# Frequently Asked Questions about Antibiotics

Antibiotics are essential for combating animal disease. There is simply no other way to treat a bacterial infection. Antibiotics treat painful illness in suffering animals and stop disease outbreaks from spreading. This means healthier animals which can provide safer milk, meat and eggs.

These medicines are among the most valuable parts of a veterinarian's kit and directly support animal health and welfare. However, antimicrobial resistance can put their effectiveness at risk, threatening our ability to respond to deadly bacterial disease.

This FAQ outlines the basics of antibiotics, how they can be used responsibly, and the progress achieved to-date in the animal health sector.

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**Animal Antibiotic Basics**

## 1. What are antibiotics?

**Antibiotics are medicines that treat or stop the spread of an illness caused by bacteria.**

Antibiotics are the only type of antimicrobial medicine[1] that are effective at fighting bacterial infections. They cannot combat other organisms such as a virus (this is why they are not prescribed for people with the flu).

Antibiotics can take different forms, but the most common are a tablet or injection. The medicine works by attacking the disease-causing bacteria, typically in a few ways:

- The antibiotic prevents bacteria from multiplying and the disease dies off;
- The antibiotic attacks the bacteria and prevents it from repairing itself; or
- The antibiotic destroys the cell wall of the bacteria, which is essential to survival.

No matter the method though, the bottom line is that an antibiotic treatment stops the growth of a bacterial infection so the host (i.e. the animal) can eliminate it. The animal can then recover and return to health.

There are several types of types or 'classes' of antibiotics. Some are effective against a wide range of bacteria, while others may target only a small set of bacteria.

In addition, certain antibiotics can be used in both people and animals, while some are only effective in animals or people.

All newer antibiotic classes that can treat people are solely reserved for use in humans, even if they are also effective in animals. This creates a limited toolkit of antibiotics available to treat a bacterial infection in an animal, which makes responsible use essential.

## 2. Is it safe to use antibiotics in livestock and pets?

**Yes. Just like human medicines, animal medicines go through a rigorous, independent safety review before ever reaching our livestock or pets.**

The average animal medicine takes around 8-10 years to reach the market. Throughout this process, safety and effectiveness are top priorities.

When developing an antibiotic, researchers conduct in-depth laboratory and field trial testing. They must ensure that the antibiotic effectively treats a bacterial infection without causing dangerous side effects.

The team will then confirm the antibiotic is also safe for the person handling it, the environment, and consumers eating food from treated livestock (following set withdrawal period [*link to below*]). They will also conduct an antimicrobial resistance 'risk analysis.'

Once the research team is confident in the safety, quality and efficacy of an antibiotic, they must then demonstrate it to governments around the globe.

The team submits studies, data and research to specialized government agencies in each nation. For example, in the U.S., it is the FDA's Center for Veterinary Medicine (CVM), while in the European Union it is the European Medicines Agency (EMA) or individual Member States.

[1] Antimicrobial includes a wider group of medicines: antibiotics fight bacteria, antivirals fight viruses and antifungals fight fungi and yeasts.

These agencies will spend 1-2 years closely reviewing this information. They may ask follow up questions, request additional data, and meet with the researchers.

If the agency agrees that the medicine is safe, effective and meets quality standards, they will issue an 'approval.'

The process does not end there though. Agencies and the company marketing the antibiotic will continue to monitor use to ensure continued safety and effectiveness.

## 3. Why are antibiotics used in animals?

**Animals get sick just like people do; antibiotics help treat the illness and stop it from spreading to other animals.**

Animals are vulnerable to some of the same bacterial infections as people, such as pneumonia and skin infections, and can be treated with antibiotics. These medicines not only treat the disease but also the animal: reducing the length of sickness reduces the animal's suffering and contributes to their ongoing welfare and wellbeing.

Livestock producers, including the one *billion* smallholders, lose countless animals each year to disease. The ability to keep animals healthy is what allows them to provide for their family.

For a developing world farmer, livestock are a form of savings and investment. Losing a single animal can put their entire livelihood, as well as food security, in jeopardy.

