Certificate in Advanced Veterinary Practice

C-ECC.1 Critical Care

Module Outline

Module Leader:

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GUIDANCE FOR THIS MODULE

Candidates working towards the designated Certificate in Advanced Veterinary Practice (Emergency and Critical Care) will need to complete the A-Professional Key Skills module, the B-Clinical Key Skills module, one other B-module and either the three available C-Emergency and Critical Care modules, or two C-Emergency and Critical Care modules and C-VA.3 Veterinary Anaesthesia – Critical Care and Analgesia. Upon completion of all the necessary modules, a further synoptic assessment will also be required.

STANDARDS

The aim of this module is to enable the candidate to extend and consolidate clinical knowledge and skills gained at undergraduate level, so that they can apply this knowledge to patients who have simultaneous problems in multiple body systems over multiple days. Through review and adaptation of existing knowledge, the candidate will develop an understanding of what is and is not being assessed in a patient within their own practice. The candidate will be able to evaluate their own standards of critical care and to develop strategies for continuous improvement in the future.

AREA COVERED

The module is one of three C- level modules in Emergency and Critical Care. This module is focused upon the physiology, pharmacology and management of the critically ill patient with multisystem disease. The module is aimed at veterinary surgeons in general small animal practice or at an emergency service who are seeing and managing critically ill small animal patients. The module is written from a small animal perspective. The majority of the material will apply to the dog or cat, with a minority of the material addressing common conditions of rabbits and other species.

LEARNING OUTCOMES

This module will enable the candidate to:

- Gain a sound understanding of the interplay between the cardiovascular, respiratory, renal and endocrine systems that controls cardiopulmonary homeostasis in the critically ill patient.
- Develop a variety of skills that can be used in treating and monitoring critically ill patients.
- Thoughtfully appraise their current working practices with regard to monitoring, treatment and communication issues surrounding the critically ill patient.

LEARNING TOPICS

1. **Physiology, Pharmacology and Assessment of the Critically Ill Patient**
   At the end of the module, candidates should be able to:

- Document an understanding of the cardiac cycle, principles of oxygen delivery and oxygen consumption, homeostatic and compensatory control of blood pressure.

- Describe methods of assessing cardiovascular status such central venous pressure, pulmonary capillary wedge pressure, ECG, echocardiography and arterial blood gases.

- Discuss common cardiovascular drugs, including anti-arrhythmics, vasopressors, inotropes and anti-hypertensives.

- Document an understanding of the factors controlling respiratory function and how to assess ventilation-perfusion mismatches.

- Describe methods of delivering oxygen and assisted ventilation over hours or days and using blood gas analysis to monitor a patient.

- Document an understanding of the principles and methods of enteral nutritional support.

- Document an understanding of the pathophysiology of vomiting, diarrhoea and ileus and the mechanisms by which commonly-used pharmacotherapeutics act to control these derangements.

- Document an understanding of renal physiology, including factors that control sodium, potassium, chloride and bicarbonate excretion and the mechanisms by which commonly-used pharmacotherapeutics act to influence these factors.

- Document a thorough understanding of fluid therapy, including crystalloid, colloid and blood products, calculation of electrolyte replacement requirements, fluid compartments in the body, factors controlling fluid shifts within the body, calculating fluid balance, calculating constant rate infusion dosages and volumes, using fluid pumps and syringe pumps and treating common acid-base disturbances.

- Show a practical understanding of clinical pathology as it applies to the assessment of critically ill patients, including microscopic evaluation of blood smears, methods of assessing coagulation status, evaluation of body fluids and basic cytology.

- Discuss the indications, contra-indications, routes of delivery and adverse effects of anaesthetics and analgesics commonly used in the critically ill patient, such as propofol, benzodiazepines, ketamine, morphine, fentanyl, butorphanol, buprenorphine and medetomidine.

- Document an understanding of the basic physiology of pain transmission pathways within the body and how different classes of analgesics block those pathways.

- Discuss the risk factors, pathophysiology, clinical signs and treatment options for systemic inflammatory response syndrome, sepsis, septic shock and refractory septic shock.

2. **Communication Strategies**

On completion of the module, the candidate must be able to discuss and present information that reflects a thorough understanding of patient, client, referral and team communication issues. The candidate should be able to:

- Review and assess issues and solutions regarding patient information management, such as records management, tracking therapies, ways of documenting findings and clinical audit methods.

- Develop skills that address client communication issues, such as the process and sequence of grief, bereavement behaviours, managing client anger, communicating financial information, communicating patient progress and ways of documenting client consent and deferment.

