Certificate in Advanced Veterinary Practice

C-VC.3 Veterinary Cardiology
Cardiovascular Therapeutics

Module Outline

Module Leader:

Simon Dennis BVetMed MVM MRCVS DipECVIM-CA (Cardiology)
European Veterinary Specialist in Small Animal Cardiology
LEARNING OUTCOMES

The module is focused on therapeutics and management of cardiovascular disease using the appropriate techniques. It is not concerned with the diagnosis with cardiovascular disease as this is the concern of module C-VC.2.

The module is aimed at veterinary surgeons in private practice, or at a veterinary school with a substantial case load of small or large animals, or a mixture, of which a significant number have primary cardiovascular disease, or require thorough examinations of their cardiovascular system for investigation of other systemic illnesses, or injury. At least 200 of these should be examined and assessed primarily by the candidate.

The module may be taken from a large animal or a small animal perspective, or a mixture of the two. It is suggested that candidates intending to proceed to a Certificate in Advanced Veterinary Practice (Cardiology) via modules C-VC.1 and C-VC.2, will present a C-VC.1 made up of a balanced distribution of species with at least 2 being represented. Alternatively, if candidates are intending to proceed to the Certificate in Advanced Veterinary Practice (Cardiology) with a large animal/equine bias using the Equine module C-E.2, the case diary should be made up of 90% large animals. Candidates not wishing to use the module to attain the Certificate in Advanced Veterinary Practice (Cardiology) can present case books made up exclusively from small or large animal cases.

Module C-VC.3 is mandatory for those aiming to achieve the CertAVP (Cardiology).
LEARNING TOPICS

At the end of the module, candidates should have a sound understanding of cardiovascular therapeutics. Candidates should be able to select appropriate therapeutic and management options for small or large animal patients based on results of the diagnostic tests performed. Candidates are also expected to demonstrate the knowledge of when to refer. On successfully completing this module, candidates would be expected to have knowledge of the following:

- **Drug therapy** (candidates should understand the basic mechanism of action and clinical utility of the following classes of drugs)
  - Diuretics
  - ACE inhibitors and other vasodilators
  - Positive inotropes
  - Negative inotropes
  - Bronchodilators
  - Anti-dysrrhythmic agents typically used in veterinary medicine for treating supraventricular and ventricular arrhythmias in small and large animals

- **Non-pharmacological therapy**
  - nutreaceuticals
  - diet
  - exercise
  - other managemental or therapeutic tools (e.g. oxygen supplementation)

- **Surgical options for treatment / management of cardiovascular defects** (congenital and acquired disease)
  - Candidates should be aware of, but not necessarily have an in depth knowledge of, interventional minimally invasive catheter based procedures
  - Candidates should be aware of, but not necessarily have an in depth knowledge of, thoracotomy for closed heart vs. open heart surgery options
  - Candidates should be aware of, but not necessarily have an in depth knowledge of, the role of cardiac pacemakers for the treatment of cardiac rhythm disturbances
  - Candidates should be aware of how and why to perform pericardiocentesis

- **Effect of fluid therapy, anaesthetics and other systemic agents on the cardiovascular system**
• Cardiopulmonary resuscitation

• Other cardiovascular therapies, for example:
  – treatment of bacterial endocarditis
  – treatment of septic pericarditis
  – treatment of aortic thromboembolism
  – treatment of systemic hypertension etc.
ASSESSMENT

- Case log of 50 cases with broad range of tests - list the case details and diagnostic procedures used for each case.
- At the end of the case log candidates should include a 1,000 word synopsis of what they have learned from the cases. This might include what has changed in their approach to a case, any new procedures or investigations that are now considered, any additional reading which was helpful, and/or any unexpected features of a case which will influence decision making in the future.
- Two case reports, each of up to 2,000 words in length. These cases should be selected to demonstrate that the candidate has developed proficiency in the skills and understanding of the learning objectives outlined in the module content. It should include personal reflection which should critically evaluate their management of the case. Appropriate cases might include those where a candidate can discuss what went well, what went badly, challenging decision making and alternative management options.
- Article critique (up to 800 words) from a chosen list of journal articles about an aspect of treatment in veterinary cardiology and how this article would alter their management of cases. Include comments on how the paper had affected the candidates own practising of cardiology in relation to diagnosis and how this may have informed their learning.
  Candidates are encouraged to make reference to related veterinary literature in the reference critique. The selection of articles will be emailed to candidates.
- A one hour examination to consist of multiple answer questions and/or short answer questions.
ANNUAL ASSESSMENT TIMETABLE

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>1st March</td>
<td>Case log, synopsis, two reports and reference critique to be submitted by 1st March</td>
</tr>
<tr>
<td>July</td>
<td>Formal examination to be held in July - date to be confirmed</td>
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</table>

Candidates are strongly advised to have a supervisor with which they can discuss cases. Ideal supervisors would have post-graduate qualifications in your area of interest. The module leader will not be discussing case management with any candidate.
CASE REPORT GUIDELINES

The case report should be written in the third person in a style suitable for publication in a Journal (for example Journal of Small Animal Practice).

The following frame work should be used as a guide to the structure of the case report:

- Identification of patient
- History
- Clinical signs
- Problem list and differential diagnoses
- Investigation
- Diagnosis
- Treatment (including postoperative care/instructions)
- Follow up
- Result
- Discussion
- References
INSTRUCTIONS FOR SUBMITTING CASE REPORTS / ESSAYS

Please ensure that at the beginning of your case report/reflective essay is included:

- your name
- module name
- title
- word count (excluding the above, tables, photo titles and references)

Case reports/reflective essays should be referenced and references cited in a standard format.

- Use The Veterinary Record or The Journal of Small Animal Practice as guidance to both citation of references within the text and format of references in the reference list.
- The Harvard Guide to Referencing is also available to candidates enrolled for learning support or online (various web sites allow the guide to be downloaded).

Please submit your case report/reflective essay as a

- MS Word document (97-2003 format or later)*

and your case logs as a

- MS Excel spreadsheet (97-2003 format or later)*

attached to an e-mail and send it to: certavp@rvc.ac.uk

- Please ensure digital images are submitted in a compressed format so that they can be easily transferred via e-mail.

*(Please note that as case reports/essays in alternative formats have been unreadable in MS Office any other format will be sent back to the candidate)
SUGGESTED READING

General cardiology:


General therapeutics:


Pharmacology:

CRITERIA FOR THE CASE LOG OF THE VETERINARY CARDIOLOGY C MODULES

The scope of the examination is related to the recognition and diagnosis of conditions that commonly affect the cardiovascular systems of the domestic species that are regularly encountered in general veterinary practice. Therefore, in selecting cases for the log, candidates should choose a representative sample of cases to encompass these conditions:

- acute cardiac or cardiovascular failure
- chronic cardiac failure
- acquired heart disease, including valvular and myocardial disease
- congenital heart disease
- pericardial disease
- cardiac arrhythmias
- thromboembolic disease
- cardiac disease secondary to other systemic diseases

An acceptable case log should have at least one case representing each of the preceding conditions. Case logs representing only one species and cases presenting for screening are not acceptable. Cases with the same disease (e.g., degenerative mitral valve disease) should not represent more than 20% of the log and no more than 10% of cases should be listed as second surgeon. All abbreviations should be explained.

The diary is meant to be a continuous log of all cardiology cases performed by the candidate up to the time of submission therefore they should be listed in chronological order. The same procedure in a different patient can be used again. Cases can be collected from up to 12 months prior to the date of enrolment on the CertAVP programme.
Information to be included in the log:

a) Date

b) Name / case number / unique identifier

c) Signalment: inc. breed, age

d) Brief list of presenting signs e.g. cough, collapse, exercise intolerance

e) Abnormal auscultation and physical exam findings pertinent to the cardiovascular system; murmur, gallop, arrhythmia, Heart rate if abnormal, other; e.g. inspiratory rates. Increased respiratory rate, abdominal distension, pyrexia etc.

f) List of ancillary diagnostic tests in the order in which they were performed and their most significant outcomes, for example:
   - ECG: sinus rhythm
   - Radiographs: slight LA enlargement
   - Echocardiography: irregular mitral valve thickening and left atrial enlargement on 2D, MR detected by pulsed wave Doppler

g) Final diagnosis
<table>
<thead>
<tr>
<th>Date</th>
<th>Case number and client name</th>
<th>Age, sex, breed</th>
<th>ECG</th>
<th>XRAY</th>
<th>MMODE</th>
<th>2D</th>
<th>DOPPLER</th>
<th>Other diagnostics</th>
<th>Diagnosis</th>
<th>Treatment and follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.09</td>
<td>697708 Smith</td>
<td>12 yo MC LABR</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Blood tests</td>
<td>DCM, left sided CHF, VPCs</td>
<td>Furosemide, Pimobendan, Benazepril, Recheck 1 Week</td>
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<tr>
<td>5.1.09</td>
<td>697718 Brown</td>
<td>9 yo FS DSH</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Doppler systolic blood pressure</td>
<td>HCM</td>
<td>Benazepril</td>
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</tbody>
</table>

Example key:
- MC  male castrated
- LABR  Labrador retriever
- FS  female spayed
- DSH  Domestic Shorthair
- CHF  Congestive heart failure
- VPCs  Ventricular premature complexes
- HCM  Hypertrophic cardiomyopathy
# Marking Regulations

<table>
<thead>
<tr>
<th>1. Course:</th>
<th>RCVS – Certificate of Advanced Veterinary Practice</th>
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<tbody>
<tr>
<td>2. Section:</td>
<td>C Module C-VC.3 Veterinary Cardiology Cardiovascular Therapeutics</td>
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<tr>
<td>3. Applicable to Academic Year:</td>
<td>2010/11 onwards</td>
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<tr>
<td>4. Aspects of course covered by Examination</td>
<td>CertAVP C-VC.3 Veterinary Cardiology Cardiovascular Therapeutics learning outcomes and topics</td>
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<tr>
<td>5. Requirement to be completed to permit entry to the examination:</td>
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<tr>
<td>1. Appropriate enrolment to the C module</td>
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<td>2. Candidates are advised that they should achieve a pass grade in the B Practice Module</td>
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<td>6. Form of Examination</td>
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<tr>
<td>1. Case log (50 cases)</td>
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<tr>
<td>2. 1,000 word synopsis</td>
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<td>3. 2 x 2000 words case reports</td>
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<tr>
<td>4. Reference critique (800 words)</td>
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<td>5. One hour exam – short answer and extended matching questions</td>
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<td>7. Marking Criteria</td>
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<tr>
<td>1. Case log – approval of appropriate numbers and timeline as described in course literature</td>
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<tr>
<td>2. Case log synopsis – grading on the RVC 0-100 (17 point) marking scheme</td>
<td></td>
</tr>
<tr>
<td>3. Case reports – grading on the RVC 0-100 (17 point) marking scheme</td>
<td></td>
</tr>
<tr>
<td>4. Reference critique – grading on the RVC 0-100 (17 point) marking scheme</td>
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<tr>
<td>8. Allocation of Marks and any additional requirements</td>
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<tr>
<td>First Submission</td>
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<tr>
<td>Re-submission</td>
<td>Only those parts of the module identified as failing in the initial submission will be re-marked.</td>
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9. **Requirements to Pass Overall**
   Work must be submitted and assessed within the 10 year registration period, or if enrolled after 1st July 2010, within the 2 year registration period.

   **First Submission**
   - Approval of the case log
   - 50% or greater in the grading of the case log synopsis
   - 50% or greater in the grading of each case report
   - 50% or greater in the grading of the reference critique
   - 50% or greater in the examination

   **Re-submission**
   - Sections graded below 50% in the first submission are re-graded on re-submission and the following criteria must be reached taking that new grading into account:
     - Approval of the case log
     - 50% or greater in the grading of the case log synopsis
     - 50% or greater in the grading of each case report
     - 50% or greater in the grading of the reference critique
     - 50% or greater in the examination

10. **Consequences of Failure**
    1. A candidate who fails at their first submission will be required to re-submit or re-sit the sections they have failed in the next or a future assessment cycle, or withdraw from the Certificate.
    2. A candidate who does not meet the requirements to pass overall after taking all the allowed opportunities to resubmit their work will normally be required to relinquish the course of study but s/he will have the right of appeal as described in the College Regulations.
    3. Should a candidate successfully appeal to be re-admitted to the Certificate they would normally have to repeat the entire module with new case material and would incur a further assessment fee.

11. **Classification**
    The examination is only classified as a Pass or a Fail. Candidates that pass the examination will be allocated 10 credits in the CertAVP structure and the RCVS will be appropriately informed.

12. **Disclosure of Marks**
    Candidates will be advised of their marks by email and they can request a letter confirmation.

13. **Late submission of work**
    Work that is submitted after the annual deadline cannot be accepted for grading in that year. Work may stay on file for grading at the next submission date or the candidate may re-submit before that date.