

Antibiotic resistance remains a hot topic, both in humans and animals. It is estimated that more than one million people currently die each year worldwide from infections that can no longer be treated with antibiotics because of resistance. The World Health Organization WHO even considers antibiotic resistance as one of the main threats to global health and global agriculture and economy.

Infections with resistant bacteria can also occur in animals. Moreover, the treatment of animals with antibiotics is under pressure because animals can be a reservoir of resistant bacteria (or resistance genes) that impact humans.

So what exactly is the situation? And how can Kela play a positive role in this?

### What is antibiotic resistance and how does it spread?



When antibiotic resistance is mentioned, it often refers to so-called acquired resistance: a bacterial species that is naturally susceptible to the action of a certain type of antibiotic no longer is.

This is a natural defense mechanism of the bacteria, brought about in part by changes in the bacteria's DNA. Resistant bacteria can survive better in certain conditions, allowing them to spread. In addition, the genetic changes that form

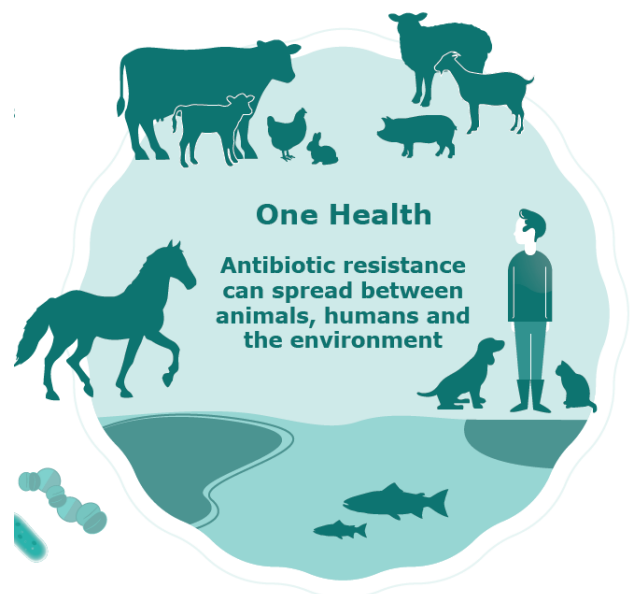
the basis for resistance can be passed on, including to other bacterial species.

The latter is important because it makes it much more likely that resistance will spread between animals, humans and the environment.

The emergence and spread of antibiotic resistance is facilitated by (excessive) use of antibiotics, and to a greater extent by 'wrong' use: too high or too low doses, a broad-spectrum antibiotic where a narrow-spectrum antibiotic would also suffice, too long or too short treatments, or preventive treatment of a large group of animals instead of treating only the sick ones.

### What can be done about this?

Most importantly, there are efforts in both the human and veterinary sectors, both locally and globally. This so-called 'One Health' approach is used at all levels: in the WHO Global Action Plan, in the European ESVAC program and in national action plans.



First, various bodies are mapping both antibiotic use and the resistance present, both in humans and animals. Efforts are being made to reduce the use of antibiotics overall and to use them

responsibly when antibiotics are used in treatment.

For example, there are antibiotics that are strictly reserved for use in humans, such as for infections where no alternative treatment is possible.

For other antibiotics that can be used in both humans and animals, categories have been drawn up. These categories are a guide for the veterinarian and indicate the preferred antibiotic to be used for a given infection. These categories consider whether one antibiotic is more or less likely to develop resistance or the importance of a particular antibiotic for humans.

While there is a strong commitment to reducing the use of antibiotics in humans and animals, it is important to note that this does not aim to use no antibiotics at all. On the contrary, the strategy aims to use antibiotics permanently, when necessary, by ensuring their long-term efficacy. Although vaccination, good management and hygiene, and some alternative treatments can help prevent bacterial infections, the ultimate treatment of a bacterial infection will almost always be using an appropriate antibiotic, in both humans and animals.

### What does Kela do?

Kela's R&D Animal Health department monitors the latest news on antibiotic resistance through all possible channels at national, European or global level. European resistance figures for our main antibiotics in cattle and pigs are tracked in scientific literature and maintained in a database. This allows us to track the resistance trend of our main antibiotics. Furthermore, Kela actively participates in the CEESA VetPath project. Within this project, different bacterial species from cattle, chickens and pigs with specific infections are collected from about ten European countries. The susceptibility of these bacteria to a range of antibiotics is tested so that we have a good picture of efficacy for our main antibiotics.

Kela subscribes to the 'One Health' approach: we want to contribute to sustainable agriculture, health and well-being of humans, animals and the environment.

Thus, the KelAcademy platform shares knowledge with and makes tools available to our customers to use antibiotics (and other medication) in the most responsible way. These tools use color coding to optimize the use of antibiotics by giving antibiotics with less risk of spreading resistance a green color.

The antibiotics that cause resistance more easily or are more important for use in humans are given a red color. In this way, it becomes clear which antibiotics are best chosen by the veterinarian as initial treatment for a given condition (green group). The 'red' group of antibiotics certainly also have their uses: if, after determining the susceptibility of a pathogenic bacterium, it turns out that it is no longer susceptible to the 'green or orange antibiotics', it can be treated with a 'red antibiotic'.

### Conclusion

Resistance of bacteria to antibiotics is a real problem for humans and animals. In order to contain and even reduce resistance, it is important to work together across all sectors to continue to guarantee and optimize the efficacy of our antibiotics. Kela is happy to contribute to this.

