

Certificate in Advanced Veterinary Practice

C-VA.3 Critical Care and Analgesia

Module Outline



Module Leader:

Karen Humm MA VetMB CertVA DipACVECC DipECVECC FHEA MRCVS
Lecturer in Emergency and Critical Care

Enrolment guidance

The aim of the module is to enable you to extend and consolidate clinical knowledge and skills gained at undergraduate level, and to develop an in-depth understanding of the application of that knowledge in a practice environment in relation to anaesthesia of small animal species.

You should fulfil the following criteria:

- a) You should have completed module B-SAP.1.
- b) If you are only enrolling for the C-VA modules, it is **highly recommended** that you complete the assessment task relevant to anaesthesia in module B-SAP.1. This will be reviewed by the assessors prior to assessment of any C Module work. This is to ensure you are aware of the standard required for C module work. If you have completed the B-SAP.1 module at another institution, your imaging report may be submitted for feedback.
- c) It is your responsibility to ensure that you have access to sufficient cases to produce adequate material for the module.

Coverage of this module may be integrated with others, particularly other B and C modules. You will normally have completed A-FAVP.1 Foundations of Advanced Veterinary Practice module, and at least one of the practice B modules, before undertaking a C module, although you can choose to work through modules in a different order if you wish. In whichever order modules are tackled, compliance with best practice for all the topics covered by module A-FAVP.1 will be expected whenever these are appropriate in C modules. For example, awareness of, and compliance with, all relevant legislation, welfare and ethical principles will be required throughout.

Before embarking on any module, you are advised to plan a structured programme of continuing professional development to help you achieve your objectives. Involvement in 'learning sets' and networks of other candidates working towards the same or similar modules is encouraged; this could be initiated by the candidates themselves via RVC Learn. The RCVS considers that candidates will need advisers/mentors to support them through the programme; you are free to choose your own advisers/mentors.

For a designated Certificate in Advanced Veterinary Practice (Veterinary Anaesthesia) you must complete this module, one further C-VA/C-LAS.1 module, two 'free choice' 10 credit modules and an RCVS synoptic assessment.

Learning outcomes

This module will explore in greater detail the fundamental physiological and pharmacological tenets that underpin current knowledge and clinical practice of pain prevention and management. This module will also entail a study of the theoretical and practical aspects of the intensive peri-operative care of small animals. This will require a good understanding of the applied physiology of body fluids and electrolytes and acid base balance. The ability to assess and treat appropriately fluid and electrolyte and acid base disturbances as well as an understanding and management of blood transfusion in animals.

You must be able to demonstrate that you have had experience of peri-operative care of critically ill patients in the range of species normally encountered in clinical practice. A general knowledge of current developments in the whole field of critical care will be expected so that relevant aspects of medical peri-operative care may be applied in animals. You should understand the function of apparatus used in intensive care.

At the end of the module, you should be able to:

- Provide appropriate care for the sick and or debilitated patient, including support / maintenance of normal homeostasis.
- Understand the fundamental and applied physiological principles that underpin current knowledge of the cardiovascular, respiratory and renal systems, as they apply to the management of critically ill patients.
- Understand the fundamental and applied physiological principles that underpin current knowledge of body fluids, electrolytes and acid base balance. Clinical practice of intensive peri-operative care - this will include a thorough understanding of the principles of respiratory and cardiovascular system support.
- Competently assess and treat appropriately fluid and electrolyte and acid base disturbances. Understand the fluid compartments in the body, factors controlling fluid shifts within the body, the different types of replacement fluids available and how to calculate fluid and electrolyte replacement requirements.
- Understand the theory and practical aspects of managing blood transfusion in small animals.
- Understand the theory and practical aspects of providing nutritional support to critically ill patients, including the use of parenteral and enteral feeding techniques, nutritional formulations, calculation

of caloric and substrate requirements, and methods of controlling vomiting and ileus.

