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# Owners - Antimicrobial Resistance Education

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Antibiotics are commonly prescribed and frequently overused – leading to the increase of antibiotic resistant bacteria, making them less effective to treat common infections in you and your pet. Luckily, there are other options.

### **Key Points**

In pets and people antibiotic resistant infections can cause a more severe infection because treatment options can be limited. This leads to longer and more complex treatments, prolonged hospitalization and higher costs.

Topical therapy like antiseptic shampoos, Manuka honey and MicroSilver remain effective alternatives to antibiotics when treating resistant or non-resistant bacterial infections of the skin.

Using less antibiotics and using antibiotics only when absolutely necessary will preserve antibiotics to be use in people and pets that have no other options.

In pets, the proper use of antibiotics depends on you, the pet owner, and the collaboration with your trusted veterinarian.

### **What is antimicrobial resistance?**

An antimicrobial is a general term used for substances that can kill or stop the growth of microbes, this includes antibiotics, antifungals, antivirals, etc. The main focus of this article will be on antibiotics, which are a drug that can kill or constrain the growth of bacteria.

Antibiotic resistance does not mean the body becomes resistant to an antibiotics. It happens when the bacteria that caused an infection changes to become resistant to the antibiotic that was developed to kill it. The end game is that the antibiotic stops working. The same could happen with yeast or fungi becoming resistant to antifungals.

Antibiotics used in pets are in general the same or a similar class of drugs as antibiotics used in human medicine, even though the majority of antibiotics are specifically labeled as veterinary products. This means that bacteria that becomes resistant to an antibiotic drug (veterinary or human) can share that resistance with other bacteria that infect people, or some bacteria can infect humans and pets equally.

Pets are part of our families and we live in close contact with them sharing our environment, and yes their licks! Therefore it is important for pet owners to understand that there is a very close



and complex “cross pollination” between human and pets, and this includes the potential of sharing of antibiotic resistant bacteria.

### **Why everyone needs to take it seriously.**

Microbes that become resistant to one or many antibiotics are a major issue in the veterinary and medical fields, putting at risk the efficacy of life-saving antibiotics globally.

Antibiotic resistance is a leading cause of disease and death for people and animals worldwide. A 2019 study showed that during that year, antimicrobial resistant infections caused 1.27 million deaths and were associated with 4.95 million deaths in people around the world. In the US more than 2.8 million people per year are affected by antibiotic resistant infections.<sup>1</sup> In human hospitals in the US an estimated 622,390 cases among hospitalized patients annually are infected with a very resistant bacteria and 35,000 people die as a result of multidrug resistant bacterial infections per year.<sup>1,2</sup>

It is estimated that if we do not all work together and do our part, antibiotic resistance could have devastating consequences around the world. A study suggested that it could cause 10 million deaths and accumulated costs to the global economy of \$100 trillion by 2050.<sup>3</sup> Antibiotic resistance has been called the next pandemic!

In veterinary medicine there is not yet an extensive national database tracking antibiotic use and resistance in companion animals. But studies have shown that infections with resistant bacteria are high in some settings. For example a study in the UK demonstrated that 25% of 963,463 dogs and 21% of 594,812 cats seen at veterinary practices received at least one antibiotic over a two-year period (2012–2014) and 42% of these animals were given repeated antibiotics.<sup>4</sup> In dogs skin infections (pyoderma) is the principal reason for antimicrobial use in small animal veterinary practice.<sup>5</sup> The bacteria that most commonly cause skin infection in dogs is called *Staphylococcus pseudintermedius*. When this bacteria is resistant to an antibiotic called methicillin, it is called methicillin-resistant *S. pseudintermedius* (MRSP). It has been reported that up to 97.8% the MRSP bacteria is resistant to multiple antibiotics that are commonly used in veterinary medicine.<sup>6</sup> Concerning right!?

Antibiotics are a vital finite resource and have been described as one of the most significant achievements of modern science. Antibiotics have contributed to decreasing the burden of common infections in people, animals and even plants. Furthermore, antibiotics have allowed modern medicine to develop and perform medical procedures like complex surgery or chemotherapy, in people and pets. Losing the efficacy of antibiotics due to the rise in resistant bacteria, could make these procedures difficult to impossible to perform. Furthermore resistant infections in pets can compromise animal welfare, by prolonging suffering and sometimes the need to shorten their lives.



