



AUSTRALIAN AND NEW ZEALAND COLLEGE OF VETERINARY SCIENTISTS

FELLOWSHIP GUIDELINES

Equine Surgery

ELIGIBILITY

1. The candidate shall meet the eligibility prerequisites for Fellowship outlined in the Fellowship Candidate Handbook.
2. Membership of the College must be achieved prior to the Fellowship examination.
3. Membership must be in Surgery of Horses.

OBJECTIVES

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

LEARNING OUTCOMES

1. The candidate will have a **detailed knowledge**¹ of:
 - 1.1. Equine anatomy
 - 1.2. The aetiology, pathogenesis, and pathophysiology of equine surgical diseases²
 - 1.3. The diagnosis, differential diagnoses, treatment and prognosis of equine surgical diseases

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.

²**Equine Surgical Diseases**-are defined as diseases with a surgical treatment option, or any condition that may result in lameness in the horse

- 1.4. Diagnostic tests and procedures as they apply to the diagnosis of equine diseases with surgical treatment options including; clinical pathology, histopathology, endoscopy, radiology, ultrasound, scintigraphy, computed tomography and magnetic resonance imaging
 - 1.5. Anaesthesia and intensive care as they apply to the management of equine surgical diseases
 - 1.6. Chemotherapeutics including anti-inflammatory drugs, antimicrobials, vaccines and biologics used for the management of equine diseases with surgical treatment options
 - 1.7. The underlying principles of surgery including, but not limited to aseptic technique, haemostasis, tissue handling, wound healing and wound infection
2. The candidate will have a **sound knowledge** of:
 - 2.1. Equine anatomy, physiology and pharmacology
 - 2.2. The principles of biomechanics
 - 2.3. The pathophysiology of various forms of cardiovascular shock and fluid therapy
 - 2.4. Tumour biology, clinical oncology and the effectiveness of different oncologic treatment protocols as they apply to equine diseases with surgical treatment options
 3. The candidate will, with a **detailed level of expertise²**, be able to:
 - 3.1. Perform a breadth of surgical procedures (see list in the Activity Log Category table below)
 - 3.2. Design pre-operative, operative and post-operative management plans in complex equine surgical cases involving all body systems
 - 3.3. Analyse complex surgical problems and make clinical judgements
 - 3.4. Collect, interpret and record clinical data including interpreting a range of diagnostic imaging modalities (radiography, ultrasound, Computed Tomography, MRI and scintigraphy) in complex equine diseases with surgical treatment options
 - 3.5. Communicate effectively with clients, referring veterinarians and peers

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.

- 3.6. Integrate these skills to provide high quality care for horses with the most efficient use of resources in a manner that is responsive to the owner's needs and wishes
- 3.7. Evaluate and incorporate new scientific information relevant to the practice of Equine Surgery
- 3.8. Advance knowledge in Equine Surgery through clinical innovation, research and publication

EXAMINATIONS

Refer to the *Fellowship Candidate Handbook* **Section 5.** . The Fellowship examination has **four separate, autonomous components**:

1. **Written Paper 1** (*Component 1*)
Principles of the Subject (three hours)
2. **Written Paper 2** (*Component 2*)
Applied Aspects of the Subject (three hours)
3. **Practical Examination** (*Component 3*)
Practical (three hours)
4. **Oral Examination** (*Component 4*)
Oral (two hour)

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 in an answer booklet is permitted. In each paper you must answer all six (6) to nine (9) questions, worth 30 to 20 marks each, giving a total of 180 marks per paper. There is no choice of questions. Questions may be long essay type or a series of small 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 Equine 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. A multiple choice component may be included.

Written Paper 2:

This paper is designed to (a) test the candidate's ability to apply the principles of Equine Surgery to particular cases/problems or tasks, and to (b) test the candidate's familiarity with the current practices and current issues that arise from activities within the discipline of Equine Surgery.

Practical Examination:

The practical examination is designed to test practical aspects of the Learning Outcomes. The practical examination will consist of twelve (12) questions with sub-questions, equating to a total of 180 marks. Written answers of a practical and clinical nature relating to images, videos and/or examples of diagnostic imaging will be required. Marks allocated to each question and to each sub-section will be clearly indicated on the written paper.

Oral Examination:

The oral examination is of two hours in duration and may consist of questions of a theoretical and practical nature. The oral examination is designed to test aspects of the Learning Objectives. Candidates may be asked to discuss detailed case material.

Eight (8) cases are presented with supporting questions asked verbally in a face-to-face setting. The oral examination has a total of 120 marks. Images, CT scans, histology slides, MRI scans, radiographs, scintigraphy images, laboratory data, results of relevant additional diagnostic tests are likely to be used during this examination.

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. The training program requires three years (144 weeks) of directly supervised training (DST) (at least 35 hours each week) of which at least 94 weeks is to be spent in clinical practice including a four week externship. In addition, 8 weeks is to be spent training in related disciplines (TRD) and the remaining period is to be spent on other training requirements including clinical research, conference attendance and participation, and the preparation of presentations and publications relevant to the specialty.
2. Direct supervision means ‘simultaneous physical presence’ of the supervisor and candidate during surgery. The supervisor is scrubbed in together with the candidate as primary or assistant surgeon and logged in the Activity Log as the primary or assistant surgeon. In the final year of the training program and **at the supervisor’s discretion**, a surgical procedure may also be considered as directly supervised when the candidate has achieved a standard of competence to act as the primary surgeon without the supervisor scrubbed in **and if** the supervisor is available in the operating theatre to supervise essential parts of the procedure **and** all aspects of case management are discussed.
3. The candidate must be actively involved in the provision of an emergency surgical service with the same supervision requirements as outlined above. Evidence of this supervision must be provided in the credentials document.
4. In addition to directly supervised training, the candidate should be able to demonstrate active participation in formal teaching conferences such as diagnostic imaging case discussions, clinicopathological and pathological case conferences and resident seminars. A minimum of five seminar presentations should be made by the candidate during the training period and reported in the credentials document. A seminar is defined as a scientific presentation attended by peers and more senior surgeons and followed by informed discussion.
5. The candidate is expected to attend relevant scientific meetings and conferences and attendance at an international veterinary conference is recommended. The

credentials document must show documentary evidence that the candidate has prepared and presented at least one scientific paper at a national or international veterinary surgical meeting or conference prior to examination.

6. The Chapter requires the candidate to document a minimum of 400 directly supervised surgical procedures (as defined in point 2) over the training period. At least 160 (40%) of the 400 cases must be performed under direct supervision (as defined in point 2) whilst the candidate is primary surgeon. Cases must be of the type seen in surgical referral institutions which are considered to be specialist procedures. Minor and routine procedures such as castration, periosteal elevation, removal of small cutaneous masses, simple skin wound repair, and joint flushing without arthroscopy should be omitted. The minimum numbers of specific surgical procedures per body system must be accomplished. The candidate should attempt to gain as broad a range of experience as possible. The procedures listed in each category are examples. Candidates need not necessarily accomplish these examples nor restrict themselves to these examples. Any single case can be allocated to a single organ system that most appropriately describes the major clinical problem. Exceeding the minimum threshold of cases does not guarantee the required level of competency to pass the Fellowship exam.
7. Cases suitable for inclusion are those supervised cases where the candidate is directly involved in the decision and planning of the surgical case and is Primary or Assistant Surgeon. The candidate is the Primary Surgeon when he or she plans and performs the essential parts of the surgical procedure. As outlined above, the candidate should be primary surgeon in at least 40% (160) of the cases. Revisit appointments on the same case for the same presenting problem **are not** to be entered separately in the Activity Log.
8. The Chapter requires the candidate to document a minimum of 1000 out-patients in a separate log (**Appendix 3**) over the training period. Out-patient cases are all those that undergo evaluation and management for a major surgical procedure, whether or not the surgical procedure is then performed. Evaluations and managements include, but are not limited to orthopaedic examination, ultrasonography, endoscopic examination, lameness investigation and colic evaluation and management. Major surgical cases which require significant preoperative investigation can be included in both the surgical case log and the out-patient case log.
9. Candidates applying for retrospective approval of training or fast tracking based on eminence must be resident in Australia or New Zealand.
10. All Equine Surgery Fellows must comply with any Australian College requirements for quality assurance and recertification.

Below are examples of the types of cases that are suitable for inclusion in the Activity Log. The numbers given are **minimums** for each category and the candidate should aim to exceed these numbers in as many categories as possible.