- Understand the fundamental physiological and pharmacological tenets that underpin current knowledge and clinical practice of pain prevention and management.
- Demonstrate knowledge of current developments in the field of pain perception and analgesia.
- Demonstrate practical competence and experience of managing acute peri-operative and more chronic pain in the range of species normally encountered in your clinical practice.
- Demonstrate familiarity with commonly performed regional nerve blocks as used to provide analgesia pre and postoperatively.
- Understand the functional characteristics of anaesthetic breathing systems (“circuits”) and how they may be used for intensive care of unconscious small animal patients.
- Appreciate the advantages and disadvantages of intermittent positive pressure ventilation, and how this may be delivered to support critically ill small animal patients.
- Demonstrate a good general knowledge of the use of use of tracheostomy tubes and thoracic drains
- Appreciate how electronic monitoring systems may be used to monitor vital functions in sick animals, and be able to interpret the information they provide.
- Demonstrate understanding and experience of the management of sepsis and nosocomial infections in the context of critical care.
- Demonstrate a good general knowledge of the principles of physiotherapy: and the nursing care of recumbent and debilitated patients including postural management, rehabilitation techniques and the maintenance of muscle tone.
- Demonstrate experience of peri-operative care of critically ill patients in the range of species normally encountered in clinical practice.
- Utilise your understanding of Evidence Based Medicine and Decision Analysis to develop practical diagnostic and treatment protocols for your patients.
- Utilising knowledge to ensure effective communication with referring veterinary colleagues: writing clear, concise patient summaries, communicating suggestions for ongoing therapy and strategies

for avoiding misunderstandings.

- Review the outcomes of at least part of your clinical work, using the process of clinical audit to improve performance.
- Recognise when a case is truly unusual, and become familiar with the information resources available to enable you to deal with such cases.
- Recognise when a case is beyond your personal or practice capabilities, and provide an effective channel for referral.

Assessment

- One case report can be submitted for review prior to being marked. This is only permitted once per candidate per discipline.
- A case diary of 20 cases that documents your experiences of **critical care**/analgesia cases over a minimum of 90 days – not necessarily consecutive. The cases should reflect a balance of cases that required **critical care or cases where analgesic requirements required specific attention**. All cases should be those that have been directly managed by you. If you have chosen to spend time seeing practice with a diploma holder those cases you observe being managed can be included in the case diary and may be mentioned in the synoptic essay but should be in addition to the minimum case requirements for this module.
- Five cases from the diary should include critical commentaries (<350 words per case) on at least some of the learning resources used and describe the application of the learning process to these cases and a wide range of cases encountered in practice. These may also be used to document achievement of learning objectives not covered by the four cases included in the case book. **These should be principally reflective in nature; commentaries that are merely a literature review of aspects relevant to the case will not achieve a passing grade.**
- At the end of the case diary you should include a 500-1,000 word synopsis of what you have learned from the cases. This might include what has changed in your 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.
- Four critical care or analgesia case reports, each of up to 1,750 words in length. These cases should be selected to demonstrate that you have developed proficiency in the skills and understanding of the learning objectives outlined in the module content. This module is specifically aimed at the critical care and analgesic requirements of cases and does not include anaesthesia. Peri-operative stabilisation care may be included, but specifics and discussion of anaesthesia is not required. The cases used should be different from the ones used in the critical commentaries.

Assessment weighting

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| • Case Diary with Synopsis | 20% |
| • Critical commentary | 30% |
| • Case Reports | 50% |

Annual assessment timetable

1st November	Please inform the CertAVP office if you are intending on submitting work
12th November	You are given the opportunity to have one case report per discipline reviewed prior to marking (therefore only one for all C-VA modules). Please submit your report by this date if you haven't already had a review.
12th December	Case report feedback returned to you
31st January	All work to be submitted
31st March	You will be notified of your results

Learning support activities

Learning support is provided to aid self-directed learning and to provide easy access to published articles. You will be given a username and password which will allow you to log on to 4 different systems:

1. RVC Learn (<http://learn.rvc.ac.uk/>)

- Tips for module preparation with the case diary template
- Mixed anaesthesia and analgesia questions
- Articles on anaesthesia equipment, pharmacology and topics relevant to human and veterinary anaesthesia
- Access to discussion forums that are used by all CertAVP candidates as well as RVC tutors. The forums can be used to discuss any topic relevant to the CertAVP anaesthesia C modules or simply to find out who else is out there!
- Access to a webinar which contains guidance on preparing written work for the anaesthesia C modules (*coming soon!*)
- Access to the RVC online library. This 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 original research articles as well as review articles and case reports. IT and Library support is available for this facility (email library@rvc.ac.uk or helpdesk@rvc.ac.uk).
- There are also several CPD courses run each year at the RVC that support some of the learning outcomes for C-VA modules. CertAVP candidates receive a 20% discount on RVC CPD courses – please contact the CertAVP office for further details.

2. RVC Intranet (<https://intranet.rvc.ac.uk/>)

Access to all information available to all RVC students and employees, for example, news, events, policies, committees, services, Library, IT helpdesk, etc.

3. Athens (<http://www.openathens.net/>)

A huge amount of any library's information is now available online, e.g. electronic journals, e-books and databases. 'Athens' is a system used by UK universities for controlling access to these type of online services and with your username and password, you can access many of a library's online databases, electronic journals and e-books seamlessly.

4. Webmail (<https://webmail.rvc.ac.uk/>)

You are given an RVC email address, which you can choose to use for your CertAVP communication. You will also receive general RVC emails to this account.

Case diary guidelines

- Cases collected from up to 12 months prior to the date of enrolment on the CertAVP programme can be submitted for assessment.
- Cases should concentrate on **critical care** or **analgesic** requirements. A mixture of cases should be chosen to demonstrate skills in both these areas.
- You may use well-known abbreviations as long as these are explained in an appendix.

Critical commentaries guidelines

Part of the mark for the case diary includes the commentaries on five cases. These are intended to demonstrate skills associated with applying various learning resources to case management. They are not intended to be literature reviews of how to anaesthetise particular patients, or complete case reports. Instead, it is expected that some case aspects will be discussed in the context of how your learning resources (e.g. journal articles, online searches, book chapters, CPD events or advice/discussion with colleagues) were useful in supporting or directing case management. You are not permitted to use the same patients in your critical commentaries as in your case reports

Reflective synopsis guidelines

Guidelines for suitable material for the reflective synopsis are provided in the module description documents available on Learn. These tend to vary widely, and there is no set information that the examiners are looking for. Examples may include aspects of anaesthetic management that have been evaluated during the C module period, information you have learned or become particularly interested in during the process, or any changes that have been made as a result of undertaking the C module.

Case reports guidelines

Case reports should demonstrate your ability to use the competencies that have been acquired to cope with a challenging situation, emphasising critical thinking, problem solving, patient assessment and application of knowledge. They should not be “textbook cases” describing how to manage particular conditions, nor do they need to represent perfect management (although it would be expected that discussion of possible improvements would form part of the report). The case reports

may include comparative aspects of other cases and knowledge gained from other species as evidence of learning. To avoid repetition, it is permissible to cross-reference between the components of the module work, for example where the same principles have been applied to different cases. **It is imperative that you don't tell us only what you are doing but why you are doing it and furthermore that you understand the why. Justification/ explanation of case management that is based solely on non critical extracts from the literature is generally too descriptive and not indicative of understanding of case management, and therefore will usually not reach the standard required at this level.**

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 as this relates to anaesthetic management
- Pre-anaesthetic investigations
- Anaesthetic management
- Discussion
- References

You are reminded that these are intended to be written at Master's degree level. Previous submissions have occasionally failed because of failure to demonstrate the desired level of knowledge and understanding of the learning objectives. Although diploma-level detail is not expected, it is anticipated that to reach C module passing status, you will have needed to attend some advanced level anaesthesia CPD, spent some time with a diplomate anaesthetist, or spent the suggested learning hours reading relevant textbooks and scientific literature at an advanced level.