Meanwhile, using antibiotics to clear up infections helps ensure the meat, milk, eggs and fish in our food supply is safe and free of harmful bacteria. 'Withdrawal Periods' guard against harmful trace amounts or 'antibiotic residues' in these foods.

### ***Learn More****: Sustainable Agriculture and Responsible Antibiotic Use*

Not only is the global population growing, but more and more people are joining the middle classes. By 2030, two in three people worldwide will be considered middle-class, and this will drive an increased demand for milk, meat, eggs and fish.

Even if per-person consumption falls, this incredible growth means more production is necessary. It's why business as usual is not sustainable if we are to meet the needs of people within the changing conditions of the planet.

Livestock in many parts of the world are healthier and more productive than ever before, but the continued loss of one in every five animals to disease is simply unsustainable.

Prevention measures like vaccination, biosecurity, diagnostics and nutrition must be our first line of defence against serious illness. However, when disease slips past these defences, antibiotics remain the only way to treat a bacterial infection.

When animals are free of illness, they digest feed and process water more easily, which ultimately means they need less of both.

Healthy animals are also more productive, which means more and better-quality meat, milk and eggs per animal.

On the flipside, animals that fall ill see a sharp rise in emissions. For instance, cattle disease can increase GHG emissions by up to 24% per unit of milk and 113% per beef carcass.

What's more, radically slashing antibiotic use – such as in a 'Raised Without Antibiotics' system -- can have a negative impact on animal welfare, according to the American Veterinary Medical Association (AVMA).

Abandoning the use of antibiotics in the U.S. could also mean more than 680 million additional broiler chickens would need to be raised annually to meet demand. Such an increase would also bring added environmental pressures, needing more than 1.9 billion extra gallons of water and more than 5.4 million additional tons of feed per year.

Ultimately, responsible antibiotic use can support good animal welfare, health and sustainability, when used in combination with other tools like proper vaccination, biosecurity, good nutrition, rapid diagnostics and more.

## 4. How can antibiotics control disease outbreaks in a herd or group?

**Using antibiotics in animals at risk of disease can stop one case from becoming an outbreak.**

Detecting disease in animals is a challenging job. Livestock cannot describe their symptoms or let us know when they are coming down with an illness. Instead, veterinarians rely on other clues such as changes in behaviour or physical signs, reports of disease in the surrounding area, and the experience from previous outbreaks. But, an animal may be sick well before the symptoms are apparent or a clinical diagnosis is possible.

So, when a veterinarian diagnoses an animal with a bacterial infection, they will treat them with an antibiotic as well as assessing the risk that the infection could spread to the other animals on the farm or beyond.

Using knowledge of how diseases spread, the veterinarian may find that other animals are at considerable risk and likely to become infected or may already be ill but not showing symptoms yet. When this is the case, they may recommend an antibiotics course to control the infection in the group of animals.

Administering antibiotics to protect a herd or flock nips a disease threat in the bud rather than allowing it to take hold and cause the animal to suffer, only being diagnosed once symptoms become obvious or animals are lost.

### ***Learn More****: Picture This…*

Imagine being a veterinarian who comes across a sick pig on a farm: you discover it has a bacterial infection and prescribe a course of antibiotics.

But you also know that the infection is contagious long before visible symptoms emerge, or a clinical diagnosis is possible. Therefore, you can assume that many other animals are already sick, even if they are not yet showing symptoms.

As the veterinarian, you have a choice: wait for the other animals to begin falling visibly ill or prescribe a course of antibiotics to control the disease and stop it from becoming a full-blown outbreak.

Every situation is different but veterinarians must judge the risk to other animals of leaving them untreated in the face of an infectious disease. But if they know an animal is highly likely to already be sick, they know it is better, kinder and more cost-effective to nip that threat in the bud than to wait for an animal to visibly suffer.

## 5. Are antibiotics administered differently to animals than in people?

**Sometimes. Treating animals, especially in large groups, presents unique challenges that we rarely ever face in human medicine.**

Antibiotics for animals can be administered in the same way as for people: in a tablet or via an injection.

