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HealthyLivestock: Tackling antimicrobial resistance through improved livestock health and welfare

Project summary and recommendations

The dangers of antimicrobial resistance

After decades of use and overuse of antibiotics to treat humans and animals, antimicrobials losing effectiveness because of bacteria becoming increasingly resistant to them has become an acute danger.

In fact, the World Health Organization has declared antimicrobial resistance (AMR) as one of the top 10 global health threats facing humanity. Lack of safe and effective antimicrobials puts the ability of modern medicine to treat bacterial infections at risk. The cost of AMR to the economy is also significant.

Although not the primary cause of AMR in public health, the use of antimicrobials in animals also contributes to their loss of effectiveness for people and animals. This is why we must reduce veterinary use of antimicrobials where possible, especially antimicrobials critical for human health care.

About the HealthyLivestock research project

HealthyLivestock aims to develop new ways to reduce antimicrobial use in livestock, especially in pigs and poultry.

The project's main hypothesis is that improving animals' health and welfare will reduce the need to treat them with antimicrobials, and so contribute to the fight against AMR.

Our four areas of research

The project tested four strategies to improve animals' health and welfare and thus reduce the need for antimicrobials:

1. We looked at disease prevention management, in particular intensified biosecurity.
2. We examined how to increase the resilience of pigs and poultry against disease.
3. We developed, validated and used an automated behaviour and live weight analysis system that enables monitoring for and early detection of health issues.
4. We looked at ways to better target individual animals or sub-flocks for the administration of medication and alternatives to antimicrobials.

Our findings

- Putting the animal at the centre of animal husbandry and adjusting living conditions to animals' needs improves resilience against infections, reduces the impact of disease and results in faster recovery.
- Special tools to systemically analyse a farm's biosecurity risks are powerful instruments to reduce bacterial infections. Also essential are farm-specific health and welfare plans, agreed between farmer and veterinarian. When applied consistently these will contribute to improved health and welfare, bringing down antimicrobial use and cutting the risk of AMR.

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- Animals' resilience and natural resistance to external challenges play an important role in general disease prevention. By avoiding undue mental or physical pressure on the animal, its own defence system against infectious diseases can function optimally.
- New technologies that continuously record potential deviations from animals' regular behaviour and development can help identify health issues at an earlier stage, even before clinical symptoms begin. Knowing about these will mean the farmer can take corrective measures before major problems occur. This will help reduce the need for antimicrobials.
- In case, despite all precautionary measures, animals do need to be treated, the treatment should be provided in such way that the risk for AMR is kept as low as possible. The actual concentration of antimicrobial at the site of action is of crucial importance. Overdosing as well as underdosing must be avoided. Factors like the route of administration and differences between individual animals must be carefully considered.
 - No one intervention will work as a silver bullet to stop AMR. We need a broad, multi-faceted approach. Every step forward will complement other earlier steps in mitigating AMR. It remains important to keep searching for additional ways to support the fight.

Our recommendations

Politicians and decision-makers should:

- Coordinate and collaborate to develop and implement action plans on AMR using a One Health approach to support the responsible and sustainable use of antimicrobials in agri-food production and antimicrobial drugs.
- Support and offer sustainable funding to implement AMR action plans and for further research.
- Raise awareness among end users about the negative consequences of antimicrobial use and possible measures to reduce it. Since there is no silver bullet to solve the issue, several measures should be combined for maximum effect.
- Reduce the need for antimicrobial use, and the spread of AMR, by implementing policies and practices to enhance animal health and welfare, and to ensure effective infection prevention and control measures in food and agriculture systems. These policies and practices should include farm biosecurity, animal husbandry and welfare measures, vaccination, targeted medication – including the use of alternatives to antimicrobials – and access to diagnostics.
- Ensure that AMR and AMR-related topics are included in school curricula and relevant professional education. Training and education should be available for farmers and animal health professionals throughout their career.
- Push for review of on-farm facilities and practices that impact animals' health and welfare. Some practices have become ingrained over the years, but this doesn't mean they can't be improved. With a fresh look and new knowledge about animals' needs, it's possible to achieve significant improvements. Direct and indirect financial incentives will help encourage this.

Find out more

To read our full report on the HealthyLivestock research project and recommendations for politicians and other decision-makers, visit <https://healthylivestock.net/result/healthylivestock-policy-brief/>

Or scan this QR code:

