

FAAST

FARMED ANIMAL ANTIMICROBIAL STEWARDSHIP

Animal Owner Reference Manual

OCTOBER 2018



Table of Contents

This manual provides a series of information sheets (or FAASTsheets) reviewing the upcoming policy and regulatory changes related to antimicrobials, along with key tools and recommendations for reducing antimicrobial use without compromising animal health or food safety.

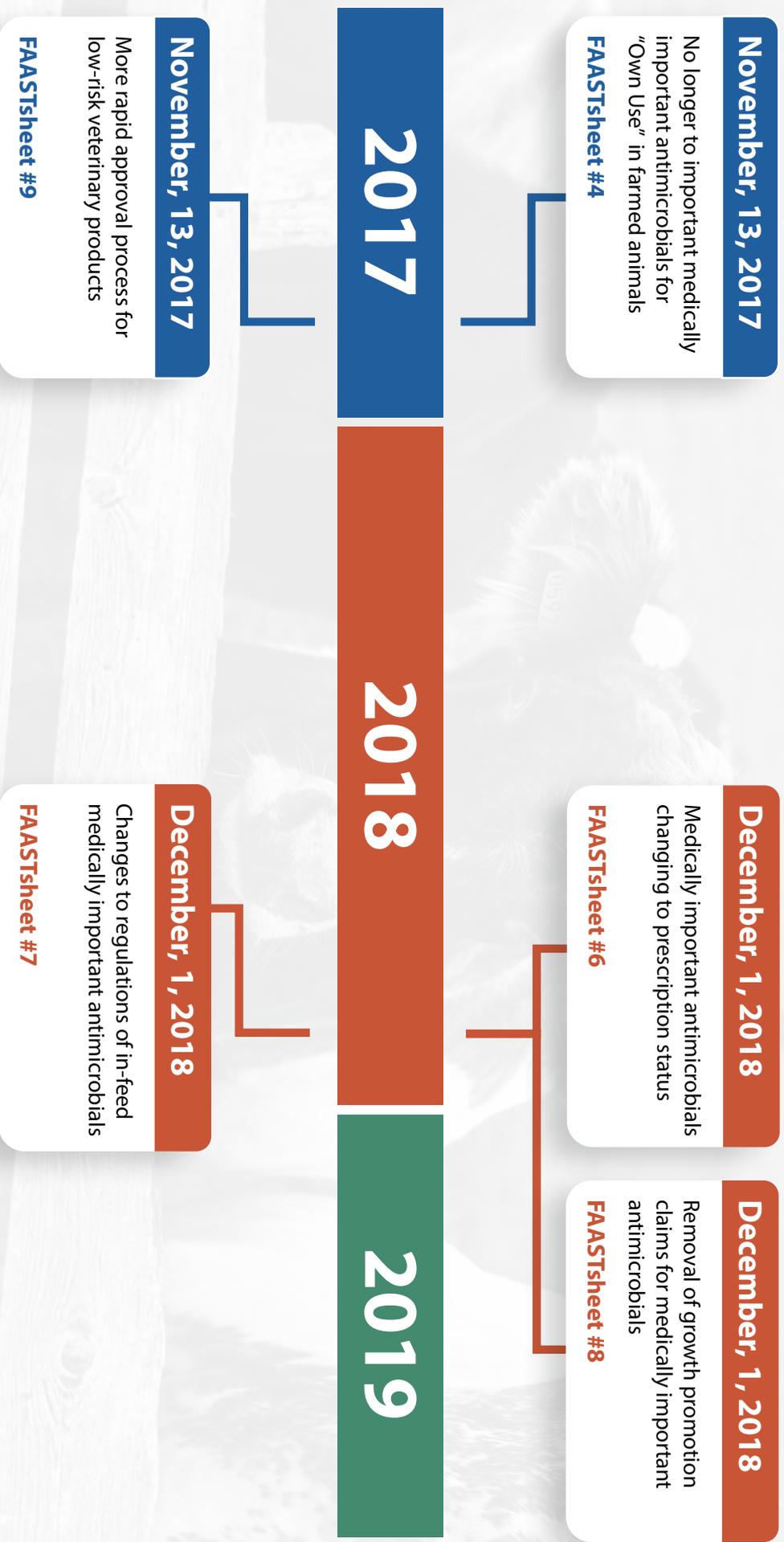
FAASTsheet	Page
01 - Antimicrobial Resistance: What is it and Why is it so Important?	1
02 - You & Your Veterinarian	6
03 - Categorization of Antimicrobial Drugs	10
04 - "Own Use" Importation of Drugs for Use in Farmed Animals	13
05 - Veterinarian-Client-Patient-Relationship (VCPR) in Ontario	15
VCPR Case Study - VCPR and Smallholder Chicken Flocks in Ontario	17
VCPR Case Study - VCPR and Aquaculture in Ontario	20
VCPR Case Study - VCPR and Beekeeping in Ontario	23
VCPR Case Study - VCPR and Beef Production in Ontario	27
06 - Medically Important Antimicrobials Changing to Prescription Status	31
07 - In-feed Antimicrobials and Working with Commercial Feed Mills	35
08 - Removal of Growth Promotion Claims for Medically Important Antibiotics	40
09 - Changes to Veterinary Health Products	43



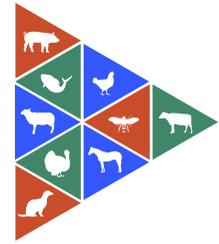
FAAST
FARMED ANIMAL ANTIMICROBIAL STEWARDSHIP

Stewardship today for a sustainable tomorrow.

Health Canada has introduced new rules to make it easier to bring low-risk Veterinary Health Products to market to help provide animal owners with better access to more tools to help keep animals healthy.



Antimicrobial Resistance: What Is It and Why Is It so Important?



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 1 of 9

What are Antimicrobials?

Antimicrobials are drugs that kill or slow the growth of microorganisms (such as bacteria, fungi, parasites, and viruses). The term 'antimicrobials' is most commonly used to refer to antibiotics, which are used against bacteria, but this term also applies to antivirals, antifungals and

Antimicrobials have helped satisfy a growing demand for animal protein by improving the efficiency of livestock and poultry production. Antimicrobials are important tools for farmers when it comes to preventing and treating illness in their animals.

What is Antimicrobial Resistance?

The widespread use of these drugs in humans and animals has led to antimicrobial resistance, which limits or removes our ability to treat human and animal illnesses with the drugs we are used to using.

Antimicrobial resistance (**AMR**) refers to microorganisms (such as bacteria) having the ability to survive even when drugs designed to kill them or limit their growth are present.

AMR can spread - The resistant microorganisms that survive in the presence of antimicrobials continue to multiply, creating whole populations of resistant microorganisms. Bacteria can also spread their resistance to other species of bacteria by sharing small pieces of their DNA.



Why is AMR Important?

It's estimated that over 2 million human illnesses are caused by AMR infections in the USA each year, resulting in approximately 23,000 deaths². Globally, it is estimated that 700,000 die from AMR infections each year³.

If AMR continues to spread unchecked, by 2050 approximately **10 million** people could die from AMR infections every year³ (**Figure 1**).

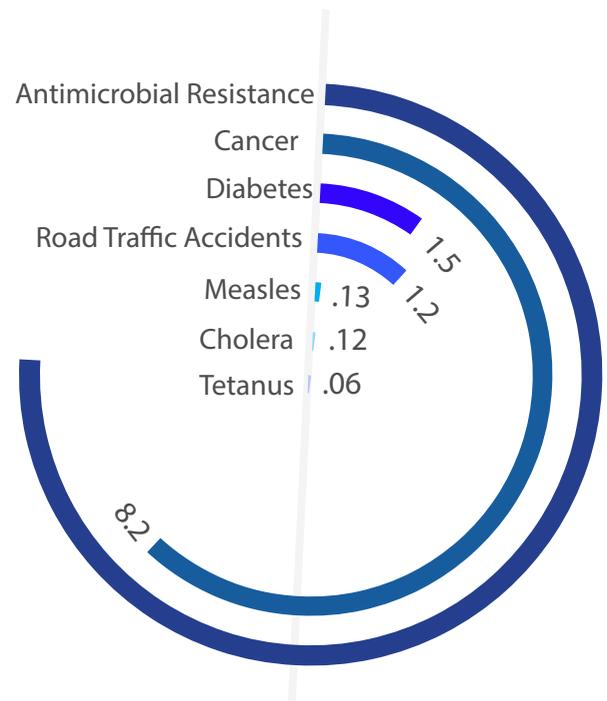


Figure 1. Projected number of deaths due to antimicrobial resistance and other causes in 2050³

Why Should I Be Concerned About AMR?



Animal health: An increase in resistant microorganisms means infections in animals become harder (or impossible) to treat, which leads to increased animal illness and death.