But while a person can usually take responsibility for their medicine, animals must be treated by a person. And anyone with a pet knows that administering a medicine to an animal can be a challenge.

Larger animals or pets are often treated individually but imagine the challenge of providing antibiotics to a group of pigs, chicken, or even fish. Veterinarians cannot simply communicate the risk of disease and ask the animals to patiently line up for a dose of life-saving medicine

When there is a disease threat in a large group, veterinarians must try to deliver what is called “group treatments”. Often, this means administering antibiotics through either feed or water to be sure the animals are receiving the treatment.

Using information about the farm, size of the animals, and feeding regime, the veterinarian can recommend the amount of medicated feed or water to provide to ensure a proper dosage.

While this method is not necessary with people, it can often be the best approach with large groups of animals, who cannot simply take a prescription to a pharmacy and start their course of treatment.

## 6. Can animals be raised without antibiotics?

**Yes, but animal welfare may suffer. Farms that do not use or cannot access quality antibiotics often have higher rates of disease and animal death.**

There are many contributing elements to disease prevention from good hygiene to nutrition and exercise but when bacterial disease strikes, there is no alternative to antibiotics. If an animal is sick and is not treated with the right medicine, the animal will suffer distressing symptoms or even death.

In some countries, some producers are shifting to ‘Raised Without Antibiotics’ or ‘No Antibiotics Ever’ systems. Consumers push for it because they believe these systems are better for animal welfare. However, farmers in a recent survey said “antibiotic-free” production systems were more harmful to animal welfare.

Those with experience on “antibiotic-free” farms reported higher levels of disease and said, at times, maintaining “antibiotic-free” status was prioritized over animal health and welfare.

The American Veterinary Medical Association’s (AVMA) Chief Economist has also estimated that ‘raised without antibiotics’ chickens have a 25-50% higher mortality rate.

When a bacterial infection strikes, it is simply not possible to care for an animal without antibiotics. We must focus on reducing the *need* for antibiotics through disease prevention and control.

*Learn More: ‘Raised Without Antibiotics’ Systems and Animal Welfare*

Shoppers in the US and elsewhere are increasingly seeing meat, milk and eggs in supermarkets labelled as “Raised Without Antibiotics” (RWA) or “No Antibiotics Ever” (NAE). This kind of certification has emerged in response to consumer demands.

In 2018, a research team evaluated whether antibiotic-free production systems upheld animal welfare. They surveyed more than 550 people directly involved in raising animals (over half in a RWA/NAE system) about the effects of such approaches.

The majority of those surveyed said these systems had negative impacts on animal health and welfare.

They believed mortality and disease rates were higher compared to conventional programs.

Some even said that, in some cases, they believed operations prioritized their RWA/NAE label over the health and welfare of animals.

The results indicated that removing antibiotics from a farm does not remove disease; animals remain at-risk. Even more troubling is that marketing decisions could lead to animals not receiving the treatment they need to stop pain and suffering.

## 7. If animals are treated with antibiotics, then are antibiotics in our food?

**Antibiotics in animals are strictly monitored to ensure no harmful 'residues' (i.e. trace amounts) are in our food. Strict 'withdrawal periods' ensure milk, meat and eggs are kept out of the food supply until an animal has sufficiently absorbed an antibiotic.**

Food safety is a cornerstone of antibiotic development and regulation. Every antibiotic has a clear 'withdrawal period' – the number of days a livestock farmer must wait after an antibiotic treatment before that animal or its produce can enter the food supply.

This withdrawal period allows time for the animal to sufficiently absorb the antibiotic. These are printed on the antibiotic label so users know how to meet their obligations. It ensures that milk, meat and eggs are free of harmful 'residues,' or trace amounts of a medicine.

Regulations surrounding withdrawal periods and 'maximum residue limits' are set and upheld internationally, and both are reviewed as part of a medicine's approval process. Governments also conduct random tests on food coming from farms for harmful antibiotic residues to ensure that withdrawal periods are being respected. Penalties for violation can be steep.

