



**AUSTRALIAN AND NEW ZEALAND
COLLEGE OF VETERINARY SCIENTISTS
FELLOWSHIP GUIDELINES**

Avian Medicine and Surgery

ELIGIBILITY

1. The candidate shall meet the eligibility prerequisites for Fellowship outlined in the *Fellowship Candidate Handbook*.
2. Membership of the Avian Health Chapter, Australian and New Zealand College of Veterinary Scientists must be achieved by examination prior to the Fellowship examination.

OBJECTIVES

To demonstrate that the candidate has sufficient knowledge, training, experience, and accomplishment in Avian Medicine and Surgery to meet the criteria for registration as a specialist in Avian Medicine and Surgery.

LEARNING OUTCOMES

These guidelines relate to the discipline of Avian Medicine and Surgery which includes veterinary care for companion, aviary and wild birds which are likely to be encountered in avian specialist practice in Australia and New Zealand including:

- Native and exotic bird species which are kept as companion or aviary birds
- Backyard show and pet poultry, including waterfowl and game birds (but not commercial poultry)
- Pigeons
- Native and non-native wild birds found in Australia and New Zealand
- Other species such as ratites (ostrich, emu, cassowary and kiwi) and other birds kept as zoological specimens.

The candidate will have a **detailed**¹ knowledge of birds commonly kept in Australia and New Zealand of:

1. Principles of Avian Medicine and Surgery
 - a. Anatomy and physiology, including knowledge of significant differences between genera and species where clinically relevant
 - b. Taxonomy
 - c. Nutrition and husbandry
 - d. Organ systems – gastrointestinal, musculoskeletal, respiratory, cardiovascular, integument, urinary, reproductive
 - e. The aetiology, pathogenesis, pathophysiology, and epidemiology of infectious and non-infectious avian diseases.
2. Application of Avian Medicine and Surgery
 - a. Clinical techniques for avian patients including, but not limited to:
 - i. Restraint and handling
 - ii. The conduct of a detailed physical examination
 - iii. Supportive care, fluid therapy, blood transfusion
 - iv. Administration of medication
 - v. Collection of diagnostic samples
 - b. Diagnostic tests applied to the diagnosis of disease conditions in birds, including, but not limited to:
 - i. Clinical pathology (haematology; biochemistry; cytology; bacterial, fungal and viral culture and interpretation; serology; molecular diagnostics)
 - ii. Necropsy and histopathology
 - iii. Endoscopy
 - iv. Electrocardiology
 - c. Diagnostic imaging including but not limited to radiology, ultrasound, echocardiography, computed tomography, and magnetic resonance imaging

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.

- d. Therapeutics and pharmacology, including knowledge of the pharmacokinetics and the pharmacodynamics of drugs which are commonly used in avian medicine
- e. Anaesthesia and analgesia
- f. Surgery, both soft tissue and orthopaedic
- g. Oncology
- h. Avicultural medicine, including artificial incubation and paediatrics
- i. Behaviour of commonly kept bird species, including:
 - i. Normal species appropriate behaviour and how it relates to captivity
 - ii. The principles and application of behavioural analysis and behavioural modification
 - iii. Principles of animal welfare as applied to birds kept in captivity

The candidate will have a **sound** knowledge of:

1. Principles of Avian Medicine and Surgery
 - a. The embryology of avian organ systems
 - b. Avian immunology
 - c. The nutrition and husbandry of less commonly kept species (native wild birds, ratites and other birds kept as zoological specimens)
2. Application of Avian Medicine and Surgery
 - a. Applied avicultural techniques such as genetic selection (including colour mutation, sex-linked genes and heritable diseases) and aviary design and management.
 - b. Biosecurity principles as they relate to the management of avian collections, either small or large.
 - c. Measures to reduce the public health significance of those diseases of birds that are zoonotic
 - d. Welfare and legislative issues relevant to the avian species and the provision of veterinary services

The candidate will have a **basic** knowledge of:

1. Infectious diseases of birds currently exotic to Australia and New Zealand but which could be of potential significance or importance to avian health if introduced, including those of importance to poultry. This includes:
 - a. Knowledge of the aetiology, epidemiology, and diagnosis of exotic infectious disease
 - b. Government controls including
 - c. Import risk assessment procedures
 - d. Legislative responses to exotic disease incursion
2. Commercial poultry enterprises and problems.