Human health: Resistance in animals can spread to humans and lead to infections in people that harder (or impossible) to treat. They spread from animals to humans by:

- Direct contact between farm workers and animals⁴;
- Contamination of foods of animal origin (e.g. meat, milk, eggs)⁵;
- Contamination of the environment with animal manure (e.g. runoff, fertilizer)⁶.



There is clear evidence that antimicrobial use (**AMU**) in animals plays a role in the development of AMR in humans⁴. Therefore, it is of utmost importance that we take action to minimize the development of AMR in animal populations.

Everyone who uses or prescribes antimicrobials has a role to play in fighting the spread of AMR

Preserving the Efficacy of Antimicrobials

The Public Health Agency of Canada has developed a strategy, ["Tackling Antimicrobial Resistance and Antimicrobial Use: A Pan-Canadian Framework for Action"](#), to address AMR in human and animal populations. This framework focuses on:

- 1 Surveillance** - Tracking AMR and AMU in humans and animals in Canada.
- 2 Infection Prevention and Control** - Communication on how to prevent and control illness, such as the use of biosecurity practices in livestock, which reduces the need to use antimicrobials in the first place.
- 3 Antimicrobial Stewardship** - Designing programs focusing on education, awareness, and regulatory oversight to reduce inappropriate prescribing and dispensing of antimicrobials in humans and animals, and to promote other means of maintaining health and preventing infections.
- 4 Research and Innovation** - To better understand the development of AMR and develop new antimicrobials and alternatives to fight and prevent infections.

Important Definitions

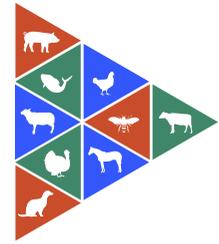
TERM	DEFINITION
Antimicrobials	Those natural or synthetic compounds that kill microorganisms (i.e. bacteria, fungi, parasites, viruses) or slow their growth.
Antibiotics	Antimicrobials that have activity against bacteria .
Antimicrobial Stewardship	The multifaceted approaches required to sustain the efficacy of antimicrobials and minimize the emergence of AMR ⁹ .
Antimicrobial Use (AMU)	The employment of antimicrobial agents to kill or slow the growth of microorganisms.
Antimicrobial Resistance (AMR)	The multifactorial process by which microorganisms (bacteria, fungi, parasites, viruses) naturally have, develop or acquire elements that enable them to survive in the presence of those antimicrobials (antibiotics, antifungals, anthelmintics, antivirals) designed to kill them or slow their growth.
One Health Approach	This approach to public health problems recognizes that the health of humans, animals, and the environment are deeply interconnected. Any health problem spanning the human-animal- environment interface necessitates a coordinated, collaborative, multidisciplinary and cross-sectoral approach to realize an effective solution.

References

1. Public Health Agency of Canada. Tackling Antimicrobial Resistance and Antimicrobial Use A Pan-Canadian.; 2017.
2. CDC. Antibiotic resistance threats in the United States, 2013. CDC Rep. 2013.
3. O'Neill J. Tackling drug-resistant infections globally: final report and recommendations. Rev Antimicrob Resist. 2016;(May):84. doi:10.1016/j.jpha.2015.11.005.
4. Tang KL, Caffrey NP, Nóbrega DB, et al. Restricting the use of antibiotics in food-producing animals and its associations with antibiotic resistance in food-producing animals and human beings: a systematic review and meta-analysis. Lancet Planet Heal. 2017;1(8):e316-e327. doi:10.1016/S2542-5196(17)30141-9.
5. PHAC. Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) Annual Report - Antimicrobial Resistance. Public Health Agency Canada, Guelph, Ontario. 2014.
6. Chang Q, Wang W, Regev-Yochay G, Lipsitch M, Hanage WP. Antibiotics in agriculture and the risk to human health: how worried should we be? Evol Appl. 2014;n/a-n/a. doi:10.1111/eva.12185.
7. Holmes AH, Moore LSP, Sundsfjord A, et al. Understanding the mechanisms and drivers of antimicrobial resistance. Lancet. 2016;387(10014):176-187. doi:10.1016/S0140-6736(15)00473-0.
8. Page S, Prescott J, Weese S. Antimicrobial resistance: The 5Rs approach to antimicrobial stewardship. Vet Rec. 2014;175(8):207-208. doi:10.1136/vr.g5327.
9. Giguere S, Prescott, JF, and Dowling, PM. Antimicrobial therapy in veterinary medicine. 2013. Fifth edition, Wiley Blackwell. Ames, Iowa, U.S.A. pp. 118.



You and Your Veterinarian



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 2 of 9



Managing the health and well-being of your animals is a team effort, and starts with you and your veterinarian.

Animal Health & Veterinary Medicine

Your role:

As an animal owner, you play a critical role in animal health. Your daily routines, feeding, housing, and handling play a role in the health and well-being of your animals. Your knowledge of your animals, practices, team, and facilities enable you to be an effective manager.

Your veterinarian's role:

As an animal owner, you play a critical role in animal health. Your daily routines, feeding, housing, and handling play a role in the health and well-being of your animals. Your knowledge of your animals, practices, team, and facilities enable you to be an effective manager.



Good communication with your animal health team members is crucial to effective prevention and control of health issues, and management of your animals during times of illness.

Antimicrobial Stewardship

Antimicrobial resistance (**AMR**) has been called the global health crisis of our time. We must all use antimicrobials responsibly and practice good antimicrobial stewardship to address this issue; stewardship means:

- 1 Responsibility** – everyone who uses antimicrobials is responsible for using them appropriately. This is especially true for veterinarians, who administer, prescribe, and dispense antimicrobials on a regular basis.
- 2 Reduction** – reduce the use of antimicrobials in an effort to slow or reverse the development of AMR. This includes preventative practices to reduce the risk of infectious disease, such as vaccination and biosecurity.
- 3 Refinement** – properly evaluate the illness, choose the right drug, and use it correctly to maximize the chances of success.
- 4 Replacement** – whenever possible, seek out effective alternatives to antimicrobials.
- 5 Review** - periodically review practices to make sure actions are appropriate and in line with current science and standards.

New regulations call on veterinarians to be leaders in antimicrobial stewardship, to help animal owners tackle the threat of AMR.



Work with Your Veterinarian!



It starts with a conversation

- Making the right animal health decisions starts by establishing and maintaining a Veterinarian-Client-Patient Relationship (**VCPR**) with your veterinarian.

➤ As of December 1st 2018, a VCPR will be necessary to access medically important antimicrobials (**See Animal Owner FFASTsheet #5**).

Prevention is the first line of defence

- Establishing and reviewing your current management practices with your veterinarian is key to ensuring you're doing what you can to prevent disease, and reducing the need for antimicrobials in the first place.

Antimicrobials are just one of many tools in your animal health toolbox

- It's important to weigh all treatment options. When antimicrobials are needed, your veterinarian can help you to choose the one that is most appropriate.

Establish and follow treatment protocols

- Work with your veterinarian to establish standard operating procedures to

Establish and follow treatment protocols

- Science, disease, and best practices are always evolving. Talk with your veterinarian on a regular basis; these discussions will help ensure you have a tailored plan that is designed to be effective for your animals and your unique operation.

What's Changing for Veterinarians?

While changes to the prescription status of medically important antimicrobials impact both veterinarians and animal owners, there are additional federal regulatory requirements that also impact some veterinarians. These include annual reporting of antimicrobial sales to the government and additional licensing if they import and handle Active Pharmaceutical Ingredients.

For more information visit:

- Active Pharmaceutical Ingredients - **Veterenarian FAASTsheet #6**
- Sales Reporting for Veterinarians - **Veterinarian FAASTsheet #10**

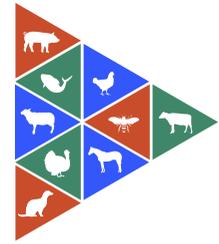


For More Information

Visit www.amstewardship.ca



Categorization of Antimicrobial Drugs



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 3 of 9

Understanding Antimicrobials

Governments around the world have recognized the growing threat that antimicrobial resistance (**AMR**) has on our ability to treat infections in humans

Why is this so important for animal health? Many of the same antimicrobials used to treat and prevent infections in human medicine are also used in animals.

Some antimicrobials are more important than others for treating people. Health Canada classifies them into four categories, based on whether:

1

The antimicrobial is a preferred option for treating serious infections in humans

and

2

The antimicrobial is a 'last resort' drug with few or no alternative treatment options available



Table 1. Health Canada Categories for Antimicrobials

Category	Importance to Human Medicine	Why?
I	Very High Importance	These antimicrobials are essential for the treatment of serious human illnesses. Very few or no alternatives are available if these don't work.
II	High Importance	These antimicrobials treat a variety of serious infections. Alternatives are generally available if needed, including Category I antimicrobials.
III	Medium Importance	These antimicrobials treat a variety of less serious infections. Alternatives are generally available, including Category I and II antimicrobials.
IV	Low Importance	These antimicrobials are not currently used in human medicine.