## **How does it happen?**

Bacteria can change to become resistant to antibiotics in a number of ways.

Some antibiotics are a product of living organisms, for example penicillin is made by a fungus. Therefore bacteria can be exposed to some of these substances in nature, and bacteria could develop resistance naturally. Scientists have found ancient bacteria that was naturally resistant to antibiotics, even though they were never exposed to the actual antibiotic drug. This is part of the normal push and pull observed throughout the natural world. Bacteria can evolve very fast and adapt to be stronger and survive adverse conditions, including antibiotics.

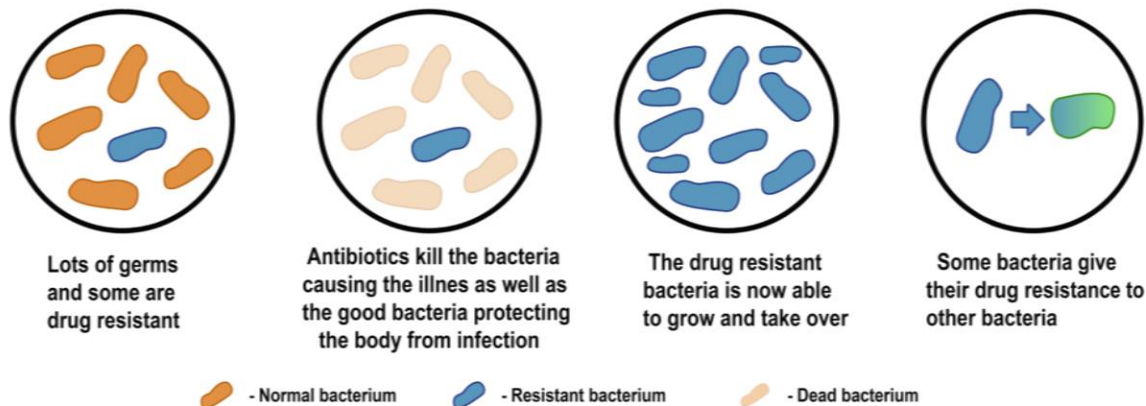
But the way antibiotics are used and overused in humans and pets, can accelerate the emergence of bacterial resistance. A common cause is the failure to complete a course of adequately prescribed antibiotics.

More importantly, taking antibiotics unnecessarily can help bacteria to evolve to become resistant to antibiotics faster. This is why it's important not to take antibiotics unless they're prescribed, and only use them for the infection they're prescribed for.

Not only antibiotics that are taken by mouth or injection induce bacterial resistance. Antibiotics applied on the skin for any little scratch or wound can also cause the bacteria that is on the skin to develop antibiotic resistance. For this reason, applying triple antibiotic ointments freely on people and pets should be strongly discouraged.

Another example is the application of antibiotic solutions applied in the ear of dogs to treat external ear infections. The over-prescription of these medications applied in the ear is contributing to bacteria (and or yeast) becoming resistant, which causes very difficult or recurrent ear infections in pets.