## 8. What is antimicrobial resistance (AMR)?

**Antimicrobial resistance (AMR) occurs when a disease-causing organism develops a tolerance to antimicrobials such as antibiotics and can withstand their effects.**

Most commonly, AMR refers to bacteria that are resistant to certain types of antibiotics. Resistance occurs because bacteria are hard-wired to survive.

Bacteria will fight to outlast an antibiotic treatment, and, on occasion, some may be successful. These remaining bacteria can be more 'resistant' to the treatment in the future, which means a higher dosage or different type of antibiotic may be needed.

Ever since these first antibiotic treatments, we have faced resistant infections. Recent studies have found that certain resistant strains can be traced back thousands, even millions of years. It is a natural, evolutionary defence.

Antibiotics are so important in treating many common and serious diseases that antibiotic resistance is considered one of the biggest global health emergencies. If it is not properly managed, it could put commonly used antibiotics at risk and turn minor, treatable infections into major, lasting health threats.

Responsible antibiotic use can help manage AMR though and preserve these medicines for the future. For example, using vaccines to prevent a disease instead of using an antibiotic to treat it can ultimately reduce the need for antibiotics.

As outlined in the global 'Roadmap to Reducing the Need for Antibiotics,' this type of approach offers a sustainable way to address resistance by reducing disease burden.

However, drug resistance is a threat to both people and animals, which is why strategies to contain it need a "One Health" focus. This means adopting approaches that unite doctors and veterinarians to tackle the problem in both areas at once.

### **Learn More**: Illegal Medicines and AMR

Like many sectors, veterinary medicine has a black market that deals in counterfeit or illegal products, and it is worth an estimated $2 billion every year.

But this growing market causes not only financial damage, it puts animals at risk, threatens farmers' livelihoods and contributes to the risk of antibiotic resistance.

Legitimate medicine producers have strict requirements on the quality of drugs they produce. But counterfeiters do not – for them, quality doesn't matter. They may produce or buy a legitimate antibiotic but then dilute it to create more, but weaker, doses. If this product is given to a sick animal, it simply doesn't work.

A diluted antibiotic will attack the infection but only with enough strength to kill the weakest bacteria. The rest of the bacteria will fight off the antibiotic and potentially develop a resistance to it.

When this happens, the animal is left infected with resistant bacteria thanks to this low-quality, illegal medicine, making it even harder to treat.

Sometimes, veterinarians will have to resort to powerful antibiotics that are normally saved only for the most dangerous of infections – the medical equivalent of using a sledgehammer to crack a nut.

Tracking and interrupting the flow of illegal veterinary medicines is an important step in tackling antibiotic resistance.

## 9. Does antibiotic use in animals lead to resistant bacteria in people?

**The primary driver of antibiotic resistance is antibiotic use by people. But responsible antibiotic use in animals can help limit resistance.**

Antibiotic resistance is a complex global health threat. Bacteria – resistant or not -- can pass between humans and animals but, at present, scientists' understanding of how this happens, and the frequency is limited.

It is understood that animal antibiotic use plays a role in the development of resistance but according to the European Centre for Disease Prevention and Control, the "major cause of antibiotic resistancein humans remains the use of antibiotics in human medicine.

That is why other research shows that if action is only taken in animals, AMR in people will likely remain unchecked.

The OECD also estimates that "three out of four deaths could be averted by spending just USD$2 per person a year on measures as simple as handwashing and more prudent prescription of antibiotics."

More research is needed to fully understand the relationship between drug resistant bacteria in people and animals. However, until then, both sides must prioritise responsible use and actions with measurable results.

A key element of this is reducing the *need* for these medicines, rather than simply reducing their use. This means making the most of all the measures that help prevent disease in the first place, such as vaccination, good biosecurity and husbandry practices, and appropriate nutrition. The global 'Roadmap to Reducing the Need for Antibiotics' outlines this in more detail.