Most Important

↑

↓

Least Important

Antimicrobials in Categories I, II, and III are considered medically important antimicrobials (MIAs)



While AMR is a concern for all drug products, we are most concerned with preventing resistance to medically important antimicrobials (Category I, II and III antimicrobials)

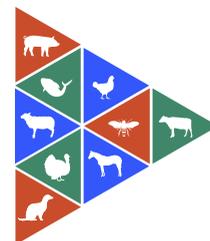
What drugs fall into these categories?

The Canadian Animal Health Institute, the Animal Nutrition Association of Canada, and industry partners have developed a useful table to identify the key antimicrobials that fall into each category. Visit <https://www.cahi-icsa.ca/antimicrobial-stewardship> to view this image in full.

Table 2. Health Canada Classification of Antimicrobial Agents Based on Level of Importance in Human Medicine

Category	Class (example)
Category I Very High Importance	<ul style="list-style-type: none"> • Carbapenems (Imipenem) • Cephalosporins (3rd &4th gen)(Ceftiofur) • Fluoroquinolones (Enrofloxacin) • Glycopeptides (Vancomycin) • Glycyclines • Ketolides • Lipopeptides • Monobactams • Nitroimidazoles (Metronidazole) • Oxalolidinones • Penicillin-β-lactamase inhibitors (Amoxicillin/Clavulanic Acid) • Polymixins (colistin, polymixin B) • Therapeutic agents for TB
Category II High Importance	<ul style="list-style-type: none"> • Aminoglycosides (Gentamycin) • Cephalosporins (1st and 2nd gen - Cefapirin) • Fusidic acid • Lincosamides (Lincomycin) • Macrolides (Tulathromycin) • Penicillins • Quinolones (except fluoroquinolones) • Streptogramins (Virginiamycin) • Trimethoprim/sulfamethoxazol
Category III Medium Importance	<ul style="list-style-type: none"> • Aminocyclitols (Streptomycin) • Aminoglycosides • Bacitracins • Fosfomycin • Phenicols (Florfenicol) • Sulphonamides (Sulphathiazole) • Tetracyclines (Oxytetracycline) • Trimethoprim
Category IV Low Importance	<ul style="list-style-type: none"> • Flavophospholipols (Bambermycin) • Ionophores (Monensin)

“Own Use” Importation of Drugs for Use in Farmed Animals



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 4 of 9

What Is Changing and When?

What?

Animal owners are no longer able to import medically important antimicrobials (**MIAs**), and most other veterinary drugs, for use on their own animals. **What is an MIA? See Animal Owner FAASTsheet #3.**

When?

January 1, 2018

Why Is This Changing?

Traditionally, there has been limited oversight by regulators and veterinarians of medications imported by animal owners for use in their own animals.

Oversight is needed to ensure drugs are used appropriately and of good quality to reduce the risks posed to food safety, animal health, and the development of antimicrobial resistance.





What Should You Do Right Now?

You are no longer able to import MIAs and most other veterinary drugs from other countries, even if you only intend to use them on your own (farmed) animals. Farmed animals include cattle, sheep, goats, pigs, chickens, horses, fish, bees, and mink.

As of December 1, 2018, animal owners will need to purchase MIAs from a veterinarian, pharmacy, or feed mill (for medicated feeds only) within Canada. A prescription will also be required to obtain any MIAs.

See Animal Owner FAASTsheet #6.

List B includes certain, limited exceptions to this rule. These drugs can continue to be imported for own-use in food animals.

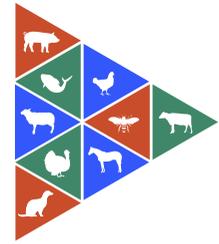
- An [application](#) can be submitted to include specific drugs on this list if they meet certain criteria.

For More Information

Visit www.amstewardship.ca



Establishing a Veterinarian-Client-Patient-Relationship in Ontario



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 5 of 9

What is a Veterinarian-Client-Patient Relationship?

A strong Veterinarian-Client-Patient Relationship (**VCPR**) is key to providing the best possible care for your animals

Having a VCPR:

- Means you have a formal relationship and regularly work with a veterinarian; this relationship is centered around your animal(s).
- Means you have discussed the types of services your veterinarian is willing to provide to you and you are aware of how to access veterinary care in the event of an emergency.
- Proves that your veterinarian knows you, your animals, and your production practices. This helps your veterinarian to diagnose animal health problems and prescribe the most appropriate treatment when needed, such as antimicrobials.



In short, a VCPR means that you and your veterinarian work together, and that you've agreed how you'll work together, and on what aspects of your operation (including emergency situations).

What Else Should You Know?

Your veterinarian must establish a VCPR with you before providing any treatment or veterinary services, such as providing animal health recommendations, prescribing, dispensing, or administering drugs (unless it's an emergency).

- **See Animal Owner FFASTsheet #5 for more details about the expectations of a VCPR**

You need a VCPR to get prescriptions from your veterinarian: As of December 1st, 2018, a veterinary prescription will be required to obtain any drug product containing a medically important antimicrobial, so you must have a VCPR to access these products.



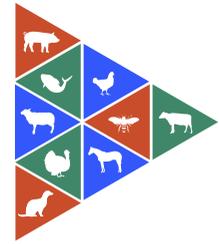
Want to learn more on these changes?

- **What is a medically important antimicrobial? Animal Owner FFASTsheet #3**
- **Want more information on prescriptions? Animal Owner FFASTsheet #6**

What Should You Do Right Now?

If you don't already have one, establish a working relationship (**VCPR**) with a veterinarian in your area to prepare for December 1st, 2018.

Case Study: VCPR and Smallholder Chicken Flocks in Ontario



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

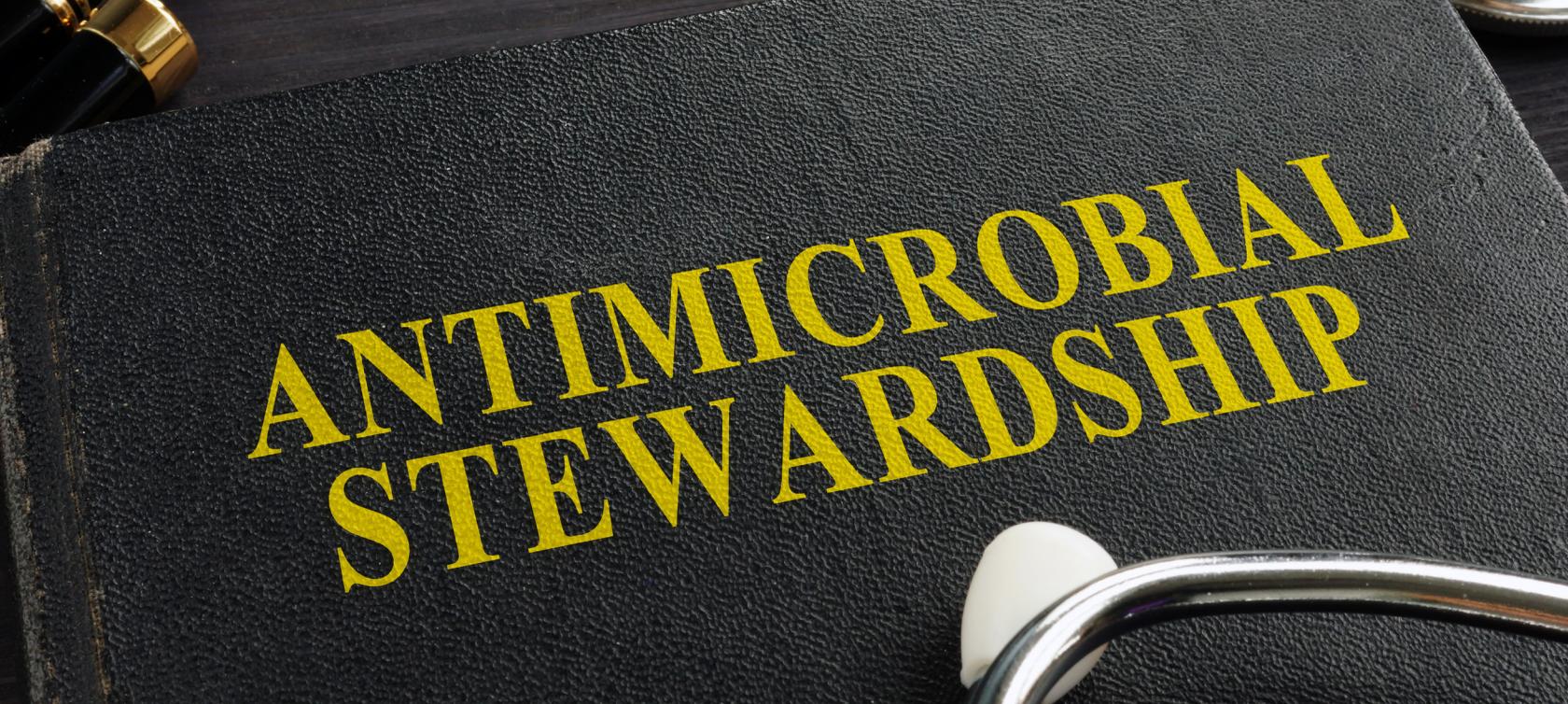
VCPR Case Study

The following case study reviews the establishment and maintenance of a valid Veterinarian-Client-Patient-Relationship (**VCPR**) between a veterinarian and a poultry producer. Bullet points are provided throughout the case study to point out key actions and discussions important to establishing and maintaining a valid VCPR in Ontario.

