

# Certificate in Advanced Veterinary Practice

## C-E.2 Equine Cardiovascular and Respiratory Diseases

### Module Outline



**Module Leader:**

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**Reader in Equine Medicine**

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## ENROLMENT GUIDANCE

Before embarking on this module, you should fulfil the following criteria:

- a) You should have completed module B-EP.3.
- b) If you are only enrolling for the C medicine modules with RVC, it is **highly recommended** one of your case reports for module B-EP.3 is a medicine case that would fall within the remit of this C module. This will be reviewed by the assessors prior to assessment of any C module work. If you have completed the B-EP.3 module at another institution, a suitable case 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. All candidates will normally have completed A-FAVP.1 Foundations of Advanced Veterinary Practice module and B-EP.3 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.

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 certificate.

For a designated Certificate in Advanced Veterinary Practice (Equine Medicine - Internal) you must complete this module in conjunction with any two of C-E.1, C-E.3, C-E.4 and C-E.11. Alternatively, C-E.3 or C-E.4 can be replaced by C-VA.2, C-VDI.4, C-VDI.5 or C-VD.4. This will be followed by an RCVS synoptic assessment.

For a designated certificate in Advanced Veterinary Practice (Equine Practice) you must complete this module in conjunction with any two other equine C modules, or any one other equine C module plus one out of C-VA.2, C-CDI.4, C-VDI.5 or C-VD.4. This will be followed by an RCVS synoptic assessment.

## LEARNING OUTCOMES

To enhance the depth and breadth of the candidate's knowledge and understanding of disorders of the cardiovascular and respiratory system in horses of all age groups including pathophysiology, clinical signs, diagnostic approach and rational therapy.

## LEARNING TOPICS

- The anatomical, physiological, immunological and pathological processes involved in thoracic disease, including the relationships between the cardiovascular and respiratory systems and the overall health status of the patient.
- The principles and practical application of equine exercise physiology.
- The biology of micro-organisms and parasites that are associated with equine cardiovascular and respiratory diseases and application of this to pathogenesis and methods of diagnosis, treatment and control.
- The clinical presentation, diagnosis, treatment and prevention of diseases of the equine upper and lower respiratory tract, heart, blood vessels and pleural cavity in horses of all age groups.
- The concepts of preventative health care relating to the equine area, including consideration of disease control regulations of the Jockey Club and other regulatory bodies in the equestrian industry.

## ASSESSMENT

- Case diary of 50 cases involving a broad range of problems of the cardiovascular and respiratory systems of horses of all ages to assess the range of experience of the candidate and encourage reflection on cases managed. A minimum of 10 cardiac cases should be included.
- After completion of the case diary candidates should write a 1,000 word synopsis of what they have learned from these cases. This might include what has changed in their approach to a new 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 might influence decision making or case management in the future.
- 3 written case reports of approximately 1,750 words each (on 3 of the topic/body system areas identified in the learning topics) that will enable assessment of the candidate's experience and problem solving skills in the work place.
- One case report can be submitted for review prior to being marked. This is only permitted once per candidate per discipline. It must be submitted as a fully written report and not a draft version. Feedback will be given on the approach to writing the case report that can be applied to all future reports, rather than specific comments on management of the individual case.
- 1 hour written examination (short answers +/- extended matching questions) to assess the breadth and depth of the candidate's knowledge base.

Further guidance is given below for preparation of case diaries, reflective essays and case reports.

## ANNUAL TIMETABLE

22 <sup>nd</sup> February	Case report review to be submitted for feedback
21 <sup>st</sup> March	Case report feedback returned to you
1 <sup>st</sup> May	Case diary, synopsis, and case reports to be submitted
1 <sup>st</sup> June	You will be notified by 1 <sup>st</sup> June of your written work results
Mid July	Written examination to be held (date to be confirmed)
Mid August	Examination results announced

## LEARNING SUPPORT

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:

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

- Sample case diary, essay and case report

- 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 medicine C modules or simply to find out who else is out there!
- Access to presentations from the CertAVP Survival Tips day
- 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](mailto:library@rvc.ac.uk) or [helpdesk@rvc.ac.uk](mailto: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-SAM modules. CertAVP candidates receive a 20% discount on RVC CPD courses – please contact the CertAVP office for further details.

- **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.

- **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.

- **Email (<http://mail.rvc.ac.uk>)**

You are given an RVC email address, which is compulsory to use for CertAVP communication and submission of work.

## INSTRUCTIONS FOR SUBMITTING CASE REPORTS / CASE DIARIES

For this C-E.2 module you must prepare a case diary of 50 cases involving a broad range of problems of the cardiovascular and respiratory systems of horses of all ages to assess the range of experience of the candidate and encourage reflection on cases managed. A minimum of 10 cardiac cases should be included.

