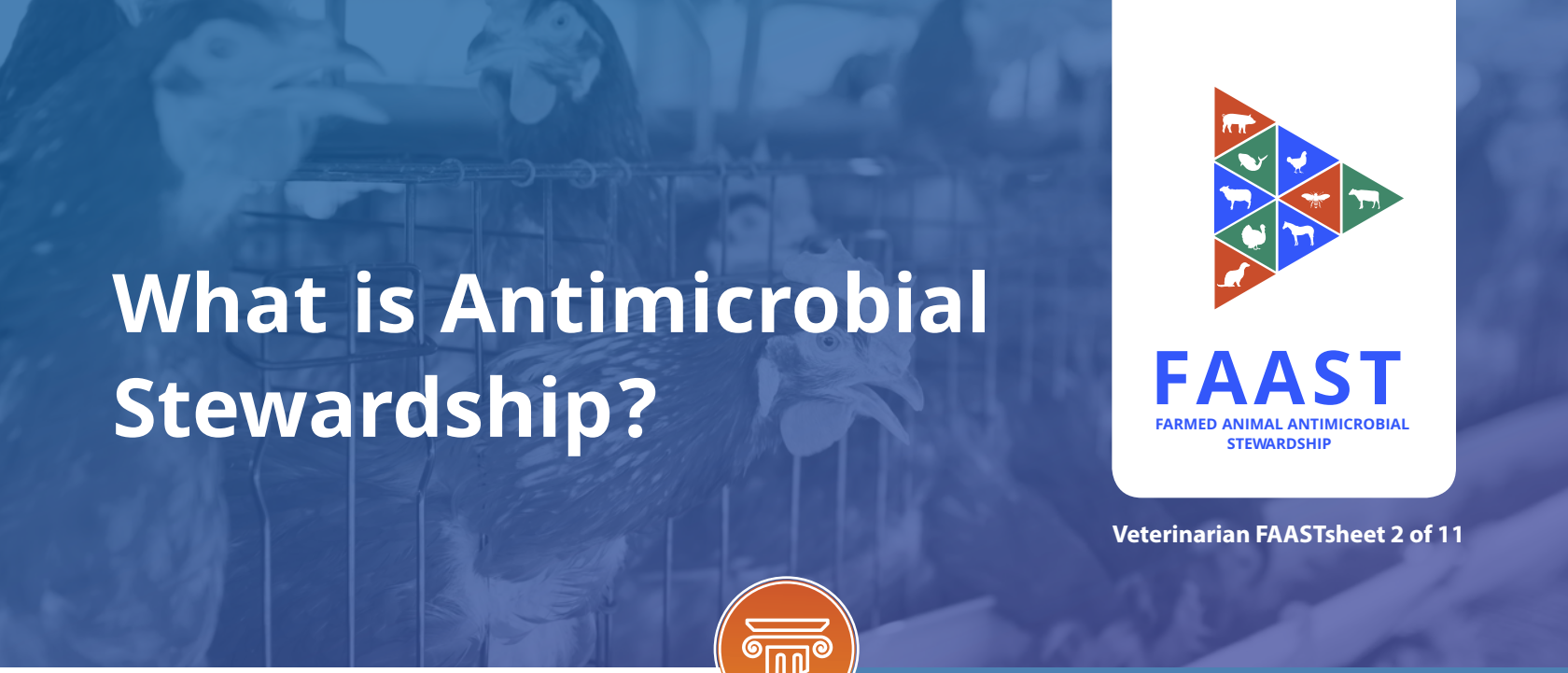

What is Antimicrobial Stewardship?

FAAST
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Veterinarian FAASTsheet 2 of 11

What is Antimicrobial Stewardship and Why is it Important?

Preserving the Efficacy of Antimicrobials

Across the globe, scientists are recognizing an increase in the incidence and prevalence of bacterial infections resistant to antimicrobials[1]. There has been increased focus on implementation of prudent antimicrobial use guidelines to slow the spread of resistance in human and animal populations. These guidelines aim to reduce exposure of bacteria to these drugs to lessen the selection pressure that accelerates the emergence of antimicrobial resistance (**AMR**)[2].

A recent systematic review suggests that a reduction in the use of antimicrobial agents can indeed result in a reduction in the prevalence of AMR bacteria in both animal and human populations (especially in humans having direct contact with animals)[4].

The Government of Canada has developed a strategy, entitled "**Tackling Antimicrobial Resistance and Antimicrobial Use: A Pan-Canadian Framework for Action**", using a One Health approach designed to address AMR across the country[1].

The framework has four key pillars:

1. **Surveillance** – to provide a comprehensive picture of AMR and AMU in Canada.

2. **Infection Prevention and Control** – to contain the spread of AMR and reduce the need for AMU.

3. **Antimicrobial Stewardship** – 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 find novel, efficacious antimicrobials and antimicrobial alternatives to fight and prevent infections.

Antimicrobial Stewardship and Veterinarians

Veterinarians are experts in animal health. By virtue of their advanced training in science and medicine, their professional accountability, and their duty to promote and protect animal, public, and environmental health, veterinarians are uniquely qualified to lead in the provision of guidance on antimicrobial stewardship.

Researchers have defined the "5 R" approach for antimicrobial stewardship[3]:

1

Responsibility

Everyone who uses antimicrobials is responsible for using them appropriately. This is especially so for veterinarians, who use, prescribe, and dispense antimicrobials on a regular basis, and are thus central agents in ensuring good stewardship in animals

2

Reduction

Removing the selective pressure of antimicrobials in an effort to slow or reverse the development of AMR. This should include preventative practices to reduce infectious disease, such as vaccination and enhanced biosecurity

3

Refinement

Target drug and dosing regimen to the signalment of the patient, likely pathogen, and the properties of the antimicrobial agent to maximize the odds of treatment success

4

Replacement

Whenever possible, seek out efficacious alternatives to antimicrobial agents

5

Review

Periodic assessment of AMU practices should be performed to ensure compliance with regulatory initiatives and alignment with current scientific evidence

New regulations call on veterinarians to adopt a leadership role in antimicrobial stewardship to tackle the threat of AMR.

Important Definitions

TERMINOLOGY	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.[4]
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.

For More Information

Visit www.amstewardship.ca

References

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