Case Outline

Lorne Michaels and his family have recently started farming broiler chickens under the “Local Niche Markets Program” administered by the Chicken Farmers of Ontario. This program allows producers to grow between 6,000 and 60,000 meat birds per year for a well-defined local market. Lorne has secured contracts with a small regional chain of restaurants that focus on sourcing and serving local food. Lorne grew up on a broiler farm and is quite knowledgeable about broiler feeding and husbandry. The family has made a sizeable investment to construct a barn that will finish approximately 30,000 broilers per year. Lorne started production in September of 2017 and, despite a few setbacks at the beginning, has been doing quite well. One such setback was a suspected outbreak of necrotic enteritis (NE, caused by *Clostridium perfringens*) that hit his second cohort at around four weeks of age. He lost 15% of his birds before the outbreak was over. Lorne had seen NE before and was able to control the outbreak through medicating the drinking water with penicillin bought at the feed store.





ANTIMICROBIAL STEWARDSHIP

Fast-forward to December 15, 2018: Lorne is experiencing what he believes is another outbreak of NE in a new broiler flock. Only a few birds have died so far, but he would like to treat the birds to prevent further morbidity and mortality. He finds out that, given the new antibiotic regulations, he is no longer able to purchase the penicillin at the feed store, so he calls Dr. Reginald McVail, the local mixed animal veterinarian, for a prescription. Dr. McVail is not a poultry veterinarian, however he has an interest in poultry medicine, and has worked with small broiler flocks in the past.

Dr. McVail ensures that, before any recommendations are made, he informs Lorne of the need to establish a valid VCPR before he can make any recommendations or treatment decisions for her flock. Over the phone, Dr. McVail lets Lorne know that he needs to visit the farm, conduct an investigation (which may include physical exams, post mortems, and potentially laboratory testing) and discuss the services he can provide and those Lorne would like him to provide for his flock. Lorne indicates he understands and agrees to have Dr. McVail out to the farm.

- We would now consider Dr. McVail to have accrued sufficient knowledge of the flock through relevant history and inquiry.

Dr. McVail informs Lorne that he is willing and able to perform flock health monitoring, including flock health visits, over-the-phone consultations, post mortem exams, follow-up visits and emergency services, as well as helping her to develop standard operating procedures and additional biosecurity protocols for the farm.

- Dr. McVail has now outlined the scope of the services he will provide to Lorne and his level of availability in the case of emergencies or adverse drug reactions.



Dr. McVail and Lorne agree to work together going forward, and now have a valid VCPR.

- Lorne (the client) has now agreed to retain the services of Dr. McVail.

Dr. McVail goes on to examine several sick birds and conducts four post mortem examinations on animals found dead that morning. He collects samples for submission to the diagnostic laboratory.

- Dr. McVail has now accrued sufficient knowledge of the flock through a thorough inspection of the birds, premises, post mortem examinations, and diagnostic tissue submission.

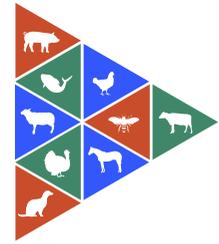
Based on his finding on post mortem exam, he makes a tentative diagnosis of necrotic enteritis, and prescribes and dispenses bacitracin that he believes is therapeutically indicated for administration in the drinking water. Before he does so, he discusses his expectations from lab testing, other possible differential diagnoses, benefits and risks of treatment, the costs associated with diagnostics and treatment in this case, and the risks associated with not treating the birds. He checks in with Lorne verbally as he goes to ensure that he understands everything he is saying.

- Dr. McVail is ensuring that the requirements for informed consent are being addressed before treating Lorne's flock.

Lorne agrees to follow Dr. McVail's recommendations, and to let him know over the next few days if the treatment appears to be working or not, and if there are any unexpected adverse reactions in the birds. Throughout the meeting, Dr. McVail takes notes that he will keep on file at the clinic as part of the medical record.

- Dr. McVail has now ensured that the additional requirements of prescribing, dispensing, or administering a drug are met.

Case Study: VCPR and Aquaculture in Ontario



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

VCPR Case Study



The following case study reviews the establishment and maintenance of a valid Veterinarian-Client-Patient-Relationship (**VCPR**) between a veterinarian and an Ontario fish farmer. Bullet points are provided throughout the case study to highlight key actions and discussion points essential to this process.

Case Outline

Dr. Donald Blake practices large animal, predominantly bovine, medicine in a small town near Georgian Bay, Ontario. Recently, he has received a number of calls from fish farmers concerned that their current veterinarian will no longer be offering services throughout the province. Dr. Blake knows there are a number of large hatcheries within his practice area, and upon hearing this news he was eager to get involved with and gain additional knowledge about Ontario aquaculture.

After some searching, Dr. Blake found and enrolled in an online course on aquaculture medicine. The short course provided a wealth of information and resources that he can incorporate into his practice with fish farmers. He was also able to establish correspondence with one of the other veterinarians involved in the course who has several years of experience working in freshwater aquaculture.



Subsequently, Dr. Blake contacts one of the trout operations that had reached out to him and informs its manager that he is willing to serve as their veterinarian. Dr. Blake then arranges a meeting at the operation.

During the on-site meeting, Dr. Blake discusses with the owner, George Bell, the scope of the medical, consultative, and diagnostic services that he is comfortable providing, including instructions on how to contact the clinic in case of treatment concerns or other emergencies. Dr. Blake also informs George that all of his services must be in line with the practice standards set out by the CVO.

- Dr. Blake has reached an agreement with George as to the scope of the services to be provided by the veterinarian;
- Dr. Blake ensures that he is readily available in case of treatment concerns, and informed George of how to access services outside of the regular practice hours, in accordance with the CVO After-Hours Care policy statement.
- Dr. Blake advised George that services will only be provided in accordance with the standards of practice of the profession.

George agrees with all of these discussion points, and tells Dr. Blake that he wishes to become a client.

- Dr. Blake has been retained by George (the client).

While Dr. Blake is at the hatchery, George shows him a group of fingerling that have been experiencing above-average mortality rates. Water temperature in the group is averaging 13C. Relying on his newly-acquired knowledge and skills in fish medicine and pathology, Dr. Blake assesses the group and examines several dead fish. A few fish have deep ulcers on the surface of the exposed skin and extend into the musculature of the body wall. Dr. Blake also notes exophthalmia, distended abdomens, and petechiae at the base of the fins of several fish. Internally, Dr. Blake notes edematous kidneys and one fish has an enlarged spleen. The liver in some of the fish appears pale, and there are signs of peritonitis with more petechial hemorrhages. Dr. Blake is strongly suspicious of furunculosis and sends several tissues to the diagnostic lab for confirmation. In the meantime, Dr. Blake sends a prescription to the local feed mill for florfenicol to be added to the feed to prevent further losses.

- Dr. Blake has attained recent and sufficient knowledge of the operation and the group of fish in question to provide veterinary services. What constitutes “**recent and sufficient knowledge**” is a matter of Dr. Blake’s professional judgment in each case. When making a diagnosis or prescribing, administering, or dispensing a drug, **recent and sufficient knowledge** is a matter of:
 - History and inquiry **and**:
 - I. a physical examination of the fish, **or**
 - II. medically appropriate and timely visits to the premises where the fish are kept to reach at least a general or preliminary diagnosis.

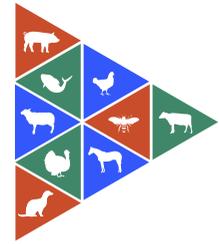
Test results soon confirm the presence of *Aeromonas salmonicida* (furunculosis) in the hatchery.

George continues to work with Dr. Blake on an ongoing basis to improve his biosecurity, standard treatment protocols, vaccination strategies, and general management practices that will ensure his fish remain healthy and productive. They schedule monthly meetings to ensure the lines of communication remain open.

- Dr. Blake continues to maintain recent and sufficient knowledge of George’s operation to enable him to provide veterinary services, including prescriptions for medication when



Case Study: VCPR and Beekeeping in Ontario



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

VCPR Case Study



The following case study reviews the establishment and maintenance of a valid Veterinarian-Client Patient-Relationship (**VCPR**) between a veterinarian and an Ontario beekeeper. Bullet points are provided throughout the case study highlight key actions and discussion points essential to this process.