### **Learn More**: What drives resistance?

The misuse of antibiotics contributes to resistance by exposing bacteria to a greater volume of antibiotics, and according to European Centre for Disease Prevention and Control: "*The major cause of antimicrobial resistance in microorganisms from humans remains the use of antimicrobials in human medicine"* and *"75% of disease linked to resistant bacteria is due to healthcare-associated infections"*

In the UK, recent research found that antibiotics were prescribed inappropriately for conditions such as sore throats in at least one case out of every 10, while the U.S. Center for Disease Control (CDC) estimates that 1 out of 3 human antibiotic prescriptions are unnecessary.

This may be why, of the 18 'Antibiotic Resistance Threats' the CDC identified, only two have potential origins in animals, or why the OECD found 'simple steps' in human health like handwashing could avert 3 out of 4 deaths from resistant bacteria each year.

But, the misuse or overuse of animal antibiotics can also contribute to resistance in animals, and there are clear steps we can take.

We must focus on getting better at preventing disease and earlier, accurate diagnosis. This means improved nutrition, strong biosecurity, regular vaccinations, and more. It also requires equipping veterinarians so they may diagnose illness faster and treat more accurately.

While it is important we take steps in animal agriculture, we cannot lose the wider picture. Only addressing this health problem in livestock farming will not solve it. We need to better understand drug resistance and its relationship to human, animal and environmental health.

**Responsible Use**

## 10. How can we reduce the need for antibiotics for animals?

**By promoting disease prevention, regular diagnostic testing, and good animal husbandry, we can reduce the need for antibiotic treatments.**

Vaccinated animals that are fed a nutritious diet on a farm with strong biosecurity and regular veterinarian visits are simply less likely to need an antibiotic.

Why? Each step reduces the risk of the animal falling ill with a bacterial infection.

Vaccines prevent disease while good nutrition bolsters an animal's immune system. Biosecurity measures, such as raising animals indoors, help stop bacteria from entering the farm.

Regular veterinarian visits ensure animal health is closely monitored by an expert, while tools like immunostimulants and improved genetics offer new ways to strengthen the animals natural defences.

If an animal does fall sick, digital technologies like wearable sensors and A.I.-powered monitoring help a veterinarian catch it even earlier. Changes in a cow's cough, which may be imperceptible to our ear, can now be the first indication of something serious.

Increasingly accurate diagnostic tools can then help veterinarians find the most appropriate treatment, which may not always be an antibiotic. Furthermore, regular diagnostics can be a powerful surveillance tool to detect bacterial disease before an illness is able to spread widely in a group or herd of animals.

To avoid negative impacts to animal welfare, we cannot simply stop using antibiotics when animals need them. But we can try to reduce the need by reducing disease risk.

The global 'Roadmap to Reducing the Need for Antibiotics' outlines this strategy in more detail.

Learn More: Reducing Antibiotic Use vs. Reducing the *Need* for Antibiotics

## 11. What is the difference between reducing use and reducing the need for antibiotics?

**Reducing antibiotic use often relies on bans, which can put animal welfare at risk, while reducing antibiotic need focuses on disease prevention.**

"Reducing antibiotic use" has become a popular mantra for tackling the growing problem of antibiotic resistance, but by itself, this solution is too simplistic. It overlooks an essential part of the conversation: animal welfare.

We could reduce antibiotic use tomorrow if we simply banned these medicines but animals – and people - would still get sick.

Simple bans and restrictions on antibiotics would leave animals to suffer from bacterial disease while veterinarians would be left on the sidelines to do nothing. It ignores an animal's right to treatment.

Reducing the *need* for antibiotics, though, tackles the same problem but without creating additional challenges. It starts from a more responsible perspective: preventing the need for antibiotics in the first place.

By better protecting animals from the threat of disease, identifying health issues earlier and treating them quickly and responsibly, we can decrease disease levels and with it, the need for antibiotics.

## 12. What are the alternatives to using antibiotics in animals?

**When an animal falls ill with a bacterial infection, there is currently no alternative to antibiotics.**

The only alternative to antibiotics is disease prevention.