Activity Log Category	Number
Respiratory surgery Includes sinusotomy, guttural pouch procedures, laryngoplasty, arytenoidectomy, soft palate procedures	20
Alimentary surgery Includes surgical approaches to teeth for various procedures, correction of intestinal displacements, intestinal resections and anastomoses, intestinal stapling, laparoscopy and laparoscopic surgical procedures; abdominal surgery not associated with gastrointestinal or urogenital tracts. e.g. hernia repair	40
Urogenital surgery Includes ectopic ureters, umbilical remnant removal, cystotomy, ruptured bladder repair, ovariectomy and cryptorchidectomy performed by open approach and using laparoscopy	20
Reproductive surgery Includes rectovaginal reconstructive surgery, penile surgery, caesarian sections	15
Skin/Reconstructive surgery Includes skin grafts, degloving injuries, skin and subcutaneous tumors, laser surgery, major reconstructive or plastic surgical techniques	10
Musculoskeletal surgery: experience with a broad range of procedures in foals and adult horses to include yet not be limited to: Arthroscopic/tenoscopic surgery of a range of synovial structures Fracture management including fragment excision, use of a range of internal fixation devices and external coaptation techniques, and arthrodesis techniques Surgical treatment of angular limb deformities using internal fixation Surgical treatment of various flexural deformities Surgery of tendons and ligaments including various desmotomy and tenotomy procedures, and management of tendon lacerations	Total 90 40 30 5 5 10
Eye Includes enucleation, corneal repair, keratectomy, conjunctival flaps, eyelid reconstruction	10

TRAINING IN RELATED DISCIPLINES

Refer to the *Fellowship Candidate Handbook* **Section 2.4.2**

Candidates for Fellowship in Equine Surgery must spend 8 of the 144 weeks in the following related disciplines: equine internal medicine (2 weeks), diagnostic imaging (2 weeks), anaesthesia and critical care (2 weeks) and clinical and gross pathology (2 weeks). Guidelines for TRD are to be found in **Appendix 4**.

EXTERNSHIPS

Refer to the *Fellowship Candidate Handbook* **Section 2.4.1**

ACTIVITY LOG AND ACTIVITY LOG SUMMARY

The Activity Log (AL) should be recorded using the Activity Log for Clinical Discipline template available on the College website under Fellowship – Fellowship Forms. An example of an Activity Log Entry is included in **Appendix 1**.

The Activity Log Summary (ALS) should be divided by body system using the Activity Log Summary by body systems template available on the College website under Fellowship – Fellowship Forms. An example of an Activity Log Entry is included in **Appendix 2**.

PUBLICATIONS AND PRESENTATION

Refer to the *Fellowship Candidate Handbook* **Section 2.10**

The publications must cover at least two (2) body systems; a different body system in each paper. Conference abstracts/papers are not acceptable as publications for credentials purposes, even if peer reviewed.

RECOMMENDED READING LIST

The candidate is expected to be familiar with the depth and breadth of the knowledge of the discipline. The following reading lists are intended to guide the candidate. The lists are not comprehensive and are not intended to include all of the content of the examination. The study of core textbooks and journals should be supplemented by study of relevant conference proceedings, additional textbooks and journals, and other learning aides such as CD-Roms or DVDs in building the required depth of knowledge of Equine Surgery and surgical principles, and adequate knowledge of relevant subjects and basic sciences (eg. physiology, anatomy, pharmacology, internal medicine, anaesthesia, neurology, equine reproduction, biomechanics, pathology, clinical pathology and diagnostic imaging). The candidate is expected to be familiar with all the key articles on Equine Surgery published in the previous five years. These may appear in both the core journals or in those listed for additional reading. Some wider reading of related articles and material that does not directly refer to horses will be of benefit. If

unsure of the breadth of reading required, the candidate should consult with their supervisors or contact the Chief Examiner.

Core textbooks³

1. *Small Animal Surgery*. 4th edn. Fossum TW. Elsevier Health Sciences, 2013 (Chapters 1-9)
2. *Equine Surgery*. 4th edn. Auer J.A. and Stick J.A, editors. W.B. Saunders, St. Louis, 2011.
3. *Diagnosis and management of lameness in the horse*. 2nd Edn. Ross M.W. and Dyson S.J, editors. W.B. Saunders, St. Louis, 2010
4. *Diagnostic and surgical arthroscopy in the horse*, 4th edn. McIlwraith C.W. et al, editors. Mosby Elsevier, Philadelphia, 2014.
5. *Equine fracture repair*. Nixon A.J, editor. W.B. Saunders, Philadelphia, 1995.

