



AUSTRALIAN AND NEW ZEALAND COLLEGE OF VETERINARY SCIENTISTS

MEMBERSHIP GUIDELINES

Veterinary Pharmacology

INTRODUCTION

These Membership Guidelines should be read in conjunction with the *Membership Candidate Handbook*.

ELIGIBILITY

Refer to Section 2 of the *Membership Candidate Handbook*.

OBJECTIVES

To demonstrate that the candidate has sufficient knowledge of and experience in Veterinary Pharmacology to be able to give sound advice to colleagues on problems and procedures commonly encountered in this field of general veterinary practice.

LEARNING OUTCOMES

1. To demonstrate that the candidate has **sound¹ knowledge** of:
 - 1.1. Drug disposition and action including pharmacokinetics [absorption, distribution, metabolism and excretion (ADME)], pharmacodynamics, dose response relationships, variability of response, routes of administration, mode of action, drug interactions, pharmaceutical formulations, and delivery systems
 - 1.2. Drug development and manufacture including drug screening, dose rate selection, routes of administration; formulation, stability and quality assurance/control of veterinary drugs and vaccines; design, analysis, and interpretation of clinical studies; safety, efficacy and residue study evaluations
 - 1.3. Systems Pharmacology including clinical pharmacology of autonomic drugs, treatment of ophthalmic conditions, neuromuscular blocking agents, drugs affecting the central nervous system, drugs affecting the gastrointestinal tract, local anaesthetics, autacoids and drugs interacting with them, corticosteroids, control of

¹ Knowledge levels:

Detailed knowledge — candidates must be able to demonstrate an in-depth knowledge of the topic including differing points of view and published literature. The highest level of knowledge.

Sound knowledge — candidate must know all of the principles of the topic including some of the finer detail, and be able to identify areas where opinions may diverge. A middle level of knowledge.

Basic knowledge — candidate must know the main points of the topic and the core literature

pain, cardiovascular drugs, treatment of congestive heart failure and arrhythmias, agents affecting volume and composition of body fluids; treatment of ascites, pulmonary oedema and shock; hormones, and antagonists

- 1.4. Chemotherapeutics including modes of action, resistance phenomena and prudent use of antibiotics, antifungal agents, antiviral agents, antiseptics and disinfectants, anthelmintics, insecticides, acaricides and antineoplastic agents
 - 1.5. Immunology and Vaccines including the principles of immunology, specific and nonspecific immunotherapy, active and passive immunization, types of vaccines, administration of vaccines, vaccine failures, adverse reactions to vaccines, adjuvants, and immunostimulants
 - 1.6. Toxicology including the principles of toxic drug action, selective toxicity, safety testing of drugs including husbandry and the use of experimental animals, common plant poisons, organic poisons including therapeutic drugs, inorganic compounds such as the metals, pesticides including rodenticides, toxins of animal origin, investigation of suspected poisoning cases, use of emetics and antidotes, and relevance of toxic and drug residues in carcasses and the environment.
2. The candidate will have a **basic knowledge** of:
 - 2.1. Regulatory Affairs and Legislation including the registration and legal use of veterinary products in Australia and New Zealand and the regulatory environment in which product registration occurs; quality, efficacy, target animal safety, public health, OH&S and trade issues evaluated by regulatory agencies during product evaluation for registration; drugs and poisons scheduling; adverse experience reporting programs; the use, dispensing, labelling and storage of drug products and the legislative constraints on veterinarians.
 3. The candidate will be able to do the following with **sound² expertise**:
 - 3.1. discuss the use of drugs in the control, prevention and treatment of common clinical conditions
 - 3.2. support their discussion with an understanding of how drugs affect the pathophysiology of the disease or clinical sign
 - 3.3. discuss the use of vaccines in the prevention of specific diseases
 - 3.4. demonstrate a working knowledge of the major drugs used in domestic species in which the candidate has an interest or experience.
 4. The candidate will be able to do the following with **basic expertise**:
 - 4.1. demonstrate a working knowledge of the major drugs used in all species (a **sound knowledge** is required only for examples of major drugs in domestic species in the area you have an interest or experience)

² **Skill levels:**

Detailed expertise — the candidate must be able to perform the technique with a high degree of skill, and have extensive experience in its application. The highest level of proficiency.

Sound expertise — the candidate must be able to perform the technique with a moderate degree of skill, and have moderate experience in its application. A middle level of proficiency.

Basic expertise — the candidate must be able to perform the technique competently in uncomplicated circumstances

- 4.2. interpret veterinary pharmacology literature including graphs and diagrams, and explaining rational drug use in veterinary practice.

EXAMINATIONS

For information on the required standard and format for both the Written and Oral examinations, candidates are referred to Sections 3, 10 and 11 of the *Membership Candidates Handbook*. The Membership examination has **two separate, autonomous components**:

1. **Written Examination** (*Component 1*)
Written Paper 1 (two hours): Principles of the Subject
Written Paper 2 (two hours): Applied Aspects of the Subject
2. **Oral Examination** (*Component 2*)
Oral (one hour)

The written examination will comprise of two separate two-hour written papers taken on the same day. There will be an additional 15 minutes perusal time for each paper, during which no writing on the examination paper is permitted. In each paper you are provided with four (4) questions to answer, worth 30 marks each, giving a total of 120 marks per paper. There is no choice of questions. Questions may be long essay type or a series of shorter answer sub-questions. Marks allocated to each question and to each subsection of questions will be clearly indicated on the written paper.

Written Paper 1:

This paper is designed to test the candidate's knowledge of the principles of Veterinary Pharmacology as described in the Learning Outcomes. This written paper will focus on basic concepts.

Written Paper 2:

This paper is designed to (a) test the candidate's ability to apply the principles of Veterinary Pharmacology to particular cases/problems or tasks and (b) test the candidate's familiarity with the current practices and issues that arise from activities within the discipline of Veterinary Pharmacology in Australia and New Zealand. This paper will focus on practice and applications.

Oral Examination:

This examination requires the candidate to demonstrate achievement of the Learning Outcomes listed earlier. Question material will be delivered verbally, and may include the use of an audio-visual presentation. The candidate will deliver their response to the questions with an oral explanation. The duration of this examination is approximately one (1) hour. Eight (8) questions are presented with supporting information asked verbally in a face-to-face setting. The oral examination has a total of 120 marks with each case allocated 15 marks.

RECOMMENDED READING MATERIAL

Veterinary Pharmacology covers diverse subject areas. The candidate is expected to research the depth and breadth of the knowledge of the discipline. This list is intended is provided for reference to guide the candidate to some core references and source material. The list is not comprehensive and is not intended as an indicator of the content of the examination. It is not expected that candidates read all references, but use the references to support existing knowledge in specific areas.

DRUG DISPOSITION AND ACTION

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- ALTMAN, D. G. & BLAND, J. M. (1997) Statistics notes. Units of analysis. *BMJ*, 314, 1874.
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