Innovation in the animal health sector means there is a wide range of existing and emerging products that help keep animals in good health. These include:

- Vaccines: Researchers are working on a number of new vaccines to help protect animals from diseases. Some of these must be heat-tolerant to survive in tropical countries while others are working on multi-species vaccines.
- Nutritional products: Feed can be supplemented with products that boost the immune system of livestock, making them less susceptible to disease in the first place. Researchers have been working on feed that builds up antibodies that can be passed on to offspring.
- Parasiticides: Parasites survive by feeding on animals and can pass on disease or make an animal more susceptible to other infections. However, targeted medicines can control parasites before these organisms cause serious harm.
- Diagnostics: Enormous volumes of data are unlocking the 'prevention power' of diagnostics. These tools are allowing veterinarians to better understand animal attributes and characteristics that may put them at risk of disease and take preventative action.
- Prediction & Monitoring tools: Precision farming tools like wearable sensors, A.I.-powered video monitoring, and more make it possible to immediately detect the first signs of illness. Some can even capture indications that are not visible to the human eye.

When disease is tackled early, veterinarians can use less aggressive treatments that save stronger, more powerful antibiotics for another day.

**Learn More**: Salmon Production in Norway

Furunculosis is a devastating bacterial disease for fish. The disease causes wounds on the skin, bleeding and often death. It affects numerous species around the world, both in cold water and fresh water.

For years, it was one of the most common health problems facing fish farmers in Norway. One infected fish could spread the disease to countless others. Within days, an entire fish farm could be at risk of total loss if left untreated.

Fish farmers and veterinarians tried to take clear preventative measures, establishing restrictions in hatcheries and monitoring for the first sign of disease. But, as with all bacterial disease, furunculosis could not always be prevented.

Antibiotics were used to treat infected fish and prevent the disease from spreading throughout the entire farm.

The Norwegian Veterinary Institute in partnership with private sector stepped in and spent years developing an effective, safe vaccine. The results were transformative. As use of the vaccine spread, incidence of the disease plummeted amongst farmed Norwegian salmon.

This effective, sustainable solution was made possible through a focus on disease prevention, which reduced the *need* for antibiotics.

Simply reducing antibiotic use was not an option; fish would still have been at high risk and mortality would have sky-rocketed. They needed to reduce the cause for antibiotic use by stopping the disease before it could strike.

Today, the majority of Norwegian salmon is now vaccinated and free from furunculosis.

## 13. How can we encourage more responsible use of antibiotics?

**Producers need access to affordable and comprehensive veterinary services, products and training, while governments must support greater adoption of preventative tools.**

Veterinarians are the best stewards of antibiotics. They are trained in their use and understand how to responsibly administer them. The animal medicines industry strongly recommends that antibiotics be used under veterinary supervision.

However, this is only possible when that supervision is available. Rural, remote and developing areas simply do not have enough veterinary professionals to guide responsible antibiotic use on the farm.

While new services like tele-medicine and para-professionals are filling the gap, it is not enough. Improved access to proper, registered veterinary services is the foundation of responsible use.

Farmers and veterinarians also need access to the full range of preventative animal health products that can stave off disease before antibiotics are even needed. This includes vaccines, digital technologies, diagnostics, and more.

Farmers also benefit from training in the early signs of disease so their animals can be treated early and efficiently, and in following the appropriate treatment protocols.

## 14. How do labels help users administer antibiotics responsibly?

**Antibiotic labels offer detailed guidance that help ensure these medicines are used at the correct dosage for right duration to treat a threatening disease.**

All animal medicines, including antibiotics, come with product labels that offer guidance on how to use the medicine appropriately.