The aim of the case diary is to demonstrate that you have exposure to an appropriate range of cases over the time period that you study for the C-E.2 module. A secondary aim is for you to demonstrate to the examiners that you are investigating and managing cases appropriately. If (for example) an important diagnostic test is missing from a particular case early on in the diary, the examiners would expect to see evidence of you improving your diagnostic skills and including such a test in a similar case later on in the diary. Conversely whilst appropriate and complete investigation is ideal, the examiners are keen to see that indiscriminate testing is not performed.

The examiners appreciate that collating cases in first opinion practice may result in including animals without a confirmed diagnosis and/or that underwent limited work-up for various reasons. We encourage you to include cases that are the best examples of your medical caseload but we will accept a smaller proportion of cases that have a presumptive diagnosis and those that had limited work-up. For either you should indicate this by indicating e.g. 'presumptive diagnosis' or 'limited investigation due to .....'.

The examiners do expect to see a moderate number of common conditions (such as severe equine asthma, bacterial pneumonia, *Streptococcus equi equi* infection) within the case diary when you work in general practice. Indeed, it is important to include some of these cases to demonstrate your investigation and management of these conditions. However, we advise against including large numbers of animals with common conditions as this suggests that you are not exposed to a varied enough medicine caseload. Including more than 5 cases with the same or very similar diagnosis is not advised. Conversely, we do not expect you to have seen every type of disorder that might be included within the learning objectives (especially rare disorders).

The following guidelines will help with compiling your case diary:

- Cases should be submitted in chronological order.
- The diary must be able to be viewed on one page when reading from left to right (landscape).
- Cases can be collected from up to 12 months prior to the date of enrolment on the CertAVP programme. Please note that the learning involved in studying for a C module should enhance your case management, therefore if all cases are selected from the period prior to enrolment this might adversely affect the quality of the diary.

- We encourage the use of abbreviations where appropriate (e.g. U/S for ultrasound) but you must include a key to your abbreviations. Please also include a key for exactly which diagnostic tests have been included in each e.g. UA; urinalysis (includes specific gravity, dipstick and sediment examination).
- We strongly advise that you record potential cases directly into a spreadsheet as you go along, as soon as you have enrolled onto the C-E modules. This will save you a lot of time nearer to the submission date. Any unwanted cases can easily be removed.
- Try to avoid including cases when the management was predominantly surgical with minimal medical investigation or management.
- Whilst the case diary is meant to be a brief summary of the case, do include detail where needed. If physical examination was normal then state 'normal PE' for example. Bear in mind what minimum information the examiner requires when assessing a case presented in this format.
- The diary should be written using scientific terminology e.g. fluid therapy rather than 'iv drip'. Using this example, it would be even better to state 'crystalloid intravenous fluid therapy'.
- The three cases that you choose to write up as case reports are eligible to be included in the case diary.
- Cases that have already been submitted for any other examination or assessment are not eligible to be used in the CertAVP.
- Only include examples of equine medicine in your case diary.
- Sample case diaries are available on Learn.

## PREPARING THE CASE DIARY SYNOPSIS

A 1,000 word synopsis essay is required to accompany the case diary. This synopsis might include

- discussion of what might have changed in your approach to a new case
- any new procedures or investigations that are now considered during case investigations
- any unexpected features of a case which might influence decision making or case management in the future
- discuss whether there has been any impact on you and your team for future practice and learning
- any additional reading which was helpful

This is a good opportunity to explain or clarify any aspects of your case diary to the examiner and to state any plans you have for future study. Wherever appropriate use your further reading and available evidence to support any statements that you make. You will probably find it easier to write your reflective synopsis after you have finished your case reports as well as once your case diary is completed. You must stay within the word limit given or the work will be returned unmarked.



## PREPARATION OF CASE REPORTS

Select your cases from a range of commonly presented conditions which fall within the learning topics for the chosen module. Ideally, cases that have been well investigated and followed-up will be chosen and we do expect these to be your best medicine case examples. Please remember to use equine medical cases only. Although medical cases may be worked up collaboratively, you must be the primary clinician and have been actively involved in the diagnostic and therapeutic decision making for the cases you present. Where external centres or visiting specialists have been used for part of the diagnostic investigation (e.g. advanced imaging) then this should be specified within the report.

Ideally, you will choose cases that span all or most of the learning topics rather than choosing cases that are similar to one another. We can assess your approach to medical cases, clinical reasoning and knowledge more effectively if the cases chosen represent a range of different disease processes, diagnostic work-up and management.