## HOW ANTIBIOTIC RESISTANCE HAPPENS



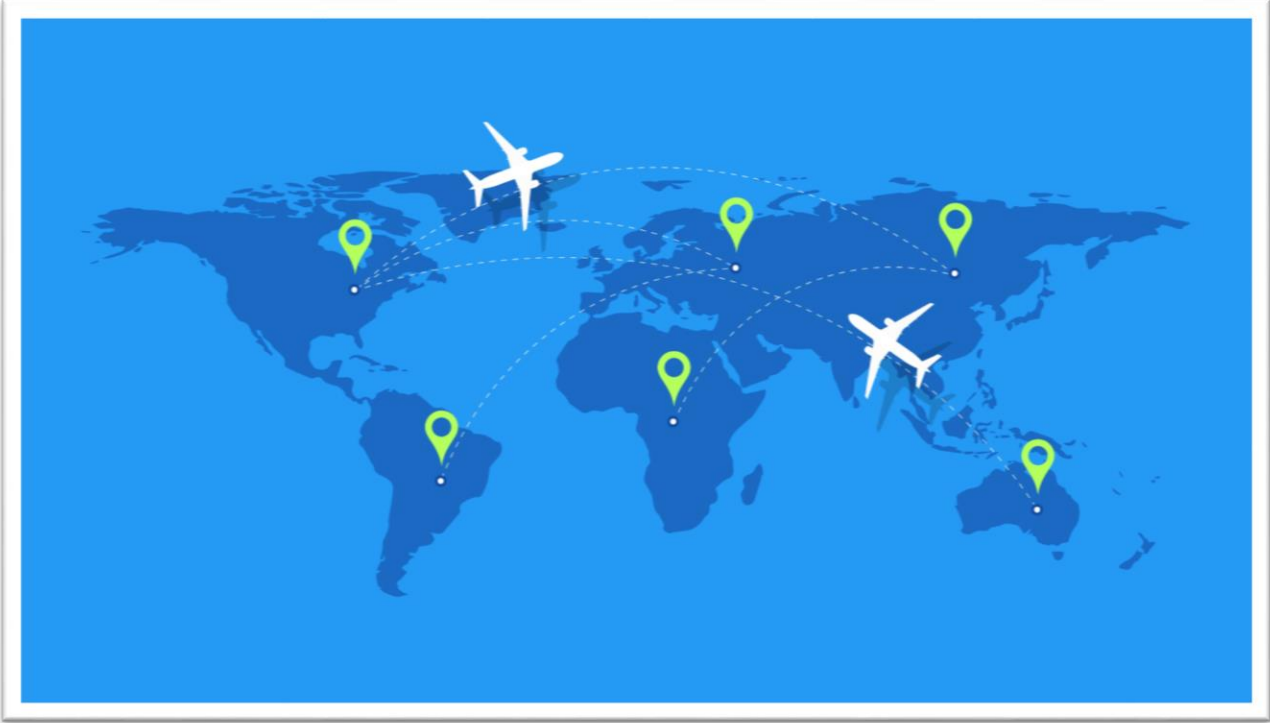
*The picture graphically represents a way by which bacteria resistant to an antibiotic could overgrow after an antibiotic is used. These bacteria that are resistant can also transfer their resistance information to other bacteria, making them resistant to that antibiotic as well.*

### Where is this happening?

Yes, antibiotic resistance is happening in your backyard!

Today with the ease of travelling, microbes can also move across the globe traveling with people and pets. As we experienced with the virus that caused the COVID-19 pandemic, this is also true for antibiotic resistant bacteria. So globalization has helped “bad bugs” spread widely.

Antibiotic resistance is a worldwide problem affecting people, animals, plants and the environment. Despite this many people, including many pet owners, are not aware of this growing problem and its consequences, hence education is fundamental.