It is challenging to include the level of detail required to reach this level within the word limit provided, however concise scientific writing is one of the skills necessary to work to this level. A few tips:

- Avoid repeating information, since however relevant it is, marks can only be awarded for a particular piece of information once. Common examples have been discussing pharmacology of the same anaesthetic agents, or reasons for anaesthetic circuit selection, in all case reports. Cross-referencing between different components of the module package is acceptable.
- Avoid including large chunks of information that are not relevant to clinical anaesthesia management. The reports are intended to demonstrate how you have applied information you have learnt to improve or support clinical cases. The most common example of this is anaesthetic pharmacology – however tempting, it is not necessary to include large paragraphs on anaesthetic pharmacology that are irrelevant to case management or agent

selection, and marks will not be awarded for this. Instead, focus on aspects of pharmacology that help you decide which agents to use, or may present a problem. Agent selection for complicated cases is rarely ideal, and knowledge of pharmacology is used to explain how anticipated drug side effects are managed. Another example is the inclusion of large amounts of information on how anaesthetic monitors work – again, this information is important to learn during module preparation, but should be described in the context of how the information provided by monitors is useful.

- Avoid the temptation to select cases that are too complicated to adequately discuss in 1,000-1,750 words. Instead, choose cases where an underlying disease state, use of a particular technique (e.g. multimodal analgesia, total intravenous anaesthesia) or management of an anaesthetic complication contributed to the case being interesting and challenging, and where this can be discussed in detail. A 2 day old septic foal with a congenital heart defect, or a 17 year old brachycephalic Persian cat with renal disease undergoing complicated surgery, may provide a fascinating case example, but cannot possibly be discussed to the required level within the word limit! In these situations, it would be highly likely that you would be penalised for failing to discuss important case information in sufficient detail.

Note that cases selected do not need to represent ideal or perfect management, and frequently well-written reports highlight where things went wrong or how they could have been done differently. You are in no way disadvantaged because of lack of availability of equipment or individual drugs.

Discussion of how management could be improved if alternative equipment etc was available or if costs allowed often provides a valuable component of the case report. This should be explained in the context of how it would be helpful, rather than listing all the additional equipment/ drugs etc that would be used in a different setting.

Case reports should be written in the third person in a style suitable for publication in a Journal (for example Journal of Small Animal Practice). You are expected to demonstrate a high standard of literacy and please ensure that any spelling and grammatical errors have been corrected.

It is important that there is evidence from the case diary, critical commentaries and synoptic essay that you are familiar with and has reviewed all of the specified learning topics for the module.

References:

- These should be properly cited in the text, in accordance with the style in the Journal of Small Animal Practice (JSAP). Avoided listing references that were not cited in the text or vice versa.
- We recommend using Harvard referencing as described by the Anglia-Ruskin University (<http://libweb.anglia.ac.uk/referencing/harvard.htm>).

- You will find it very helpful to use a program such as Endnote® or Reference manager® to organise your references.

Appendices:

- You may include appendices but please note that the examiners are not obliged to read them (so please don't include essential case information).
- Images may be included here or in the main body of text. Include any images that you think are relevant as these generally enhance your report and enable examiners to assess your interpretation. Normal ultrasound images need not be included unless you would like to do so but clear abnormal images should be included if possible.
- Laboratory reports may be included here but all abnormalities need to be written in the text and reference ranges must be included. It is acceptable to scan printed reports rather than re-type them if you prefer, but any case details or details of your name or practice must be blanked out.

The word limit is 1,750 per case report. Tables, figure legends, appendices and reference list are NOT included in the word count. The report title and titles within the report ARE included. You should not put important information, such as the physical examination, in to a table to avoid the word count; only numerical data should appear within a table (such as laboratory results). In the interests of fairness to all candidates the word count is adhered to strictly and reports that exceed it will be returned unmarked.

All written work submitted to the Royal Veterinary College is passed through plagiarism detection software. Work submitted for this module should not have been submitted for any other courses at RVC or other institutions.