If you are unsure about case selection please consult your mentor or the CertAVP team for further advice. As a guide the following cases usually represent poor case selections:

- Rare or overly complicated cases.
- Cases that do not enable you to demonstrate your problem solving ability, clinical reasoning and ability to perform appropriate treatment and case follow-up. This might include cases with an obvious diagnosis on presentation, those with limited clinical pathology or imaging findings and those cases for which treatment and follow-up are very simple or minimal.
- Cases without a diagnosis or lacking appropriate investigation to substantiate a given diagnosis.
- Cases whose diagnosis is substantially made by post-mortem examination.
- Cases that are investigated and managed largely at a referral centre rather than by you.
- Cases that are euthanased following diagnosis with minimal medical therapy.
- Cases whose definitive treatment is surgical with limited medical involvement. (Surgery may be part of the investigation however, for example to collect biopsies.)

## WRITING THE CASE REPORTS

We expect that you will build on the writing skills already demonstrated in your B module essay writing whilst taking into consideration that for the C modules, a more classic scientific case report is expected. We hope to see evidence of your problem solving skills and clinical reasoning as well as sound management of medical cases.

We expect case reports to be written in a succinct and logical manner with the use of tables and high quality images such as radiographs and advanced imaging if these were part of the diagnostic investigation. Ensure that all tables and figures are correctly labelled and appropriate legends are included. Where the results of diagnostic tests are included in the case reports, ensure that normal values for each parameter are also included. It is helpful to include diagnostic test results for the examiners' information (within an appendix if necessary) and details of external laboratories if used (see also comments below).

The case report should be written in the third person in a style suitable for publication in a Journal (for example Equine Veterinary Journal). You are expected to demonstrate a high standard of literacy and please ensure that any spelling and grammatical errors have been corrected. You may use well-known abbreviations as long as these are explained in an appendix.

Case reports should be set out in the following order (where relevant):

- Signalment
- History and clinical signs
- Physical examination findings
  - Ensure that these sections contain all relevant information about the presenting problems as well as physical examination findings. For many medical cases history and physical examination are vital to defining the problem/s and making the correct diagnosis. Imagine what the reader will want to know particularly taking into consideration your final diagnosis.
- Problem list and problem-based assessment of the specific and important problems
  - This will be similar to the style of your B module medicine essays but you are likely to need to write very succinctly to stay within the word limit.
  - It can be useful to list your problems starting with the most specific and finishing with the least specific. Then discuss each problem in turn, defining the problem if necessary and defining the body system that is affected if possible. Some problems are better when considered together e.g. ataxia and weakness.
  - Most candidates include a differential list for each problem at this point. Make sure that differential lists are relevant and prioritised for your case rather than a long list that might be simply copied from a textbook. You may choose to use a different font to indicate which

differentials are more likely in your opinion, or simply order differentials from most likely to least likely. Do indicate to the reviewer which method you have chosen.

- Initial overall case assessment
  - This should be a brief summary of your initial thoughts including the differentials you think are most likely in light of the information you have given so far. This information then allows you to justify the diagnostic pathway you have chosen for this particular animal.
- Investigation
  - Within this section there needs to be some rationalisation of why certain diagnostic tests were chosen. Avoid testing for disorders/diseases that were not considered in your problem based assessment or differential diagnosis.
  - The examiner is looking for a safe and logical approach to investigation.
  - All relevant results should be listed in the main body of the report although full results may be included in an appendix for the examiners information.
  - Images may be included in this section or in an appendix but your interpretation must be described within the main body of the report. Reproduced images must be of high quality.
- Diagnosis
  - This will be one short sentence. The diagnosis must be logical and unequivocal unless there is some discussion adequately justifying any limitations later in the report.
- Treatment
  - This section should include details of treatment including doses of medications used, route administered, frequency of administration etc. The cascade should be followed whenever possible or justification should be given. If a critical care case is being reported then this section is likely to form a larger part of the report.
- Outcome and follow-up
  - Follow-up is an important aspect of medical case management and this should be appropriate but not excessive. If you have a large amount of follow-up information (e.g. follow-up blood results) you may find it useful to tabulate this in an appendix.
- Discussion
  - The discussion does not need to make the largest part of the report and in most instances this is not possible to remain within the word limit.
  - The discussion should be pertinent and relate to observations relevant to the case, rather than being a review of the literature. Instead, use your knowledge gained from research to justify and explain your clinical reasoning or case management. You may also use available evidence to highlight your case was similar or different to reported cases with the same diagnosis.
  - Some reflective component is expected even if the case outcome was excellent, there are usually lessons to be learned somewhere. What could have been done differently; were there any limitations of investigation or management; what other treatment options could

have been considered? Reflection cannot excuse a serious mistake in case management but can highlight how minor errors would be improved upon next time if they have occurred.