- Develop skills that facilitate excellent referral and colleague communication, such as writing clear, concise patient summaries, communicating suggestions for ongoing therapy and strategies for avoiding misunderstandings.

- Understand team management issues, such as understanding both hidden and obvious stressors, managing stress, interpersonal communication strategies, communicating expectations and preparation for emergencies.

ASSESSMENT

- A case book of three cases, each case 1,750 words in length. These cases should be selected to exhibit the candidate's ability to use his/her acquired competencies to manage a patient that has multiple systemic problems. The case book should also include comparative aspects with other cases and other species (including humans) as evidence of learning. Cases seen up to 12 months prior to the date of enrolment on the CertAVP programme will be accepted, and the candidate should have had mainly primary control of the critical care phase.

- A 1,000 word essay on a current area of human critical care with reflection on the application of this to veterinary critical care. The essay subject should be agreed with the examiners beforehand.

- 2 hour examination
    - multiple choice questions
    - short answer clinical case scenarios

ANNUAL ASSESSMENT TIMETABLE

30th April	Case books and essay to be submitted by 30th April
July	2 hour examination mid July (date to be confirmed)

LEARNING SUPPORT ACTIVITIES

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.

If you pay for learning support you have access to a number of features that will make it easier, and more enjoyable to study for your surgery modules:

- Every 6 weeks:
  - a paper and questions with room for group discussion (not peer reviewed) and/or
  - a case with answers at a later date

- Access to a discussion forum that is used only by candidates studying for the surgery modules. The forums can be used to discuss any topic relevant to the CertAVP ECC C modules or simply to find out who else is out there!

- Access to the RVC online library which is invaluable when researching literature for writing up case reports. This means that (with rare exception) all journal articles that you want to view can be downloaded to your PC with a few mouse clicks. This includes research articles as well as reviews and case reports. IT and Library support is available for this facility

- Links to useful websites and relevant journal articles

Learning support is provided to aid self-directed learning and to provide easy access to published articles.

CASE REPORT GUIDELINES

Each case report is to be written up in detail up to 1,750 words in length with illustrations if appropriate.

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

ECC Textbooks

- Handbook of Veterinary Procedures and Emergency Treatment, 8th edition - Ford & Mazzaferro

- Veterinary Emergency & Critical Care Procedures, Hackett & Mazzaferro

- Emergency and Critical Care Manual – K Mathews

- Small Animal Emergency & Critical Care Medicine – Macintire, Drobatz et al

- Veterinary Emergency Medicine Secrets - Wingfield

- Textbook of Small Animal Surgery - Fossum

- Fluid Therapy in Small Animal Practice, DiBartola

- BSAVA manual of Emergency and Critical Care - Boag & King 2nd edition

- Small animal critical care medicine – Silverstein & Hopper

Journals

- Candidates are encouraged to review recent issues of the Journal of Veterinary Emergency and Critical Care.

Online Resources

www.medscape.com

www.webmd.com

www.pubmed.gov

Marking Regulations

1.	**Course:**	RCVS – Certificate of Advanced Veterinary Practice
2.	**Section:**	C Module - Critical Care (C-ECC.1)
3.	**Applicable to Academic Year:** 2009/10 onwards	
4.	**Aspects of course covered by Examination** CertAVP C-ECC.1 Critical Care – learning outcomes and topics	
5.	**Requirement to be completed to permit entry to the examination:** 1. Appropriate enrolment to the C module 2. Candidates are advised that they should achieve a pass grade in Module B-SAP.1. 3. Approval of the case reports and essay is required before the candidate may sit the examination	

6.	**Form of Examination**
	1. 3 x 1,750 word case reports
	2. 1,000 word essay
	3. 2 hour examination
	    • multiple choice questions
	    • short answer clinical case scenarios	

7.	**Marking Criteria** 1. Case reports – grading on the RVC 0-100 (17 point) marking scheme 2. Essay – grading on the RVC 0-100 (17 point) marking scheme	
8.	**Allocation of Marks and any additional requirements** **First Submission** - **Re-submission** Only those parts of the module identified as failing in the initial submission will be re-marked	

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
	- 50% or greater aggregate mark from the grading of the three case reports
	- 46% or more must be achieved for each case report regardless of the aggregated case report mark
	- 50% or greater in the grading of the essay
	- 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:
	– 50% or greater aggregate mark from the grading of the case reports
	– 50% or greater in the grading of the essay
	– Case reports scoring 45% or less must be resubmitted regardless of aggregated case report mark
	– 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.