Core journals⁴

The candidate is advised to focus on journal articles published in the following core journal reading list during the last 5 years before the date of the examination. Knowledge of key papers outside this list and date range may be of use in preparing for the examination as well.

1. American Journal of Veterinary Research
2. Australian Veterinary Journal
3. Veterinary Surgery
4. Equine Veterinary Journal
5. Veterinary Clinics of North America (Equine Practice)

Suggested additional reading

Relevant, key/pivotal journal articles published earlier than five years before the examination

Adam's Lameness in Horses. 6th edn. Stashak TS, editor. Lippincott Williams and Wilkins, Philadelphia, 2011.

³ Textbook Definitions:

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

Additional Reading Materials - These are conference proceedings, other non-refereed publications and other journals that would offer some information in the subject area including differing points of view, but are not required reading.

⁴ Journal Definitions:

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 printed or electronic versions of the journal and have a basic knowledge of the published articles in the subject area.

Advanced techniques in large animal surgery. 2nd edn. McIlwraith CW and Robertson JT. Williams and Wilkins, Baltimore, 1998.

Advances in Equine Laparoscopy. Ragle, CA, ed., 2012.

Anatomy of the horse: An illustrated text. Budras K-D. Schlütersche GmbH and Co., Hannover, 2010.

AO Principles of equine osteosynthesis. Fackelman GE, Auer JA and Nunamaker DM, editors. AO Publishing, Stuttgart-New York, 2000.

Clinical radiology of the horse, 4th edn. Butler JA *et al*, editors. 2017.

Equine diagnostic ultrasonography. Rantanen NW and McKinnon AO, editors. Williams and Wilkins, Baltimore, 1998.

Equine diagnostic ultrasound. Reef VB, editor. WB Saunders Co., Philadelphia, 1998.

Equine Emergency and Critical Care Medicine. Southwood, 2014.

Equine internal medicine. 3rd edn. Reed SM, Bayley WM, Sellon DC, editors. Saunders, St Louis, 2010.

Equine Internal Medicine. Mair TS, 2015.

Equine Locomotion, 2nd edn. Back W. 2013.

Equine neonatal medicine and surgery. Knottenbelt DC, Holdstock N and Madigan JE, editors. Saunders, London, 2004.

Equine neurology. Furr M and Reed S. Blackwell Publishing, Oxford, 2007.

Equine MRI. Murray MC. 2011.

Equine Ophthalmology. 2nd Edn. Gilger B. 2016.

Equine reproduction. 2nd Edn. McKinnon AO. 2011.

Equine respiratory medicine and surgery. McGorum BC *et al*, editors. Saunders Co., Philadelphia, 2006.

Equine scintigraphy. 2nd edn. Dyson SJ *et al.* Equine Veterinary Journal Ltd, Newmarket, 2003.

Equine Sports Medicine and Surgery. 2nd Edn. Hinchcliff K. 2013.

Equine Wound Management. 3rd edn. Theoret CL. 2016.

Goodman and Gillman's The pharmacologic basis of therapeutics, 11th edn. Brunton LL *et al.*, editors. The McGraw-Hill Co. Inc. 2006.

Guyton and Hall Textbook of Medical Physiology, 13th edn. Hall JE, editor. Saunders Elsevier Science Health div, Philadelphia, 2016.

Joint Disease in the Horse. 2nd Edn. McIlwraith CW and Trotter G, editors, 2015.

Robinson's Current Therapy in Equine Medicine. 7th edn. Sprayberry KA, editors. 2011.

Sisson and Grossman's The anatomy of the domestic animals, 5th edn, Vol 1. Getty RG, editor. WB Saunders Co., Philadelphia, 1975.

Techniques in large animal surgery. 3rd edn. Hendrickson D. Blackwell Publishing, Ames, 2007.

Textbook of small animal surgery, Volume 1, 3rd edn. Slatter D, editor. W.B. Saunders, St. Louis, 2003 (Chapters 1-19)

The equine distal limb: Atlas of clinical anatomy and comparative imaging. Denoix J-M. Manson Publishing Ltd., London, 2000.

Suggested additional journals (veterinary)

Australian Equine Veterinarian

Equine Veterinary Education

Journal of Veterinary Internal Medicine - ACVIM

New Zealand Veterinary Journal

The Veterinary Journal

Veterinary Comparative Orthopedics and Traumatology

Veterinary Radiology and Ultrasound

Suggested additional journals (non-veterinary)

American Journal of Surgery

Annals Surgery
Archives of Surgery
Bone
British Journal of Surgery
Journal of Anatomy
Journal of Biomechanics
Journal of Bone and Joint Surgery (A & B)
Journal of Orthopaedic Research
Journal of Surgical Research
Journal of the American College of Surgeons
Surgery
Surgical Clinics of North America

Conference proceedings

Proceedings of the American College of Veterinary Surgeons Veterinary Symposium
(comprising the ACVSc. Surgical Forum and Scientific Meeting)
Proceedings of the Bain-Fallon Memorial Lectures

FURTHER INFORMATION

For further information contact The College Office

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Appendix 1: Example activity Log

Example Activity Log for Equine Surgery Fellowship

DATE	DETAILS	CATEGORY	PRESENTATION	DIAGNOSTIC TESTS	DIAGNOSIS	TREATMENT	OUTCOME	INITIALS		Ref.
5/01/20	XXXX 21yo gelded donkey 246414	Musculoskeletal	laminitis	examine tachycardia, laminitic stance, radiography rotation all P3's	laminitis, cushings	GA, DDF tenotomy following poor response to foot trimming and analgesia (fig/ket/morphine/gab apentan/PBZ) + pergolide	painful 5 days then gradual improvement. Glasgow + Obel pain score 13-14 until 5 days post op, willing to walk at 1 week, getting up alone at 8 days	XX* YY	primary	
5/02/20	XXXX 7yo WB gelding 245660	Alimentary	colic-referred	Examine	180 large colon volvulus	general anaesthesia, ex lap , decompress, replace correct position, 48 horus abx only	discharged at 3 days, NAD	XX* YY	primary	
5/04/20	XXXX 1yo Clydesdale filly 254672	Skin/subcutis	laceration LH-referred	Examine, knuckling fetlock, laceration moderate contamination lateral and dorsolateral MTIII, cannon exposed, p/o largely intact, long and Lat DE lacerated	Extensor tendon laceration	general anaesthesia, debride and close wound, robert joins and plantar splint	owner report going well at suture removal	XX* YY	primary	

* **ACTIVITY LOG CATEGORY:** Refer to Subject Guidelines.

** **INITIALS:** of Clinicians/Investigators – please asterisk the Primary Clinician/Investigator/Surgeon

Signature of Supervisor: _____

APPENDIX 2: EXAMPLE ACTIVITY LOG SUMMARY

NAME:

DATE:

Number of Cases

CATEGORY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Current TOTAL	Previous TOTAL	Cummulative. Total
Respiratory															
Alimentary															
Urogenital															
Reproductive															
Skin/reconstructive															
Musculoskeletal															
Eye															
Current TOTAL															
Previous TOTAL															
Cumulative TOTAL															

APPENDIX 3: EXAMPLE OUTPATIENT ACTIVITY LOG

date	patient details	presentation	diagnostic tests	diagnosis	treatment	Prognosis	outcome	initials	Surgery/No surgery
X/X/200X	XX 2yo TB Filly Case no. XXXXXXX	Colic - referred	PE: normal vital signs, mild abdominal pain. Venous bl gas (VBG), PCV/TP normal. Rectal: NAD US: thickened intestinal wall adjacent to R kidney consistent with intussusception. Post-op US haemabdomen, VBG and monitor PCV/TP.	1. Caeco-caecal intussusception 2. Post-op haemo-abdomen 3. Peritonitis 4. Incisional discharge/infection	GA Sx: Ex-Lap - caeco-caecal intussusception found and reduced. 50% of caecum non-viable and resected. Rest of abdomen examined and no further abnormalities found. IVFT: LRS AB: PPG, Gent then TMPS NSAID's: FM then PBZ	Good	06/02/08 Developed tachycardia and reduced PCV (22%) and evidence on US of haemoabdomen and abdominocentesis 07/02/08 - pyrexia developed attributable to peritonitis secondary to haemoabdomen 17/02/08 Discharged. Mild incisional discharge present mid incision, no pain on palpation. 02/03/08 Incision healed at staple removal, no further problems noted	XXX**/XXX	Sx
X/X/200X	XX 5yo SH Mare Case no. XXXXX	Lameness - referred	LE: severe intermittent LH lameness, can occasionally bear weight and walk well at times. Rectal: NAD USJ: Nuc Med: IRU LH TS/SI joint, mild IRU TMTJ and CDJ bilateral Radiography tarsi	1. Bone trauma L TS or SI joint trauma/subluxation 2. Bilateral OA TMT and CDJ	Stall confinement 6-8 weeks Re-evaluate after 8 weeks	Guarded	08/02/08 Discharged 14/04/08 Lameness improved but still lame at walk. Recommend prolonged confinement for further 8 weeks	XXX**/XXX	No
X/X/200X	XX 2yo TB Gelding Case no. XXXXX	Poor performance - referred	PE: NAD NAD URT endoscopy at rest: NAD. Dynamic HS treadmill endoscopy: mild collapse of L pharynx and mild L aryepiglottic fold collapse. DDSP at end of exercise	1. Pharyngeal dysfunction resulting in DDSP	1. Spell for minimum of 3 months. 2. If problem continues as 3yo despite grea changes then surgical treatment should be considered	Good	20/02/08 Discharged 04/07/08 Return to racing	XXX**/XXX	No
X/X/200X	XX 1yo TB Filly Case no. XXXXX	Endotoxaemia, colic - referred	CE: HR 80, harsh lung sounds RR 16 T 38.7, GI motility reduced all 4 quadrants, injected MM, prolonged CRT Bloods: normal WCC, elevated urea and creatinine USTh: pleuropneumonia R hemithorax with 3cm pleural fluid. NGT : spontaneous reflux on more than one occasion. Rectal: distended large bowel and tight taenial band caudal abdomen	1. LC impaction and displacement 2. Pleuropneumonia 3. Pre-renal and renal azotaemia 4. Head wounds and limb wounds 5. Colitis	IVFT: LRS, hyperimmune plasma. AB's: PPG, Gent, MDZ NSAID's: FM then PBZ GA Sx: Ex-Lap - LC impaction and displacement. Colon evacuated via PF enterotomy and replaced in normal position. Rest of abdomen NAD. Post-op: developed colitis -> moved to isolation -ve faecal cultures. Wounds on head debrided and lavaged. Limb wounds sutures removed heal by 2nd intention	Guarded	13/03/08 Discharged 28/03/08 Wounds healed well. Abdominal wound no discharge	XXX**/XXX	Sx
X/X/200X	XX 15yo Arab Mare. Case no. XXXXX	Mass removal - referred	PE: SCC present L nostril with enlarged L mandibular lymph node. Bloods: leucocytosis with neutrophilia and lymphopaenia ie stress leukogram. FNA of regional L nodes for cytology. Rads: numerous increased opacities caudal dorsal lung fields USTh: NAD URT Endoscopy and tracheal lavage: no abnormal cells seen	1. Mild pneumonia 2. SCC in left nostril with metastasis to L mandibular lymph node	Recommend TMPS for 2-3 weeks to clear up mild pneumonia and re-visit after course of AB's	Guarded	12/02/08 Discharged See addendum	XXX**/XXX	No
Addendum X/XX/200X	XX 15yo Arab Mare Case No. XXXXX	Mass removal - referred	CE: TPR normal, mass in L nostril with enlarged L mandibular lymph node. Rads: Thorax NAD	1. SCC in L nostril with metastasis to L mandibular lymph node	GA Sx: remove mass from within nostril with 1cm margins, allow to heal by second intention. Inj 5-FU peri-tumour. Remove L mandibular lymph node en bloc. AB's: PPG NSAID's: PBZ Patient care: clean wounds twice daily with weak chlorhexidine solution	Guarded	02/03/08 Discharged - to return in 3 weeks for repeat injection of tumour site with 5-FU 26/03/08 Wounds healed, inject 5-FU around margins 23/04/08 Re-inject 5-FU around margins. No local regrowth. Repeat chest rads - NAD	XXX**/XXX	Sx

APPENDIX 4: LIST OF LEARNING OUTCOMES FOR TRAINING IN RELATED DISCIPLINES

Throughout the three year training program, the Fellowship candidate in Equine Surgery must be exposed to and actively involved in training in several related disciplines. The Fellowship candidate is encouraged to develop a working relationship with one or more specialists in each discipline to facilitate **regular discussion and interaction regarding case management.** In addition, involvement and participation of a specialist in these disciplines in clinical rounds and seminars attended by the Fellowship candidate is encouraged, as is participation of the Fellowship candidate in relevant rounds and seminars specific to this discipline.

In addition, a minimum of 2 weeks full time must be devoted exclusively to the study and practice of each of the related disciplines. The Fellowship candidate must ensure that this time is spent effectively in consolidating knowledge and skills and in covering aspects of this discipline that will not be addressed adequately during the remainder of their program. The Fellowship candidate is expected to be proactive in searching out opportunities, materials and expert tuition and in compiling and organizing relevant material for future reference.

Directly supervised training in the related discipline of equine medicine

The 2 weeks must be **directly supervised** by a Fellow of the ANZCVS (Equine Medicine), Diplomate of the ECVIM or ACVIM. **The role of the supervisor is to provide guidance and training in internal medicine as it applies to the equine surgical patient.**

Essential areas that should be covered include but are not limited to:

1. Formulation of a treatment plan that encompasses the medical needs of the surgical patient. Developing the ability to consider an overall view of the patient's situation should be promoted.
2. Monitoring the patient's response to treatment and modifying treatment as indicated.
3. Medical conditions that may affect the patient during anaesthesia, surgery or recovery.
4. Medical treatment as an alternative or as a complement to surgical treatment in selected conditions.
5. Indications for laboratory and other diagnostic tests and interpretation of results.

Directly supervised training in the related discipline of diagnostic imaging

The 2 weeks of training must be **directly supervised** by a Fellow of the ANZCVS (Diagnostic imaging), Diplomate of the ECVDI or ACVR. **The role of the supervisor is to provide guidance and training in diagnostic imaging as it applies to the equine surgical patient and patient evaluated for lameness.**

Training in this discipline is an extremely important component of the three year training program. In many centres, especially for emergency admissions, the surgeon will be directly responsible for performing (or supervising the performance of) and interpreting diagnostic imaging studies. It is essential that the fellowship candidate be competent in performing or supervising imaging studies, particularly using radiography and ultrasonography, and is able to perform the immediate and timely interpretation of findings, correlate these studies with clinical findings and make appropriate decisions for determining the treatment of the patient. A methodical and thorough approach to interpretation of images must be developed.

Topics to be reviewed throughout the training program and techniques to gain practical experience with include but are not limited to the following as they apply to the equine surgical patient:

1. Principles, indications, limitations, application and interpretation of the following imaging modalities:
2. Radiography including digital radiography, contrast radiography and fluoroscopy
3. Ultrasonography including ultrasonography of the musculoskeletal system, abdomen, thorax, head and neck
4. Nuclear scintigraphy
5. Computed tomography (CT)
6. Magnetic resonance imaging (MRI)
7. Storing images and construction of reports

Directly supervised training in anaesthesia, pain management and critical care

The 2 weeks of training must be **directly supervised** by a Fellow of the ANZCVS (Anaesthesia), Diplomate of the ECVAA or ACVAA. The **role of the supervisor is to provide guidance and training in the discipline of anaesthesia, pain management and critical care as it applies to the equine surgical patient.**

Topics to be reviewed throughout the training program and techniques to gain practical experience with include but are not limited to the following as they apply to the equine surgical patient:

1. Review of basic physiology-cardiovascular physiology, respiratory gas transport, the GI barrier; regulation of arterial blood pressure, blood and ECF volume, local control of blood flow
2. Review of pathophysiology-Infection and inflammation, fever, sepsis and SIRS, disorders of hemostasis, multiorgan failure
3. Critical care
 - 3.1. Fluid and electrolyte disorders and their therapy
 - 3.2. Electrolyte disorders and their therapy
 - 3.3. Acid base disorders and their therapy
 - 3.4. Blood component therapy
 - 3.5. Nutrition and metabolism in critically ill equine surgical patients
 - 3.6. Vascular access
 - 3.7. Haemodynamic monitoring
 - 3.8. Disorders of circulatory flow; haemorrhage and hypovolaemia, colloid and crystalloid resuscitation, cardiac failure
 - 3.9. Monitoring the critically ill equine patient
4. Pain management
 - 4.1. Basic physiology of acute and chronic pain
 - 4.2. Pathophysiological effects of pain in horses
 - 4.3. Recognition and monitoring of pain in the horse
 - 4.4. Prevention and control of pain: pre-emptive analgesia, post-operative analgesic techniques, management of acute (including post-operative) and chronic pain
 - 4.5. Alternatives for pain management in horses: drugs administered systemically (including as continuous rate infusion), epidural analgesia. Drug actions and interactions, indications and contraindications, and potential adverse effects.

5. Anaesthesia

- 5.1. Pre-operative assessment and patient preparation: pre-anaesthetic evaluation and premedication
- 5.2. Equipment used in general anaesthesia delivery and monitoring
- 5.3. Pharmacology of drugs used for sedation/ tranquilization, analgesia, muscle relaxation and anaesthesia. Drug action and interaction. The effect of drugs on gastrointestinal motility, the cardiovascular and respiratory systems.
- 5.4. Application of analgesic techniques before, during and after a surgical procedure and knowledge of their influence on the course of anaesthesia
- 5.5. Anaesthesia induction, maintenance and recovery techniques for foals and adult horses
- 5.6. Tranquilization and anaesthesia in a variety of equids- horses of various breeds, ponies, donkeys and mules
- 5.7. Airway maintenance, oxygenation and ventilation, acute respiratory failure
- 5.8. Special anaesthetic considerations: anaesthesia of the neonate, geriatric patient, patient with systemic disease (eg. SIRS), neurological, renal, liver or respiratory disease, the trauma patient and the pregnant mare. Anaesthesia of horses and foals with acute abdominal pain, foals with ruptured urinary bladder, patients for fracture repair, laryngeal surgery, ovariectomy and ocular disorders
- 5.9. Monitoring during anaesthesia, effects on the respiratory and CV systems and support of these systems during anaesthesia
- 5.10. Prevention and management of anaesthetic accidents and crises
- 5.11. Post anaesthetic complications including the prevention, diagnosis and management of postanaesthetic lameness in horses
- 5.12. Current techniques used during recovery from general anaesthesia
- 5.13. Local and regional anaesthesia techniques used in lameness diagnosis and for standing surgery-dental nerve blocks, epidural and spinal anaesthesia, and techniques used for laparoscopy

Directly supervised training in the related discipline of veterinary pathology

The 2 weeks of training must be **directly supervised** by a Fellow of the ANZCVS (Veterinary Pathology), Diplomate of the ECVP or ACVP. The **role of the supervisor is to provide guidance and training in pathology including the study and practice of current techniques used in tissue pathology and relevant aspects of microbiology, haematology, immunology and clinical chemistry as it applies to the equine surgical patient.**

Topics to be reviewed throughout the training program and techniques to gain practical experience will include but are not limited to the following as they apply to the equine surgical patient:

1. A basic review of quality assurance and quality control to provide the fellowship candidate with an awareness of quality issues and procedures that reflect best practices for in-hospital testing and for commercial reference laboratories. Aspects that are unique to veterinary medicine, and the horse in particular, which may require adaptation from techniques developed for human testing or which may require special veterinary knowledge for interpretation should be included.
2. Basic knowledge of time required to perform commonly requested tests and examinations.
3. An introduction to clinical pathology laboratory techniques including haematology, chemistry, and cytology of blood, peritoneal fluid and synovial fluid, and aerobic and anaerobic culture techniques.
4. Review of common stains used for cytologic and histopathologic examination of samples.
5. Current techniques for the collection, transport, storage and preparation of a variety of surgical tissue biopsies.
6. Current techniques for the collection, transport, and storage of a variety of body fluids (including blood, synovial fluid, peritoneal fluid and CSF) and aspirates for laboratory evaluation including cytology and culture.
7. Post mortem examination; systematic gross evaluation of the horse and collection of samples for additional testing.
8. Interpretation of laboratory results, understanding of pathologic and cytologic terminology and communication with the pathologist.