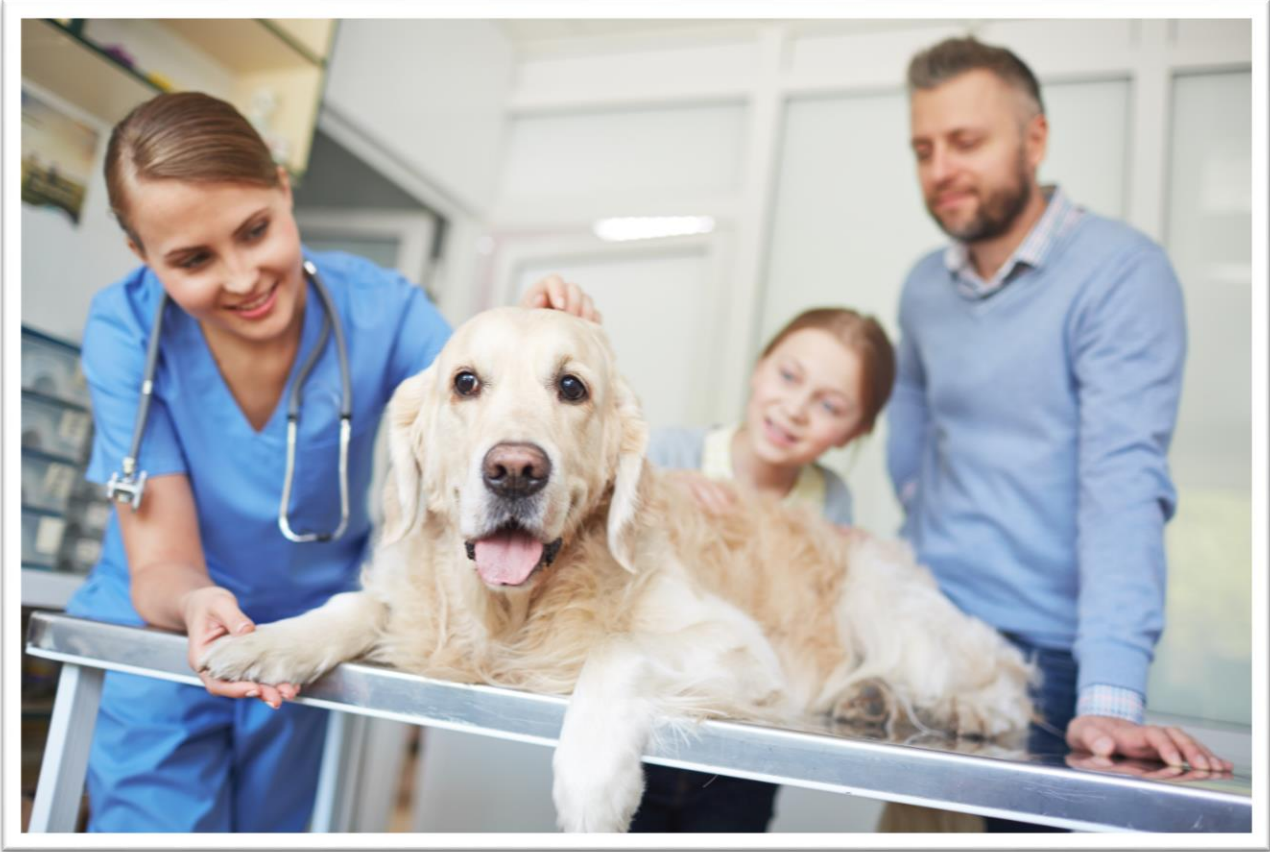
*Today it is easy for people, animals and goods to travel around the world, similarly bacteria that are resistant to antibiotics can also travel from one place to another.*

### **Role of pet owners in safeguarding antibiotics**

There is a lack of awareness for pet owners regarding the issues of antibiotic resistance. This is similar to human medicine where the general public has a superficial understanding of bacterial resistance and its negative consequences to health.

W.F. Young believes that this needs to change and the company is playing a role by getting involved by working with scientists and veterinarians to find natural healing solutions that are antibiotic-free. Everyone has a role to play, this involves the pet owners, the veterinary care team, healthcare providers and private companies, to name a few.

It all starts at home. You as a pet owner have an important role to play in helping to preserve antibiotics and use them only when prescribed and absolutely necessary. To combat antimicrobial resistance, the effective use of antibiotics depends on the pet owners and their collaboration with prescribing veterinarian. Pet owners mediate the treatment of their animals, they control antibiotic usage and other actions that can influence the appearance of antibiotic resistance in their pets.<sup>7</sup> Open candid communication during the veterinary consult between the client and the veterinary care team is paramount to discuss alternatives to antibiotics and reduce over prescription of antibiotics.<sup>7</sup>



*Developing a trusted relationship with your veterinary and having open communication is fundamental for a two way education about improving antibiotic use.*

### **Veterinarian - owner partnership to improve antibiotic use**

Communicating with your trusted veterinary care team about options to treat your pet and when an antibiotic is needed or non-antibiotic options can be used.

Remember not all sickness needs to be treated with antibiotics, sometimes the body can heal on its own with time and supportive care. This is for example what happens with most colds in people and pets. Colds are normally caused by viruses and antibiotics have no effect on viruses. Another example is skin infections in pets or hot spots that can be treated with antibiotic-free alternatives like Silver Honey®, a wound care product that treats skin conditions using natural ingredients Manuka Honey and MicroSilver. This alternative allows the vast majority of superficial skin infections to be treated without antibiotics. Pet owners should discuss these options with their veterinarians.