Case Outline

Wendy Nogard is an experienced beekeeper who has been maintaining her own bee yard for many years. She has managed outbreaks of varroa mites in her colonies, and recently has seen variable overwinter losses, like many beekeepers in Ontario. She also treats her colonies twice a year with oxytetracycline in order to prevent American Foul Brood from infecting her colonies, as she knows there have been affected yards in her region. Wendy periodically has discussions with fellow beekeepers and industry experts at the University of Guelph about different management strategies and how to keep her bees healthy, but she has always purchased her supplies and medications from her local apiary supply store (a licensed Livestock Medicine Outlet). Being active in the provincial beekeeper association, she knows that medically important antimicrobials are only going to be available by veterinary prescription as of December 1st, 2018, but she had never worked with a veterinarian before.

Wendy knows that if beekeepers can only obtain medically important antimicrobials through their veterinarian, more veterinarians are going to need to get involved in apiculture in Ontario. Wendy has kept tabs on the most recent initiative by the Ontario Beekeepers' Association (**OBA**) to provide training for private veterinarians on basic apiculture principles. The College of Veterinarians of Ontario also began keeping a list on their website of veterinarians who are interested in working with bees and beekeepers. Using this list, Wendy was able to find such a veterinarian in her region - Dr. Sara Malvo.

Dr. Malvo is a practicing small animal veterinarian who has always had an interest in insects. Her undergraduate degree was in zoology, and when she heard that veterinarians would have the opportunity to work more with apiculturists, she jumped at the chance to learn more.

- While bees are considered a food animal, bee medicine can be practiced from any type of accredited veterinary facility by a veterinarian who has received training in bee health.

Dr. Malvo is a practicing small animal veterinarian who has always had an interest in insects. Her undergraduate degree was in zoology, and when she heard that veterinarians would have the opportunity to work more with apiculturists, she jumped at the chance to learn more.

- While bees are considered a food animal, bee medicine can be practiced from any type of accredited veterinary facility by a veterinarian who has received training in bee health.

Wendy called Dr. Malvo about the possibility of obtaining prescriptions for the necessary antimicrobials needed for treating her colonies. Dr. Malvo noted that in order for her to prescribe and dispense medications, or offer any veterinary services, they must first establish a valid veterinary-client-patient relationship (**VCPR**).





- Dr. Malvo has made Wendy aware of the need to establish a VCPR prior to recommending and/or providing treatment or veterinary services (including the prescribing, dispensing, or administering of drugs) for any animal, group of animals, herd or colony.

Wendy and Dr. Malvo then have a conversation regarding the services Wendy wants and those that Dr. Malvo can provide, including emergency services and prescriptions, and that these services need to comply with professional practice standards for veterinarians. Although there are few, if any, medical emergencies in apiculture that require immediate treatment, emergency services would also cover unexpected mortality or disease issues that may need to be addressed outside of regularly scheduled communications.

- Dr. Malvo has:
 - Reached an agreement with Wendy as to the scope of the services to be provided.
 - Advised Wendy that services will only be provided in accordance with the standards of practice of the profession.

Wendy agrees with the scope of services discussed and agrees to work with Dr. Malvo as her veterinarian. Wendy also provides her with some key information about her bee yard, including her provincial bee yard registration number, and the approximate number of colonies she has (realizing that this will fluctuate over and between seasons).

- Dr. Malvo has been retained by Wendy (the client).

A couple of weeks later it's late winter, and Wendy calls again to speak to Dr. Malvo regarding American Foulbrood (**AFB**) (*Paenibacillus larvae*) prevention in her colonies. During the production season, Wendy checks her colonies regularly for signs of AFB, including dead, off-colored (coffee-brown) larvae in capped cells, and irregular brood patterns. She is fortunate to have avoided infection of any of her colonies with AFB, as she knows other beekeepers who have had to burn hives and equipment and quarantine other colonies as a result of this disease. Wendy would like to treat her colonies in the spring with oxytetracycline to help prevent AFB.

Dr. Malvo confirms that Wendy uses appropriate management practices to minimize the introduction of AFB into her yard. She also discussed with Wendy the steps that will need to be taken if she does detect any signs of AFB in her colonies, including submitting dead larvae to the diagnostic lab for confirmation of the disease, and informing the provincial apiarist of any suspicions of AFB. Dr. Malvo then agrees that preventative treatment for AFB in Wendy's area in the spring and fall is prudent. She discusses with Wendy exactly how and when the treatment will be applied as part of a standard operating procedure. If there is a need to use the drugs in at some other time or in some other manner, Wendy will call Dr. Malvo to discuss it first.

Dr. Malvo wishes to prescribe oxytetracycline for Wendy's colonies; however, she practices 3 hours away and is unable to visit the premises. Under new exemptions to the VCPR practice standard for apiculture, Dr. Malvo can nonetheless prescribe antibiotics for Wendy's colonies.

- Recently, the College of Veterinarians of Ontario established an exemption to the requirement for physical exams or regular visits to the apiary, as neither of these requirements are considered essential to the sound practice of apiary medicine.

Before providing the prescription, Dr. Malvo fulfilled all of the following requirements:

1. Confirm Wendy's provincial bee yard registration number;
2. Confirm the number of colonies that require treatment;
3. Discuss and confirm Wendy's production management practices;
4. Discuss and establish standard operating procedures for antimicrobial use in diseases requiring treatment, such as AFB;

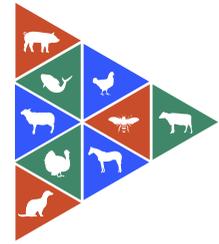
Be available to Wendy in case of an adverse reaction. Dr. Malvo also informs Wendy of the potential side-effects of oxytetracycline in bees, and reiterates that the treatment is strictly preventative – once a colony shows signs of AFB it cannot be salvaged, and the colony and equipment must be burned to prevent spread to other colonies in her yard and in other yards. Wendy understands this and appreciates Dr. Malvo's thoroughness and agrees to the treatment regime.

- Dr. Malvo has obtained Wendy's informed consent for managing AFB in her operation

Because Dr. Malvo's clinic is so far from Wendy's yard, rather than drive to the clinic to pick up the medication, Dr. Malvo arranges to have it couriered from the clinic directly to Wendy's location.



Case Study: VCPR and Beef Production in Ontario



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

VCPR Case Study

The following case study reviews the establishment and maintenance of a valid Veterinarian-Client-Patient-Relationship (**VCPR**) between a veterinarian and an Ontario beef producer. Bullet points are provided throughout the case study to highlight key actions and discussion points essential to this process.

Case Outline

Hugo Drechsel is a retired high school teacher who always wanted to own his own cattle. When he was growing up, he worked extensively with his uncle who had a small cow-calf operation, so he already had a reasonable amount of knowledge and experience with managing cattle. As an avid outdoorsman, he was attracted by the Beef North cow herd expansion program in Northern Ontario. Using his life savings as leverage to obtain business expansion grants provided by the Northern Ontario Heritage Fund Corporation, Hugo was able to buy a farm and 100 pregnant cows outside of Cochrane, Ontario.

Though the winters are long, Hugo enjoys the quiet solitude offered by the north. He has now been in Northern Ontario for 3 years and his operation and cows are thriving. Although he's had his share of losses and a few sick animals every season, thanks to advice from his uncle and some help from his neighbor, he has never needed to call a vet out. The worst health challenge he has faced is pasture footrot, for which he was able to purchase long acting oxytetracycline at the Cochrane Co-op to treat the affected animals.



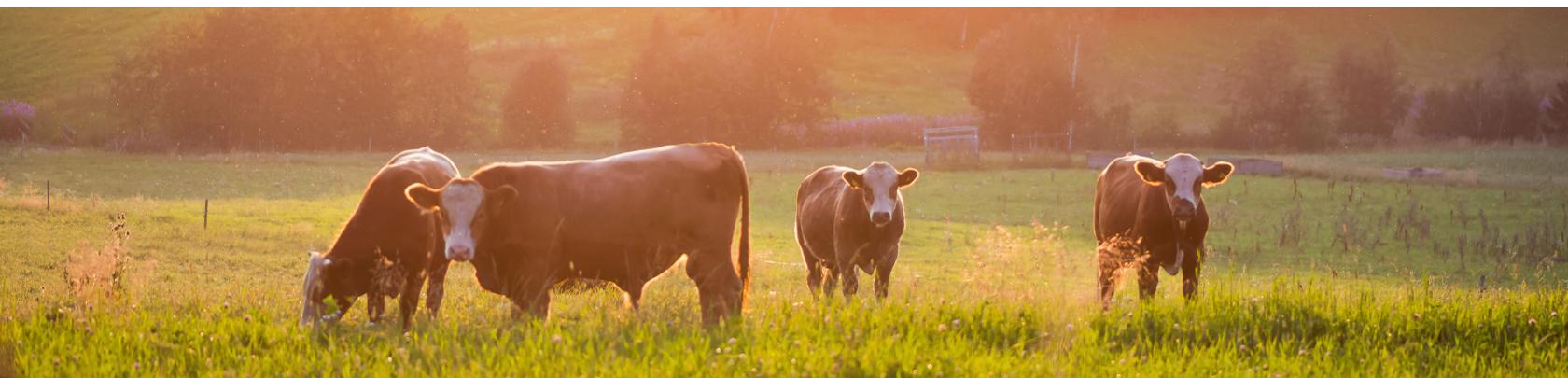
On his latest trip to pick up a bottle of penicillin to treat a lame cow, Hugo is surprised to see a poster telling him that, as of December 1st 2018, he will no longer be able to purchase antibiotics at the co-op. The poster further informs Hugo that he will need to start working with a veterinarian to obtain a prescription prior to purchasing any antibiotics for his cattle and he will need to purchase those antibiotics from his veterinarian, or through a registered feed mill if they are mixed into feed.

