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Development of a veterinary antimicrobial stewardship online training program for Australian veterinarians: a national collaborative effort

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Abbreviations AMR, antimicrobial resistance; AMS, antimicrobial stewardship

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Initiatives that reduce the selective pressures on microbes created by unnecessary antimicrobial use in all sectors of animal health are critical to the global reduction of antimicrobial resistance (AMR). A veterinary antimicrobial stewardship (AMS) online training program (www.vetams.org) was developed to assist veterinarians in reducing and rationalising their use of antimicrobial agents in clinical practice. This was a collaborative project, with representation from Australian and New Zealand veterinary schools, supported by the Veterinary Schools of Australia and New Zealand and funded by the Department of Agriculture and Water Resources.

A panel was created, consisting of academics with expertise in veterinary microbiology, pharmacology, epidemiology, public health and clinical practice. Resources were developed by the panel and these were integrated within an interactive online system (B Online Learning Systems) that allowed scenario-centred learning for veterinarians across all areas of practice.

The modules that were developed cover the following topics.

AMR as a societal problem

This module outlines the global problem of AMR and the effect on animal and human health, discusses the effect that antimicrobial administration to animals has on humans, animals and ecosystems and outlines the Australian context of AMR compared with other countries.

How does AMR develop?

This module outlines the basic mechanisms that enable bacteria to resist the effects of antimicrobial drugs and how the administration of antimicrobials selects for AMR. It compares AMR in Australia with that seen globally in both human and animal health sectors and outlines the measures used to maintain low levels of AMR.

How do antibiotics work and what is their relative importance?

This module explains the mechanisms of action, the spectrum of activity and importance rating for the major veterinary antimicrobials, discusses the principles of judicious antimicrobial use and the legislative issues surrounding withholding periods) and export slaughter intervals.

Drug selection and regimen: which drug is best for the patient and society?

This module explains the legislative control of antimicrobials and the constraints concerning off-label use of antimicrobials in Australia. It explores rational choices for antimicrobial therapy based on disease syndrome, the spectrum of activity, animal species and their relative importance to user-end food consumption and outlines the principles of empirical treatment and refinement of treatment during therapy.

Implementing an AMS program in your practice

This module briefly explains the five steps required to implement AMS in veterinary practices: (1) developing a policy, (2) nominating a champion, (3) educating staff, (4) implementing steps to improve appropriate antimicrobial use and (5) measuring the response. The module also discusses the barriers and enablers in engaging clients and veterinary practitioners in an AMS program and outlines the necessary resources and interventions required to implement a successful AMS program in veterinary practice.

The training programme, released in January 2019, is based on a Moodle® learning management system. Uptake and impact of the program will be evaluated after its release. Active collaboration between academics across veterinary schools in Australia and New Zealand, producing teaching for veterinary training and

postgraduate continuing education in an area that requires strong veterinary engagement, represents a unique outcome.

Providing consistent teaching of critical concepts to veterinarians in practice is a model that could be expanded to other areas. A learner-centred, interactive and clinically-focused resource available to graduates provides the necessary tools and processes for practitioners to instigate significant practical and cultural change in the veterinary use of antimicrobial agents. This resource is built within a framework that allows updates and additions of further modules and resources such as weblinks and journal articles, which is a critical element in such a changing area of clinical practice and research.

Key AMS message

Collaborative teaching of AMS allows consistent, strong messaging for all veterinary prescribers.