*Applying Silver Honey® to wounds, abrasions and superficial skin infections instead of an antibiotic ointment is important to decrease the use of antibiotics and bacterial resistance.*

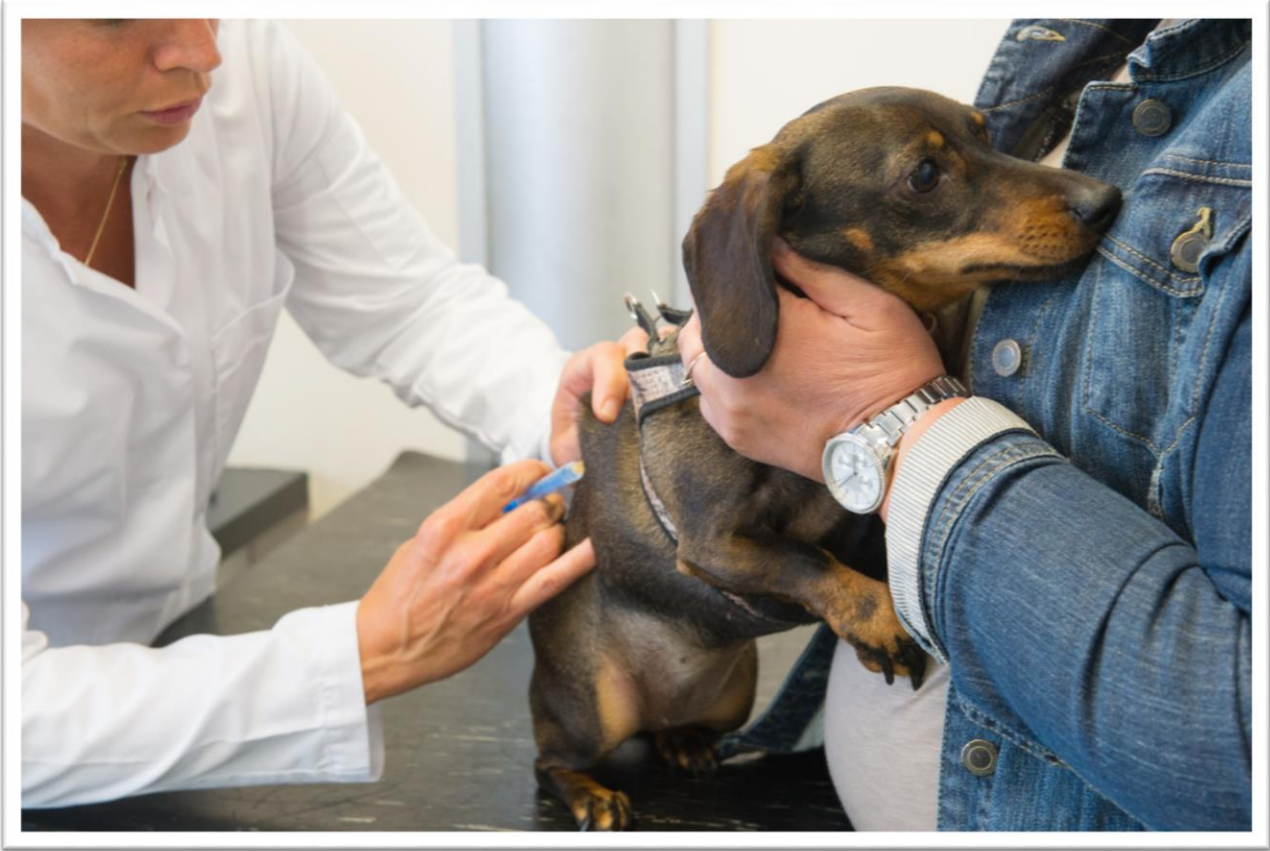
### **Prevention is KEY**

Simple measures like proper hand washing, is one of the best ways to stop infections, avoid getting sick, and prevent spreading germs. Always wash your hands after touching, feeding, or caring for animals, and keep your animals and pets healthy. Hand washing is very important when cleaning a wound, hot spot or your pets' ears.

Vaccinating animals and people is an important measure for preventing disease and lowering the need to use antibiotics. For example vaccinating dogs against flu and Bordetella, two common



respiratory diseases, lowers the chances for them to get sick and decreases the need for antibiotics to be prescribed.