Hugo talks to some friends and discovers that there is an excellent veterinary practice about 2 hours from his farm. Hugo calls the clinic to speak with a veterinarian, Dr. Eugenia Lebreck. Dr. Lebreck outlines the scope of services that the veterinary clinic can offer within the standards of the profession, including telephone consultation, developing a vaccination program and standard operating procedures for treating sick animals, nutrition advice, pregnancy diagnostics, breeding soundness evaluations, and emergency services when animals are sick, injured or having calving problems. Hugo is pleased with these offerings and agrees to retain the services of Dr. Lebreck and her clinic.

- Dr. Lebreck has:
 - Reached an agreement with the Hugo as to the scope of the services to be provided by the veterinarian;
 - Advised the client that services will only be provided in accordance with the standards of practice of the profession.
 - Been retained by Hugo (the client);

Dr. Lebreck also informs Hugo that, due to his location relative to the clinic, emergency response time might be several hours. She assures him that if he calls the clinic number for an emergency of any sort (e.g. adverse drug reaction, calving, etc.), including after hours, that they will get to his farm as soon as possible.

- Dr. Lebreck ensures that she is readily available in case of an adverse reaction to a drug or a failure of a treatment regimen, and informed Hugo as to how he can access services outside of the clinic's regular practice hours, in accordance with the College of Veterinarians of Ontario's After-Hours Care policy statement.





Hugo mentions to Dr. Lebreck that he has a lame cow with a swollen leg that has not responded to penicillin. He asks if Dr. Lebreck could prescribe a different antibiotic for the cow and have it delivered to the farm tomorrow. Dr. Lebreck informs Hugo that she will need to visit the farm before dispensing any drugs for treatment. Although she has established a valid VCPR with Hugo, she needs to first visit the farm to have sufficient knowledge of the farm, animals, and management before prescribing any medications. Hugo understands this and schedules a visit for the following day.

- When making a diagnosis or prescribing, administering, or dispensing a drug, **recent and sufficient knowledge** is required, which is a matter of:
 - History and inquiry **and**:
 - a physical examination of the animal or group of animals, **or**
 - medically appropriate and timely visits to the premises where the animal or group of animals are kept to reach at least a general or preliminary diagnosis.
- As Dr. Lebreck has not been to the farm and is not familiar with Hugo's management and diagnostic abilities, it is necessary for her to visit the farm and examine the animal in question prior to diagnosing the ailment or prescribing and dispensing an antibiotic.

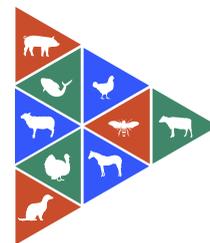


During the farm visit, Dr. Lebreck examines the lame cow and discovers a large hematoma in the upper leg. She treats the cow with an anti-inflammatory, dispenses an additional dose for Hugo to give the cow tomorrow, and advises that she be kept in a pen by herself for a few days. Dr. Lebreck then walks through the herd with Hugo, discussing various health management strategies. She teaches Hugo some important skills for disease recognition and treatment (i.e. conducting physical exams, handling medications). Over the following weeks, she and Hugo work together to create some standard operating procedures for common ailments, so that Dr. Lebreck doesn't need to drive out to the farm every time an animal is sick, but can still be confident that Hugo can identify the illness and treat his animals in these cases.

- Dr. Lebreck is establishing recent and sufficient knowledge of Hugo's herd for the provision of veterinary services. What constitutes "**recent and sufficient knowledge**" is a matter of the professional judgment of the veterinarian in the individual case. By discussing critical points about disease recognition and management, Dr. Lebreck can be more confident in Hugo's ability to identify and manage sickness in his herd, further strengthening their VCPR.

Hugo is pleased with their conversation, and agrees to have Dr. Lebreck out to the farm again for a herd health visit in the fall.

Medically Important Antimicrobials Changing to Prescription Status



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 6 of 9

What Is Changing and When?

What?

A veterinary prescription will be required to obtain any drug product containing a medically important antimicrobial (**MIA**).

MIAs are specific drugs (such as Penicillin) that are preferred options for use in human medicine, with few alternatives.

See **Animal Owner FAASTsheet #3**.

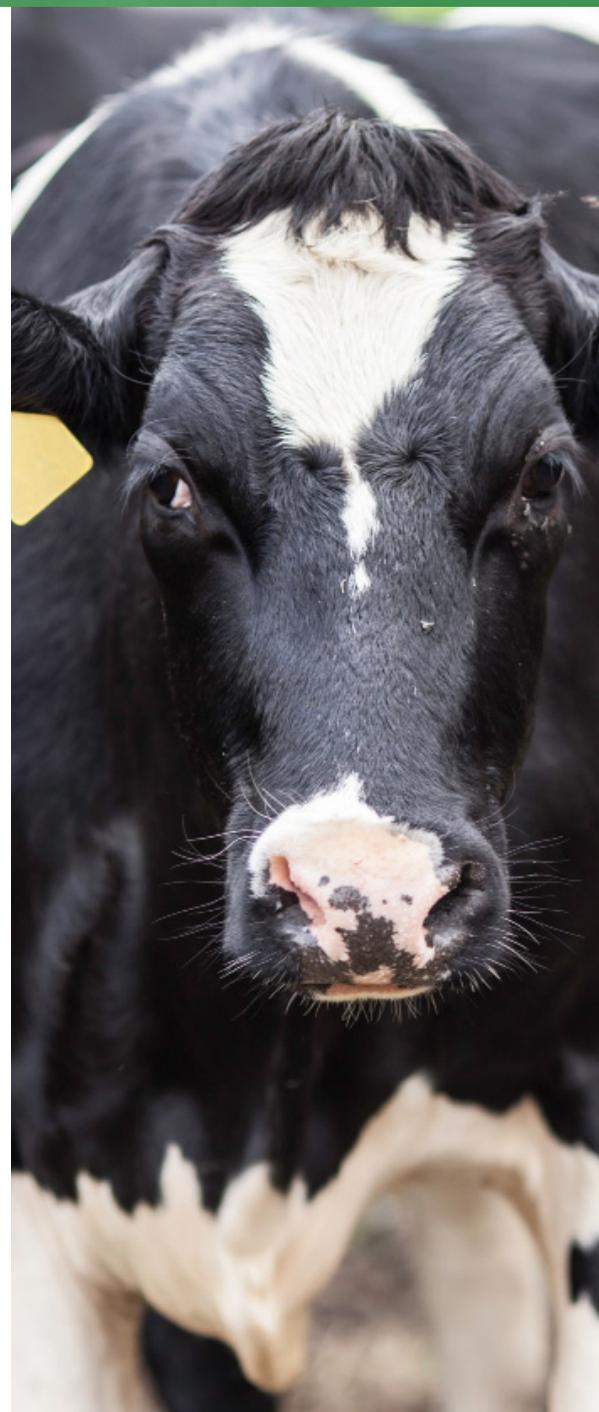
When?

December 1, 2018

Why Is This Changing?

Extensive use of antimicrobials in humans and animals has increased the emergence of antimicrobial resistance, making our current antimicrobials less effective in the prevention and treatment of illnesses.

Veterinarians play an important role in overseeing when and how antimicrobials are used in animals, which can help avoid inappropriate and unnecessary use of these important drugs, while still protecting animal health and food safety.



What Do These Changes Mean for Animal Owners?

As of December 1st, 2018:

MIA drug products (including injectable, oral, topical and DIN drug premix for mixing in feed yourself) will only be available for purchase once you have a veterinary prescription for your animals.

- You are no longer able to import veterinary drugs including MIAs from other countries, even for use on your own (food) animals. What does this mean? **See Animal Owner FAASTsheet #4.**
- These changes do not affect access to non-MIAs such as ionophores and coccidiostats

What Else Do You Need to Know?

You need to establish a Veterinarian-Client-Patient-Relationship (**VCPR**) in order to get a prescription from a veterinarian to access any prescription drugs. **See Animal Owner FAASTsheet #5.**

Prescription drugs can **only** be sold or dispensed by a veterinarian, a pharmacist, or by a federally registered commercial feed mill if the drug is first mixed in feed.