These are different from a typical consumer product label. Medicine labels are highly detailed, spanning multiple pages, offering information such as:

- **'Indications of use'**: The situations and diseases where the antimicrobial is approved for use.
- **Dosage and Administration**: Detailed instructions for how to administer the antibiotic effectively. Can include details as specific as quantity, recommended injection location, amount based on animal body weight, etc.
- **'Adverse Reactions'**: List of possible side effects from a medicine that should be monitored.
- **Withdrawal Periods**: Amount of time a user must wait after administering the antibiotic to livestock before slaughter to ensure no 'residues' or trace amounts can be found in the meat or other produce. Withdrawal periods are strictly enforced by authorities.
- **Pharmacology**: Clinical explanation of how the antibiotic functions, efficacy levels, etc.
- **Precautions/Warnings**: Cautions for the user (e.g. *Not for Human Use*) and information on what to do in case of an accident (e.g. accidental human injection).
- **Contact**: Contact information for the manufacturer to report adverse events or other issues.

Product labels are highly detailed because the objective is to help ensure these medicines are used properly, effectively and responsibly when administered to an animal.

The exact contents of labels included in the packaging are legal requirements and the language is established by national regulators.

### 15. How do companies balance antibiotics with sales of other products?

**Antibiotics are only one piece of the veterinary toolkit. Companies offer a full suite of products to prevent, diagnose and treat disease.**

A farm that reduces its need for antibiotics often does so through increased adoption of vaccines, nutrition supplements, digital technologies, diagnostics, etc.

The Animal Health sector excels at developing these innovations that can improve disease control, which better protects animal health and reduces the need for antibiotics.

It's why sales and marketing staff's incentive is to provide the right product for the producer's specific situation. This may be vaccines, nutritional supplements, diagnostics, prediction and monitoring technologies, parasite control or antibiotics.

A singular focus on antibiotic sales for a company or salesperson would not be a sound business practice. It would ignore the other needs of a farmer and pass up opportunities to provide other tools that can help improve their operation. The producer would likely turn to another company that can help provide much more comprehensive care for their animals.

## Progress in Animal Health

### 1. How is AMR and responsible use being addressed in animal health

**Antibiotic labels offer detailed guidance that help ensure these medicines are used at the correct dosage for right duration to treat a threatening disease.**

Antimicrobial resistance has been at the top of the global agenda, especially since the United Nations' *Political Declaration of the High-Level Meeting of the General Assembly on Antimicrobial Resistance*. However, the animal health sector has recognized and worked on this challenge for many years prior.

For instance, the UK Responsible Use of Medicines Alliance (RUMA) was established in 1997 and the European Platform for Responsible Use of Medicines in Animals (EPRUMA) was established in 2005. More recently, Brazil has also formed 'Aliança', a responsible use alliance in the country.

The Animal Health sector has been active and supportive of these organizations since their inception, and Our *Antibiotics Commitment* and *Roadmap to Reducing the Need for Antibiotics* demonstrate how we have worked to bring these same principles to the global level.

It's this type of work that led Lord O'Neill to describe himself as 'positively surprised' by the agricultural sphere in a Chatham House review of AMR progress.

And efforts are beginning to pay dividends. The animal health sector's *'Roadmap Progress Report'* shows that companies are delivering new R&D – as many as 50 new vaccines over two years – supporting veterinary education, and more.

The fight is certainly not over though, but this early progress coupled with the plans outlined in our *Roadmap* have provided the agricultural sector with strong momentum.

However, even if progress continues to accelerate in agriculture, the challenge of resistance will not be solved. Modelling by the University of Edinburgh found that *only* addressing antibiotic use in animals, but not people, will have "*little impact on the level of resistance in humans*."

Antimicrobial resistance is fundamentally a 'One Health' challenge that requires action from both human and animal health.

## 2. How does the food chain work together to improve responsible use?

**Responsible use coalitions in major markets bring together members of the value chain to work together to help ensure responsible antimicrobial use.**

Antimicrobial resistance has risen rapidly up the global agenda in recent years. However, the animal agriculture and wider food chain have recognized and worked on this challenge for decades in key markets.

For instance, the UK Responsible Use of Medicines Alliance (RUMA) was established in 1997 and the European Platform for Responsible Use of Medicines in Animals (EPRUMA) was established in 2005. More recently, Brazil has also formed 'Aliança', a responsible use alliance in the country.