The candidate will be able to do the following with **detailed**² expertise:

1. Catch and handle birds,
2. Perform a clinical examination and obtain diagnostic samples
3. Apply splints and bandages
4. Perform necropsies of birds
5. Perform soft tissue and orthopaedic surgery
6. Display knowledge and sufficient understanding of relevant literature to be able to investigate, diagnose and formulate sound and rational approaches to new and/or rare avian diseases
7. Maintain currency with the relevant refereed scientific literature, using library and computer based searching skills, and to critically evaluate current concepts on avian health and medicine.

The candidate will be able to do the following with **sound expertise**:

1. Express and support views on current issues relevant to avian medicine such as animal welfare, antibiotics and human health, the import and export of avian genetic material and conservation issues relevant to aviculture
2. Advance knowledge in their field through clinical innovation, research and publication.

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.

EXAMINATIONS

Refer to the *Fellowship Candidate Handbook*, Section 5.

The Fellowship examination has **four separate, autonomous components**:

1. **Written Paper 1** (*Component 1*)
Basic science and principles of Avian Medicine and Surgery (three hours)
2. **Written Paper 2** (*Component 2*)
Applied Avian Medicine and Surgery (three hours)
3. **Practical Examination** (*Component 3*)
Practical (two hours)
4. **Oral Examination** (*Component 4*)
Oral (one and a half to two hours)

The written examination will comprise of two separate three-hour written papers taken on two consecutive days. There will be an additional 20 minutes perusal time for each paper, during which no writing on the answer booklet is permitted. In each paper you must answer all six (6) questions. There is no choice of questions. Each question is equally weighted, giving a total of 180 marks per paper. Answers required may be essay-style, short answer, or combinations of both. 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 Avian Medicine and Surgery as described in the Learning Outcomes. Answers may cite specific examples where general principles apply, but should primarily address the theoretical basis underlying each example.

Written Paper 2:

This paper is designed to test the Candidate's ability to apply the principles of Avian Medicine and Surgery to particular cases/problems or tasks and to test the candidate's familiarity with the current practices and current issues that arise from activities within the discipline of Avian Medicine and Surgery in Australia and New Zealand.

Practical Examination:

The practical examination will consist of short questions with written answers of a practical and clinical nature relating to images, videos, test results, and/or examples of clinical material. It will be composed of eight (8) questions of equal weighting, with a total examination time of two hours (120 minutes). There will be no perusal time. The examination may be arranged to be accessed at a single bench, or be set out over a number of stations. Regardless of the layout, each question will be timed, and the candidates must progress to the next question at the completion of each allotted time slot.

Oral Examination:

The oral examination will consist of verbal questions delivered to the candidate, requiring verbal answers. This will be conducted mainly as a power point presentation, but may include other physical aids, such as images, videos, test results, and/or examples of clinical material. The scope of the examination includes clinical, theoretical and ethical subjects, as delineated in the above guidelines. The examination usually takes (or lasts) between 90 and 120 minutes. The duration will be a minimum of 90 minutes, with a maximum of 120 minutes. There will be a set number of questions, between four (4) and six (6), with the total examination worth 90 marks.

TRAINING PROGRAMS

Refer to the *Fellowship Candidate Handbook*, Section 3.3.

In addition to the requirements of the *Fellowship Candidate Handbook*, the Chapter imposes the following:

1. Poultry must be included in the training program to the extent that such contact improves the candidate's ability to deal with individual, pet poultry cases and small scale operations.
2. The training program must include provision for developing skills in oral presentation to both veterinary and non-professional audiences. The candidate must have given at least one oral presentation at a scientific meeting prior to the examination, and this should be recorded in the candidate's Curriculum Vitae.
3. The supervisor must ensure that an adequate range, number and complexity of cases is included in the training program. Perceived deficiencies must be corrected by the candidate seeking training by an approved alternative avian medicine facility and supervisor.
 - 3.1. Candidates should see 15 – 25 cases per week (DST, part-time or full time) or 15 cases per week (IDST) with a minimum of 2,000 cases over the whole training program (excluding TRD).
4. In cases where the candidate elects to undertake a part-time or alternative training program, training must be completed while the candidate is working in a practice setting with at least 25 hours per week working in the clinical and technical aspects of the discipline. Please see the *Fellowship Candidate Handbook* for further details on part-time and/or alternative training program requirements.

TRAINING IN RELATED DISCIPLINES

Refer to the *Fellowship Candidate Handbook*, Section 2.4.2

Candidates must spend time in three or four of the following disciplines (after consultation with their supervisor): general surgery, pathology, anaesthesiology and diagnostic imaging. Each require two weeks (or 10 working days) of training, in a single institution. This is currently more than the minimum four weeks stipulated by the *Fellowship Candidate Handbook*.