How It Works:

1. Establish a VCPR



2. Get a prescription for MIAs from your vet



- ### 3. Purchase MIAs from
- Your vet
 - A pharmacist
 - A commercial feed mill (**ONLY if the drug is first mixed in feed**)

Buying MIAs After December 1st, 2018

Buying from a livestock medicine outlet

You will **no longer be able to purchase** any medically important antimicrobial drugs at these locations.

Buying from a veterinarian

You will be able to buy MIA drugs from your veterinarian who prescribed the medication. The medication may be dispensed by your veterinarian on-farm, picked up at the veterinary clinic, or your veterinarian may also offer delivery to your farm. Talk to your veterinarian about the options available to you.

Buying from a pharmacist

You may be able to buy some of these products from a pharmacy **IF** the pharmacy carries veterinary products **AND** you have a prescription from your veterinarian.

- However, at this time, there are very few pharmacies that carry veterinary products licensed for use in farmed animals.

Buying from a feed mill

MIAs that are **already mixed in feed** can be purchased from a feed mill but you will need to provide a prescription from your veterinarian.

- You will no longer be able to purchase MIA drugs to mix in feed yourself (i.e. a DIN drug premix) from livestock medicine outlets or feed mills, but you can purchase them from your veterinarian once you have a prescription.

What Should You Do Right Now?

If you don't already have one, establish a Veterinarian-Client-Patient Relationship with a veterinarian in your area before December 1, 2018. **See Animal Owner FFASTsheet #5.**

Talk to your veterinarian about treatment and prevention protocols on your farm. This includes talking about more than just antimicrobials and drugs!



If you don't already have specific treatment protocols, work with your veterinarian to establish some.

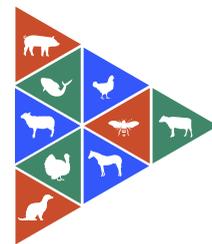


If you do have treatment protocols, review them with your veterinarian to see if there are any ways they can be improved, in particular if there are ways to decrease reliance on antimicrobials.



Talk about the antimicrobials and other prescription drugs that you use for your animals on a regular basis, when and how often they are used, and ways your veterinarian can help make sure you can access these products in a timely way when they're needed.





FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 7 of 11

In-feed Antimicrobials and Working with Commercial Feed Mills

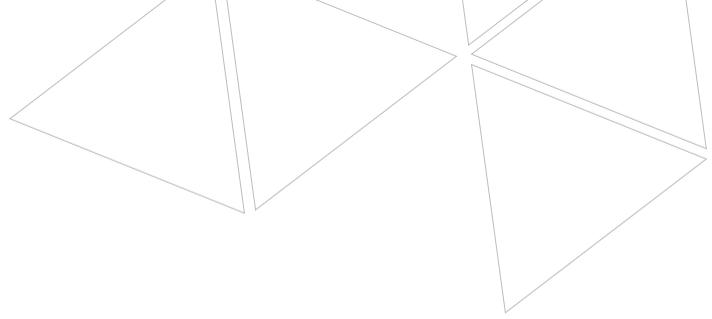
What Is Changing and When?

What?

1. You will need a prescription to purchase any product, including medicated feed, containing a medically important antimicrobial (**MIA**).
 - a. MIAs are specific drugs (such as Penicillin) that are preferred options for use in human medicine, with few alternatives.
See Animal Owner FAASTsheet #3
 - b. How do you get prescriptions? **See Animal Owner FAASTsheet #7**
2. Growth promotion claims on drug products containing MIAs for use in food animals are being removed. Use of these products for growth promotion or feed efficiency will no longer be allowed, but most products can still be prescribed by your veterinarian for prevention or treatment of disease, if needed.

When? December 1, 2018





Why Is This Changing?

To reduce the development of antimicrobial resistance, it is important to avoid misuse or unnecessary use of MIAs. Therefore:

- Health Canada is moving all MIAs to the prescription drug list so that veterinarians can better oversee their use.

See Animal Owner FAASTsheet #6

- Drug manufacturers agreed to remove growth promotion claims from their products, as use for growth promotion is not necessary to keep animals healthy and productive.

How Does This Affect Availability of Medicated Feeds from Feed Mills?

As of December 1st, 2018 commercial feed mills will:

- No longer be able to sell any mixed feeds (complete feeds, supplements, macro premixes, micro premixes) containing MIAs to producers without a prescription.
- Be able to floor-stock medicated mixed feeds that are prepared according to the [Compendium of Medicating Ingredient Brochures \(CMIB\)](#). This will help feed mills to quickly provide standard medicated feeds when a prescription is provided.
 - Medicated feed not listed in the CMIB (i.e. off-label) will be made to order by the mill once you provide a prescription from your veterinarian, which may have an effect on how quickly animal owners can obtain medicated feed.

What Do These Changes Mean for Animal Owners?

You **must have a prescription** from your veterinarian to purchase medicated feeds containing MIAs.

- Commercial feed mills can only sell MIAs if the drug is first mixed in feed **AND** you present a prescription for the feed written by your veterinarian

DIN drug premixes (i.e. unmixed in-feed medications for mixing on-farm) will **ONLY** be available through a veterinarian or a pharmacist, with a prescription.

What Else Do You Need to Know?

If you do not routinely work with a veterinarian, you will need to establish a Veterinarian-Client-Patient-Relationship (**VCPR**) so your veterinarian can prescribe drugs for your animals when needed. **See Animal Owner FAASTsheet #5.**

You can no longer use MIAs to promote growth or feed efficiency. MIAs may only be used for treatment, prevention and control of illness. **See Animal Owner FAASTsheet #8.**



How do you access MIAs and prescription medicated feed? See **Figure 1** below for a flow chart by the Animal Nutrition Association of Canada:

This flow chart illustrates the flow, as per federal and provincial laws and regulations, of prescription DIN drug premixes and prescription medicated feed in Canada**.

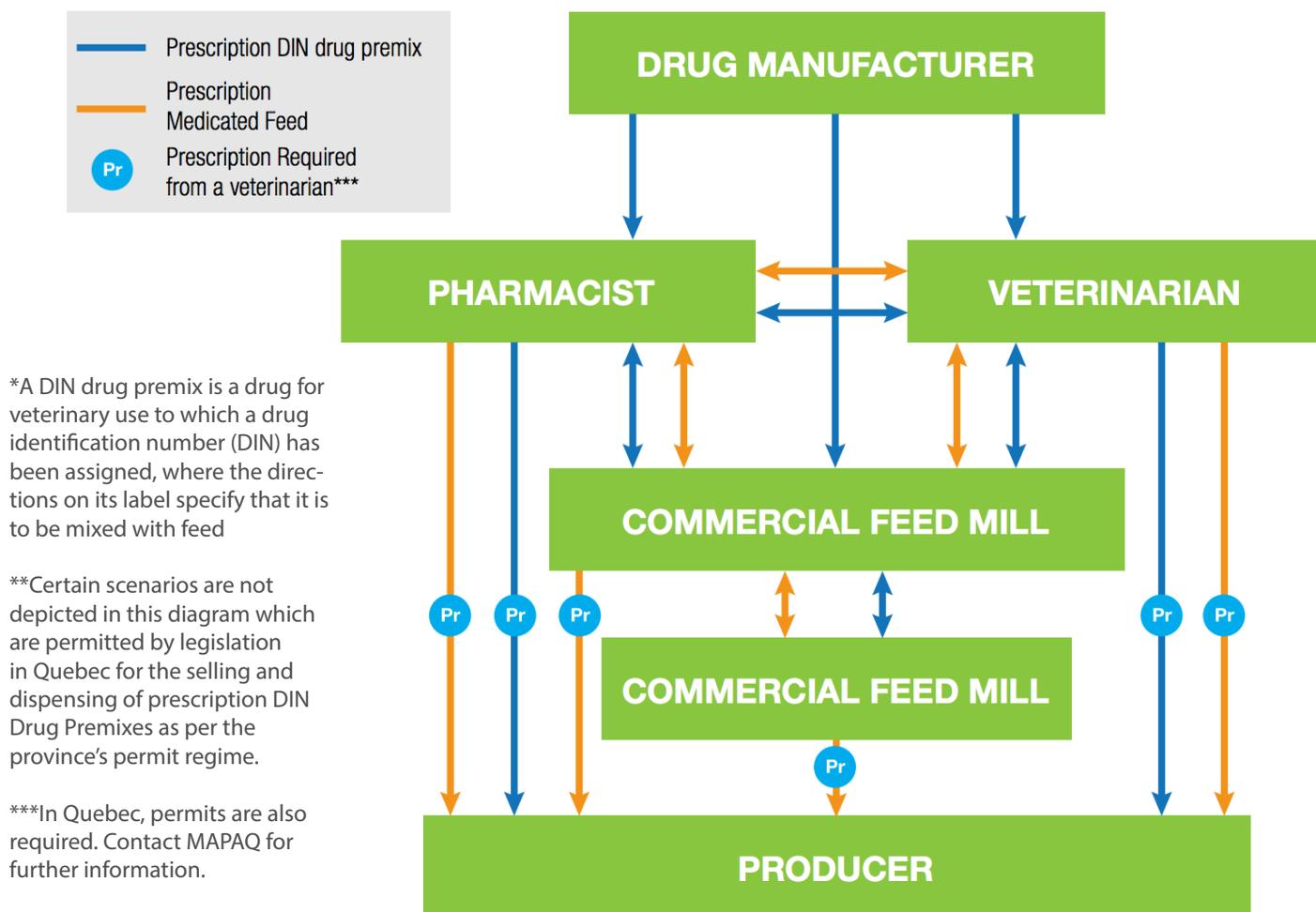


Figure 1. Flow chart illustrating the flow, as per federal and provincial laws and regulations, of prescription DIN drug premixes and prescription medicated feed in Canada. Source: [ANAC, 2018](#)

What Should You Do Right Now?