Instructions for submitting work

Each piece of work you submit must be anonymous. Please name your files to include the following: module code, your student number, and the type of work you are submitting, and email them to certavp@rvc.ac.uk:

Please save and name your documents like this:

- CVA3 Student Number – Case report review**
- CVA3 Student Number – Case diary**
- CVA3 Student Number – Critical commentaries**
- CVA3 Student Number – Synopsis**
- CVA3 Student Number – Case report 1**
- CVA3 Student Number – Case report 2**
- CVA3 Student Number – Case report 3**
- CVA3 Student Number – Case report 4**

If a piece of work is a re-submission, please name your file like this:

CVA3 Student Number – Case report 3 RE-SUB

The case diary should preferably be written in Excel and the commentaries, synopsis and case reports should be in Word. Please ensure that the beginning of each piece of work includes:

1. your student number
2. module name
3. title of work
4. word count (excluding the above, tables, photo titles and references)

Mentors

Candidates who study for the CertAVP medicine C modules with the Royal Veterinary College (RVC) are advised to find a mentor who can guide you. Finding a mentor, and maintaining appropriate and regular contact, are the responsibility of the candidate and mentors operate on a goodwill basis only. Suitable mentors may include holders of the RCVS CertVA or RCVS CertAVP qualifications or holders of American, European or RCVS Diploma qualifications. Individuals who are examiners for the CertAVP C modules (the module leaders) are not able to act as mentors.

What does the role of mentor involve?

The CertAVP is quite different from the previous RCVS certificate qualifications (see later), and therefore we encourage mentors to familiarise themselves with the guidance notes, learning objectives, assessment criteria and case guidelines for the C-VA modules. In addition, we consider that the role of mentor may include:

- Encouraging candidates to undertake continuing professional development and to 'see practice' at relevant centres appropriate to their strengths and weaknesses.
- Guide candidates on the level and amount of reading that they should be doing during their period of study. Most RVC CertAVP candidates choose to have access to the RVC library and have an Athens password for online journal access. For C module work we encourage use of primary research papers in addition to review articles and textbooks; one of the objectives includes the ability to critically review the literature and to attempt to have a balanced view of the literature where differing opinions exist.
- Encourage candidates to get support from other CertAVP candidates either through the RVC learning support discussion forums or by other means.

What is the mentor's role regarding submitted work?

We consider that a mentor can give general advice on preparation of a case log and selection of cases for writing up into full-length reports. We do not recommend that mentors give detailed written advice on case reports. However, one read through of one case report and some general feedback (ideally verbally) is acceptable. Candidates will be asked to confirm which report has been read at the time of submission. Candidates are given guidance notes on preparation and layout of case reports and these can be found in the relevant module outline documents.

Recommended reading list

The following list is given as a guide as to where to start and for this reason cannot be considered 'complete'. We also don't expect candidates to read texts from cover to cover or to use all of the texts listed, however we do recommend you make use of the most recent edition of textbooks where available. We apologise if candidates feel a particular favourite is missing - feel free to use the Learn discussion board to pass on additional suggestions to other candidates.

Textbooks

- Veterinary Anaesthesia (2001) Hall, Clarke and Trim
- BSAVA Manual of Small Animal Anaesthesia and Analgesia (2007) Seymour and Duke
- Veterinary Clinics of North America: Small Animal Practice
- Clinical Anaesthesia (1999) Haskins
- Small Animal Pain management (2000) Mathews
- Critical Care Cardiovascular Focus (2001) Dhupa
- Critical Care Respiratory Focus (2002) Dhupa
- Lumb and Jones' Veterinary Anaesthesia and Analgesia (2006) Tranquilli, Thurmon and Grimm
- Fluid, electrolyte and acid base disorders in small animal practice (2011) DiBartola
- BSAVA Manual of Emergency and Critical Care (2007) Boag and King
- Small Animal Critical Care Medicine (2008) Silverstein and Hopper
- Pain Management in Animals (2000) Flecknell and Waterman-Pearson

Journals:

- Veterinary Anaesthesia and Analgesia
- Journal of Veterinary Emergency and Critical Care
- Journal of Small Animal Practice
- Journal of the American Veterinary Medical Association