In addition to the compulsory Training in Related Discipline requirements, candidates may, at their own discretion, but with mutual agreement from their supervisors, do up to another 12 weeks of additional Training in Related Discipline requirements in the following related disciplines: general medicine, cardiology, ophthalmology, oncology, behaviour, wildlife, epidemiology, and poultry medicine. This brings the total allowable maximum of TRD to 18 weeks, comprising 6 weeks of compulsory TRD, with the option of up to a further 12 weeks.

EXTERNSHIPS

Refer to the *Fellowship Candidate Handbook*, Section 2.4.1

All candidates must complete at least one externship in Avian Medicine

ACTIVITY LOG AND ACTIVITY LOG SUMMARY

Candidates are required to submit an Activity Log (AL) over six months during the first twelve months of their residency. The AL should be recorded using the template available on the College website at <https://www.anzcvs.org.au/fellowship/fellowship-forms/> under Fellowship – Fellowship Forms – ‘Activity Log summary by species’. Under ‘Category’ the species, organ system and type of activity should be listed in separate columns. Under ‘Patient Details’ list ID, gender and age.

In addition, candidates are required to submit an Activity Log Summary (ALS) covering the whole of the residency period. The ALS should be kept in the format of Appendix 1 of these guidelines. A list of species seen should be included.

PUBLICATIONS AND PRESENTATION

Refer to the *Fellowship Candidate Handbook*, Section 2.10

RECOMMENDED READING LIST

The candidate is expected to research the depth and breadth of the knowledge of the discipline. This list is intended to guide the candidate to some core references and source material. Fellowship candidates should also be familiar with items listed in the Membership Guidelines. The list is not comprehensive and is not intended as an indicator of the content of the examination.

Avian related sections in the following textbooks, journals and online resources.

Core textbooks³

Anatomy and physiology

König HE, Korbel R, Liebich H, & Klupiec C. *Avian anatomy: textbook and colour atlas*. Sheffield: 5m Publishing, 2016

Whittow GC. *Sturkie's Avian Physiology*. 6th edition, Elsevier, Boston, 2015

Diagnostic testing

Clarke, Boardman W and Raidal S. *Atlas of Clinical Avian Hematology*. Wiley-Blackwell 2009

Fudge A. *Laboratory Medicine, Avian and Exotic Pets*. WB Saunders, Philadelphia, 2000

Randall C, Reece R. *Colour Atlas of Avian Histopathology*. Mosby-Wolfe, London, 1996

Schmidt RE, Reavill DR and Phalen, DN. *Pathology of Pet and Aviary Birds*. (2nd ed.), Wiley-Blackwell, 2015.

Silverman S and Tell LA. *Radiology of birds: an atlas of normal anatomy and positioning*. Saunders Elsevier, 2010

Behaviour

Luescher AU. *Manual of parrot behaviour*, Blackwell, 2006

Species-specific books

Chitty J, Lierz M (Ed.). *BSAVA Manual of raptors, pigeons and passerine birds*. British Small Animal Veterinary Association, 2008.

Greenacre CB, Morishita TY. *Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners*. Wiley, 2015

Scott D. *Raptor medicine, surgery and rehabilitation*. (2nd ed.), CABI Publishing, 2016

Swayne DW et al. *Diseases of Poultry*. (13th ed.). Wiley-Blackwell, 2013

³ **Definitions of Textbooks:**

Core textbook: candidates are expected to own a copy of the textbook and have a detailed knowledge of the contents.

Recommended textbook: candidates should own or have ready access to a copy of the book and have a sound knowledge of the contents.

Additional references: candidates should have access to the book and have a basic knowledge of the contents.

Medicine

Chitty J & Monks D (Eds.) *BSAVA Manual of Avian Practice: A Foundation Manual*, British Small Animal Veterinary Association, 2018

Doneley B. *Avian medicine and surgery in practice: companion and aviary birds* (2nd ed.), Manson Publishing, 2012

Samour J (Ed.). *Avian Medicine*, 3rd edition, Elsevier, London, 2016

Speer B. *Current Veterinary Therapy in Avian Medicine and Surgery*. Elsevier, 2016

Recommended Textbooks

Altman RA, Clubb SL, Dorrestein GM, Quesenberry K. *Avian Medicine and Surgery*. WB Saunders, 1997

Carpenter J., *Exotic Animal Formulary* (5th ed.) Elsevier, 2017

Forbes NA, Sanchez-Migallon Guzman D. *Avian medicine and surgery* (2nd ed.), 2017

Harrison G, Ritchie B & Harrison L. (Eds.) *Avian Medicine: Principles and Application*. Wingers Publishing, 1993

Hawkey CM, Dennett TB. *Comparative Avian Haematology*. Iowa State Univ Press, Ames, 1989

