eggs.

Environmental contamination

Land, water sources and even air can become contaminated with drug-resistant microbes via manure and other by-products of farming (see brief 6). Drug-resistant microbes can subsequently find their way to people and animals via crops, fruit and vegetables grown in contaminated environments. For example, an *E. coli* outbreak in 2011 in Germany and France was linked to consumption of bean sprouts. The strain was multi resistant and caused a number of deaths. Even though they were grown in Germany, the seeds came from Egypt. This highlights how AMR can travel across borders due to our global food system.

The precise contribution of antimicrobial use in livestock production to the on-going spread of AMR in people and the environment is unclear. It is hard to assess because the same antimicrobials are used in human and animal health care. However, ending misuse of antimicrobials in livestock farming and aquaculture is imperative to safeguard future human as well as animal health.

Controlling the spread of AMR requires prudent use of antimicrobials in both people and animals and plants. Safeguards are also needed to prevent AMR transmission through food chains or the environment. Moreover, context specific, cost-effective and sustainable interventions are needed because tackling AMR is a long-term challenge.

> **Urgent action to stop misuse of antimicrobials in livestock production and aquaculture is imperative to safeguard global public health.**

What can be done

1. **Promote rational and equitable use of antimicrobials**

   - Support evidence-based treatment decisions in livestock farming and aquaculture as well as in human health.
   - Invest in public awareness campaigns that help improve the managed use of antimicrobials and end their misuse.
   - At the same time, farmers should be provided with adequate access to veterinary services, particularly in the poorer countries where controlled access to vital antimicrobial drugs are needed to treat sick animals.

2. **Support alternative paths to health**

   - Support better animal husbandry practices, including vaccination campaigns and other alternatives to antimicrobial use.
   - Support better human health services. In particular, improved sanitation and access to safer food (see brief 4) and clean drinking water will do much to stem the rise of AMR in medical care.

3. **Control and monitor farm effluents**

   - Help reduce drug-resistant pathogens in farm effluents and manure to prevent contamination of water sources, soils and crops.
   - Support surveillance and diagnostics work needed to monitor levels of resistant microbes and to identify where action is needed.

4. **Support sector collaboration**

   - Support governments to implement their AMR national action plans and promote inclusion of both the private and informal sectors.
   - Encourage work *across* all sectors and *between* all sectors when implementing antimicrobial regulations and policies.

References

To view all the references for this brief visit whylivestockmatter.org

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Investing in One Health directly tackles the wicked problems facing our health and the health of the animals and planet around us. One Health integrates and guides the collaborative efforts of multiple disciplines working locally, nationally and globally to attain optimal health for people, animals and our environment. This series of briefs provides evidence-based information on how One Health can support development efforts.

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