*Vaccines play a key part of preventive care for your pet. Keeping your pet up to date on vaccines lowers the need for antibiotics.*

Dogs with skin allergies are more prone to develop skin and ear infections. Talk with your veterinarian about managing your pet's skin allergies routinely and over the pet's life. This will improve your dog's quality of life and minimize secondary complications like hot spots or ear infections. If these complications occur, then be proactive and start addressing the condition with products that contain proven natural antimicrobials like Silver Honey®.

### **Use of alternative therapies to antibiotics**

Studies have shown that cats are more likely to be treated with powerful injectable antibiotics. It is probable that cat owners prefer injectable antibiotics because cats in general are hard to administer oral medications to. But it could also be possible that veterinarians encourage the administration of injectable antibiotics. A commonly used long acting injectable antibiotic (cefovecin) for cats is an antibiotic considered by the World Health Organization to be a highest



priority critically important antibiotic in human medicine.<sup>8</sup> Which means that this antibiotic must be reserved for patients where no other possible treatments exists and should not be the first drug that veterinarians and owners think of when treating a cat with a bacterial infection. Many cats affected with superficial skin infections, wounds or abscess are being treated or over treated with this very important antibiotic.

Wounds, skin infections or abscesses could often be treated successfully without the need to use antibiotics. For example an abscess in a cat could be surgically drained, cleaned and topical non antibiotic products like Silver Honey® be applied for 7 to 14 days.

Wounds in pets are common and owners tend to apply human antibiotic creams. These over the counter antibiotic cream products, contain... you guessed it, antibiotics! These should not be used indiscriminately for every case. Rather than antibiotics, reach for safer and effective over the counter products like Silver Honey®.

Silver Honey® wipes, shampoo, ointment or spray gel can be successfully used for the treatment of skin infections (hot spots) more commonly seen in dogs. Sometimes the veterinarian will prescribe an antiseptic shampoo to treat extensive skin infections, this can be used in combination with Silver Honey® spray gel to help heal the affected areas quickly. Hence sparing the use of antibiotic drugs and preserving it for cases that really - really - really need antibiotics.

Pet owners could perceive topical therapy for the treatment of skin conditions in their pets as more difficult to apply which in turn could negatively affect compliance. There are many advantages for early and frequent use of topical therapies to treat superficial skin infections in pets. Some of the advantages are:<sup>5</sup>

- Faster healing of the lesion
- If the pet needs to be on antibiotics, combining it with topical treatment, decreases the duration of oral antibiotic administration
- Shampoos help to remove bacteria and yeast from the skin surface
- Topical therapies are in general safer and have minimal adverse effects
- Microbial resistance to topical therapies is very rare
- Topical therapies can also help to restore the skin back to normal

Veterinarians are gaining awareness of bacterial resistance affecting pets with skin infections, current recommendations are to treat superficial skin infections with topical therapies. For example a dog presented to a veterinary clinic with a “hot spot” can be successfully treated with topical Silver Honey® Spray Gel applied twice daily for 7 to 14 days. Clipping the hair on and around the affected area is recommended to improve the contact of the spray gel with the affected skin. Depending on the severity of the skin infections, sometimes a topical treatment will be combined with an oral anti-inflammatory to decrease the skin inflammation and itching. If the skin infection is affecting larger areas of the body, bathing with Silver Honey® medicated shampoo then applying Silver Honey® Spray Gel is a great option to speed healing. Sometimes

if the pet is licking at the affected area excessively, then a cone around the head or a doughnut around the neck, could be used to prevent further injury of the affected skin.



*When bathing your pet, make sure that the shampoo is rubbed into the fur and allow contact with the skin. If a contact time for the shampoo is needed set a timer before rinsing. Remember if your dog is itching bathing helps remove allergens sitting on the skin. If your dog has an infection bathing helps remove bacteria and cleans the skin. Using warm water could activate the itching, so when bathing use cool or cold water to wash and rinse.*

By empowering pet owners to take preventative measures to remove allergens and bacteria from their pet's skin and seek alternative non-antibiotic remedies for treatments they can do at home, we can all do our part to help decrease the overuse of antibiotics and help slow the progression of resistance.



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## Resources

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