Harrison G and Lightfoot T. *Clinical Avian Medicine*. Spix Publications, 2005

Jordan R. *Parrot Incubation Procedures*. Silvio Mattacchione & Co, Pickering, Canada, 1989

Klasing K. *Comparative avian nutrition*. CABI Publishing, UK. 1998

Krautwald-Junghanns M-A, Pees M, Reese S and Thomas T. *Diagnostic Imaging of Exotic Pets*. Schlütersche, Hannover, 2011 – Avian chapters

Lumeij J.T. *Avian Clinical Biochemistry*. In: Kaneko JJ, Harvey JW and Bruss ML (Ed.). *Clinical Biochemistry of Domestic Animals*, 6th edition, pp 839-872, Elsevier/Academic Press, Amsterdam/Boston, 2008

Ladds PW. *Pathology of Australian native wildlife*, CSIRO Publishing, 2009 (Avian Chapters only)

Miller ER and Fowler ME, *Zoo and Wild Animal Medicine*, 6th, 7th and 8th revised editions, Saunders 2007, 2012, 2014, (Avian chapters only)

Orosz SE et al. *Avian Surgical Anatomy*, WB Saunders, Philadelphia, 1992.

Ritchie B. *Avian Viruses Function and Control*. Wingers Publishing, 1995.

Samour J and Naldo J. *Anatomical and Clinical Radiology of Birds of Prey*. Saunders, 2006

Samour J (Ed.) *Exotic Animal Medicine: Review and Test*. Saunders-Elsevier, 2012

Core journals⁴

Fellowship candidates should be especially familiar with Avian Medicine and Surgery literature for the last 5 years, including conference proceedings.

- Eolophus
- Avian Diseases
- Avian Pathology
- Journal of Avian Medicine and Surgery
- Australian Veterinary Journal
- New Zealand Veterinary Journal
- Journal of Exotic Pet Medicine
- Veterinary Clinics of North America, Exotic Animal Practice

Proceedings

- Association of Avian Veterinarians Annual Conferences
- Association of Avian Veterinarians Australasian Committee Annual Conferences
- European Association of Avian Veterinarians Annual Conferences (ICARE)

Recommended journals (Avian components only)

- Journal American Animal Hospital Association
- American Journal of Veterinary Research
- Australian Veterinary Practitioner
- Compendium of Small Animal Practice
- Journal of Small Animal Practice
- Journal of the American Veterinary Medical Association
- Journal of Wildlife Diseases
- Journal of Zoo and Wildlife Medicine

⁴ Definitions for Journals:

Core Journal: candidates are expected to have ready access to either print or electronic versions of the journal and have a detailed knowledge of the published articles in the subject area.

Recommended Journal: candidates should have ready access to either print or electronic versions of the journal and have a sound knowledge of the published articles in the subject area.

Additional Journal: candidates should be able to access either additional.

FURTHER INFORMATION

For further information contact the College Office

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Appendix 1: Activity Log Summary (ALS)

This table is an indicative guide, there should be broad, representation across the categories. It is not exhaustive, nor is it intended that all areas will be covered for all species. Please attach notes to advise reviewers of progress and gaps in achieving Learning Outcomes listed in the Guidelines.

ACTIVITY LOG SUMMARY FOR THE PERIODTO.....

CASE NUMBERS (Attach species list)	Parrots	Pigeons	Poultry	Passerines	Other	Total
Case numbers for period						
Previous case numbers						
Cumulative case numbers						
LEARNING OUTCOMES						
1.1 Principles of Avian Medicine						
Anatomy, physiology, taxonomy						
Husbandry						
Nutrition						
Infectious diseases						
Non-infectious diseases						
Gastrointestinal disorders						
Musculoskeletal disorders						
Respiratory disorders						
Cardiovascular disorders						
Integument disorders						
Reproductive disorders						
Urinary system disorders						
1.2 Application of Avian Medicine						
Clinical techniques including <ul style="list-style-type: none"> • Blood transfusion • Splinting/bandaging • Imping 						

Diagnostic testing including <ul style="list-style-type: none"> • Clinical pathology • Necropsy and histopathology 						
Diagnostic imaging including <ul style="list-style-type: none"> • Endoscopy • Radiology • Ultrasonography/electrocardiology • Advanced imaging - CT, MRI 						
Therapeutics and pharmacology						
Analgesia and anaesthesia						
Surgery - Soft tissue						
Surgery - Orthopaedic						
Oncology						
Avicultural medicine including <ul style="list-style-type: none"> • Incubation • Paediatrics 						
Behaviour/welfare						