These coalitions bring together all parts of the value chain -- farmers, veterinarians, research, retail, etc. -- to deliver improvements in responsible use, a unique approach that has not been replicated in human health.

## 3. How have antibiotic sales changed in recent years?

**Antibiotic sales have declined in many markets. However, sales are a flawed method for measuring AMR risk. If the objective is to manage resistance, then tracking resistance would provide much more actionable data.**

Antimicrobial sales have seen sharp reductions in recent years in key markets. Sales of veterinary antimicrobials have declined by:

- 34% in the EU since 2011
- over 50% in the UK since 2014
- 53% in France since 2011
- 38% in the US since 2015

Furthermore, the World Organisation for Animal Health recorded a 34% global reduction in mg/kg of animal antimicrobial use from 2015 to 2017

However, sales data is a flawed mechanism for surveillance. If the objective is to manage AMR, then tracking resistance itself provides much more actionable data. For instance, in the United States, the government has operated the 'National Antimicrobial Resistance Monitoring System' (NARMs) since 1996. This public health surveillance system samples bacteria from people, animals and foods to understand if and how bacterial resistance is evolving. It provides valuable, granular insights that allows stakeholders to take targeted action that can better manage resistance.

Sales data can indicate whether disease pressures were especially heavy one year, if outbreaks were lower than expected, types of antibiotics used in response, etc., but it cannot tell us whether bacterial resistance is developing. Only testing for resistance itself can achieve this.

## 4. How is the animal health sector meeting its responsible use commitments?

**A 2021 'Progress Report' shows the animal sector is meeting 25 measurable objectives in R&D, One Health, Communications, Cooperation, and Knowledge that can help reduce the need for antibiotics.**

In August 2019, the Animal Health sector published the 'Roadmap to Reducing the Need for Antibiotics', a strategy for addressing antimicrobial resistance and improving responsible use. It was undersigned by the world's largest animal health companies and demonstrated a unified approach to a global challenge.

The Roadmap offered a vision for decreasing disease levels, reducing the need for antibiotics and preserving welfare by fundamentally improving how we care for animals. It called for greater commitments to veterinary access, farmer training, AMR monitoring, vaccine development and more

The Roadmap also provided a 25 clear, measurable actions the Animal Health sector committed to completing by 2025. The objective was to deliver meaningful action that could help improve responsible use and address AMR.

In 2021, HealthforAnimals released a Progress Report outlining how the sector was delivering on these commitments. To-date, all are either on track, ahead of schedule or already completed. These include results like:

- 50 of 100 new vaccines delivered
- 657,000 veterinary professionals indirectly trained
- US$6.7M in veterinary scholarships, exceeding our US$5M goal

The full Progress Report provides an update on all 25 Commitments. Another version will be published in 2023.

**More Resources**

Download the following materials to learn more about antibiotics, AMR and responsible use

**Antibiotics Commitment**
The first sector-wide commitment from the animal health sector on responsible use and AMR. The Commitment outlines the core principles such as One Health and increased R&D. The Commitment is supported by leading animal health companies as well as global veterinary associations.

**Roadmap to Reducing the Need for Antibiotics**
The Roadmap offers a clear vision and strategy for reducing disease levels and thus the need for antibiotic use in animals. This includes better prevention, diagnosis and treatment of illness through better vaccine uptake, access to veterinarians, diagnostics usage and more. Furthermore, the Roadmap includes 25 actions the Animal Health sector has committed to completing by 2025.

**Roadmap Progress Report**
This Progress Report outlines the Animal Health sector's success and work to-date on the commitments made in the 2019 Roadmap to Reducing the Need for Antibiotics. Overall, all Commitments are on track for completion by 2025 and some are well ahead of schedule. Another progress report will be published in 2023.

**Codex Materials**
The animal health sector has been working at global level to complete two guidance documents under the auspices of the global food and trade organisation Codex Alimentarius. These two Guidance's set out a Code of Practice of use of antimicrobials along the food chain, and guidance on the surveillance and monitoring of antimicrobial resistance in the food chain. These will be available in the coming months.