If you don't already have one, establish a VCPR (working relationship) with a veterinarian in your area to prepare for December 1st, 2018.

Talk to your veterinarian about the in-feed and in-water antimicrobials you use for your animals on a regular basis, when and how often they are used, and ways your veterinarian can help make sure you can access these products in a timely way when they're needed.

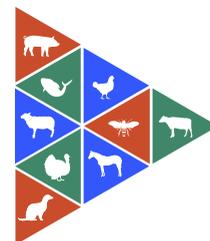
Having your veterinarian work closely with your local feed mill and animal nutritionist to help make the process of prescribing and dispensing in-feed antimicrobials as smooth as possible.

For More Information

Visit www.amstewardship.ca



Removal of Growth Promotion Claims for Medically Important Antibiotics



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 8 of 9

What Is Changing and When?

What? Growth promotion claims will be removed from the labels of all medically important antimicrobials (**MIAs**).

MIAs are specific drugs (such as Penicillin) that are preferred options for use in human medicine, with few alternatives.

See Animal Owner FAASTsheet #3 for more on MIAs.

When? All labels should be changed by **December 1, 2018**

Why Is This Changing?

In the past, MIAs have been used at low doses to promote growth and feed efficiency in livestock, but this exposes bacteria to these drugs without killing them in most cases. This allows bacteria to develop resistance to the drugs, which can then spread, resulting in infections in people and animals that are difficult to treat. For more information on antimicrobial resistance, **see Animal Owner FAASTsheet #1.**

Global recommendations to help combat antimicrobial resistance (**AMR**) include eliminating the use of MIAs as growth promotants.



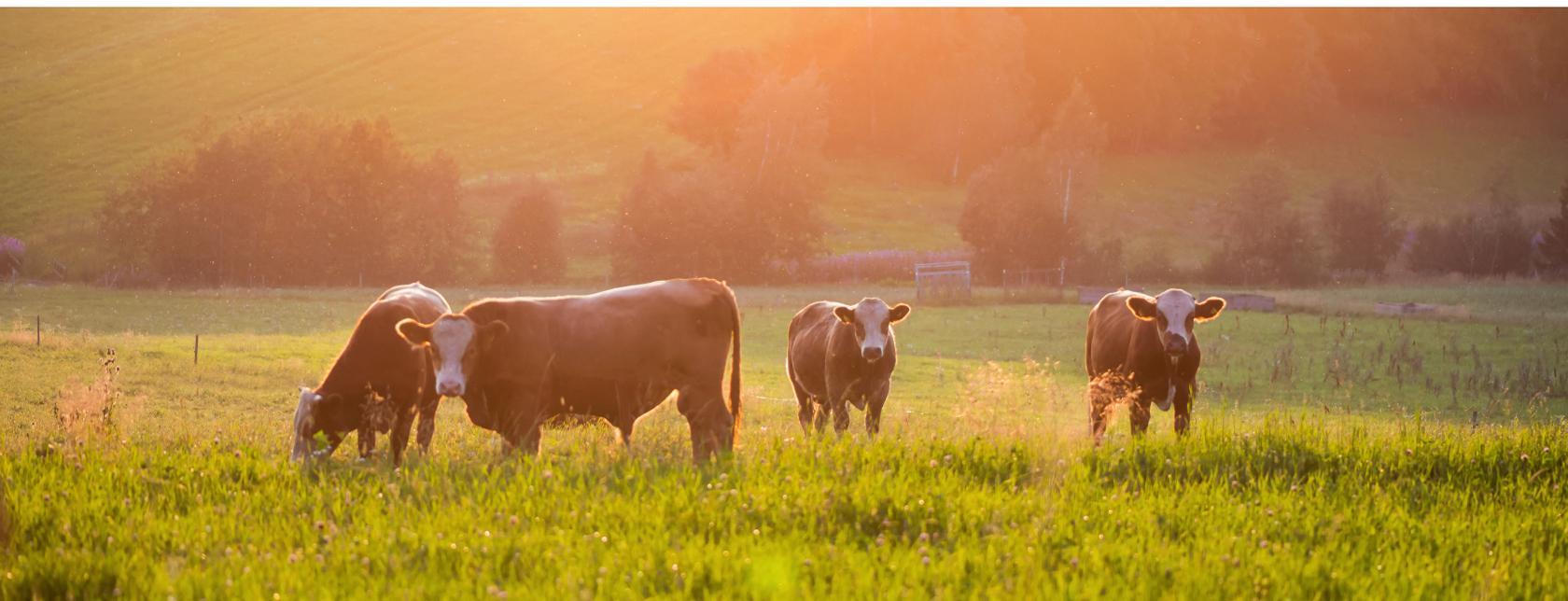
What Do These Changes Mean for Animal Owners?



You can no longer use MIAs to promote growth or feed efficiency in otherwise healthy animals.

- The majority of these products have other uses, such as treatment, prevention and control of illness, and will therefore still be available on the market.
 - However, you will require a prescription to access these products **(See Animal Owner FFASTsheet #6).**
- A few MIA products that only had growth promotion claims will no longer be available for sale.

Category IV antimicrobials (those considered not medically important), including ionophore and coccidiostat products, will not be affected. **See Animal Owner FFASTsheet #3 for more on the categories for antimicrobials in Canada.**



What Should You Do Right Now?

If you don't already have one, establish a Veterinarian-Client-Patient-Relationship (**VCPR**) with a veterinarian in your area to prepare to December 1st, 2018. **See Animal Owner FAASTsheet #5 to learn more about a VCPR.**

Talk to your veterinarian about your current use of antimicrobials and the availability of the products you use moving forward.

Work with your veterinarian to establish and/or review your protocols and management practices. Discuss:



The antimicrobials and other prescription drugs that you regularly use for your animals



When and how often they are used



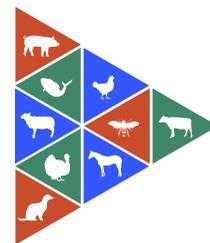
Ways to decrease reliance on antimicrobials

For More Information

Visit www.amstewardship.ca



Changes to Veterinary Health Products



FAAST
FARMED ANIMAL ANTIMICROBIAL
STEWARDSHIP

Animal Owner FAASTsheet 9 of 9

What Is Changing and When?

What? Health Canada has introduced new rules to make it easier to bring low-risk Veterinary Health Products to market to help provide animal owners with better access to more tools to help keep animals healthy.

Veterinary Health Products (VHPs) are low-risk products used to maintain or promote the health and well-being of animals:

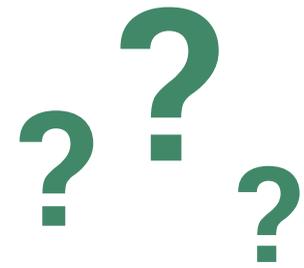
- They are not drugs, and therefore they do not have Drug Identification Numbers (**DIN**).
- They are not used to treat, prevent, or control specific disease, rather they are intended to support and enhance overall health
- VHPs contain a wide variety of ingredients, including:
 - **Vitamins**
 - **Minerals (e.g. calcium, phosphorous)**
 - **Botanical substances (e.g. St. John's wort, garlic)**
 - **Homeopathic medicines**

When? All labels should be changed by December 1, 2018



A full list of VHP and their permitted uses, labels, and routes of administration is outlined under the federal [List C: Veterinary Health Products](#)





Why Is This Changing?

These changes are intended to help make it easier for industry to bring low-risk products to market for use by owners to promote animal health. By promoting health and reducing illness, this will also help reduce the use of antimicrobials and the development and spread of antimicrobial resistance (AMR).

What Do These Changes Mean for Animal Owners?

You will be able to access a broader array of products to support and improve the overall health of your animals

As VHPs are not drugs, these products can be purchased at livestock medicines outlets and other retailers and do not require a prescription.

What Should You Do Right Now?

Talk to your veterinarian about whether VHPs might be appropriate to use on your farm to promote the health and well-being of your animals.





FAAST
FARMED ANIMAL ANTIMICROBIAL STEWARDSHIP