- For C modules we expect you to have read a range of material when researching your case such as relevant textbooks, review articles, case series and research articles from peer reviewed journals.
- References
  - These should be properly cited in the text, in accordance with the style in Equine Veterinary Journal (EVJ). 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 to provide laboratory reports or other information that you may wish the examiner to have access to but please note that the examiners are not obliged to read them (so please don't include essential case information).
  - The appendices may not be used to provide additional information that should be within the case report e.g. justification for use of antibiotics. Any such information will not be marked and will not contribute to the overall grade.
  - 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. Radiographs must be interpreted within the text of the case report and not as part of the figure legends or within the appendices.
  - Laboratory reports may be included here but all abnormalities need to be written in the text and reference ranges must be included. All laboratory results should be interpreted appropriately within the text of the case report and not within the appendices.
  - 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 words per case report. Tables, figure legends (including description of radiographs), 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 strictly adhered to 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](mailto:certavp@rvc.ac.uk):

**CE2 Student Number – Case report review**

**CE2 Student Number – Case diary**

**CE2 Student Number – Synopsis**

**CE2 Student Number – Case report 1**

**CE2 Student Number – Case report 2**

**CE2 Student Number – Case report 3**

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

CE2 Student Number – Case report 3 RE-SUB.doc

The case diary should be written in Excel and organised in such a way that it can be easily viewed on one page/screen in landscape view. The synopsis and case reports should be in Word.

The email address you send the work from does not need to remain anonymous. The content of case reports must also be anonymous, e.g. removing practice details from discharge notes or laboratory reports.

Please ensure that the beginning of your essay and case reports include:

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

## MENTOR

Candidates who study for the CertAVP medicine C modules with the RVC are advised to find a mentor who can guide them. Finding a mentor, and maintaining appropriate and regular contact, are the responsibility of the candidate and mentors operate on a goodwill basis only. Mentors are usually either holders of the RCVS CertEM(Int.med) or RCVS CertAVP (Equine practice) or CertAVP (Equine Medicine - Internal) qualifications or holders of American, European or RCVS Diploma qualifications. Ideally, mentors will have some experience of teaching and examining at either undergraduate or post-graduate level. Members of the RVC Equine Medicine department cannot act as mentors as they are involved in setting and marking the assessed work. We recommend that an individual mentor does not take on more than 5 CertAVP candidates if possible.

We consider that the role of a mentor should/may include:

- Becoming familiar with the guidance notes that are supplied to candidates.
- Encouraging candidates to undertake continuing professional development and to 'see practice' at a relevant centre/s appropriate to their strengths and weaknesses.
- Encourage candidates to join relevant societies and associations and attend meetings where appropriate.
- Guide candidates on the level and amount of reading that they should be doing during their period of study. There is a reading list for each C-E module that can be used as a framework. Most RVC CertAVP candidates also have access to the RVC library and have an Athens password for online journal access.
- Encourage candidates to plan their time carefully for logging cases, writing case reports and essays, reading and exam preparation. A reminder of good examination technique may also be useful for some candidates.
- Encourage candidates to get support from other CertAVP candidates either through the RVC learning support discussion forums or by other means.

We consider that a mentor can give general advice on preparation of a case diary and selection of cases for writing up into full-length reports. Unlike the previous RCVS equine certificates, we do not recommend that mentors read any of the case reports in detail and/or give detailed written advice. 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 through at the time of submission.

Please notify the CertAVP office when you have a mentor, as there is a Mentor Guidance document that they will be provided with.

## RECOMMENDED READING LIST

Equine medicine in relation to this module is a broad subject and there are many good texts and journals to dip in and out of. Ultimately, those enrolled for the modules are encouraged to read not only to pursue their interests but to help fill in the gaps in their knowledge and experience. This list is merely a guide as to where to start and for this reason can in no way be considered 'complete'! Reading textbooks cover to cover is unlikely to be achievable or necessarily helpful but sections should be explored and used for reference all the time.

- Manual of Equine Practice (Eds Rose and Hodgson), Saunders
- The Equine Manual (Eds Higgins and Snyder), Saunders Elsevier
- Equine Medicine, Surgery and Reproduction (Mair, Schumaker, Love and Watson), Saunders
- Equine Infectious Diseases (Eds Sellon and Long), Saunders
- Equine Internal Medicine (Eds Reed, Bayly, Sellon), Saunders
- Disease and Disorders of the Horse (Knottenbelt and Pascoe), Saunders
- Manual of Equine Emergencies (Orsini, Divers, Somerville), Saunders
- Saunders Equine Formulary (Knottenbelt), Saunders Elsevier
- Current Therapy in Equine Medicine (Ed Robinson), Saunders Elsevier
- Blackwell's Five-Minute Veterinary Consult Equine (Ed Lavoie), Blackwell
- Cardiology of the horse (Ed Marr), Saunders

### **Journals recommended for the CertAVP C-E.2 module:**

(Useful articles can be found in all of these journals)

- Equine Veterinary Journal
- Equine Veterinary Education
- In practice
- Journal of Veterinary Internal Medicine
- Veterinary Clinics of North America (Equine Practice)
- Compendium on Continuing Education for the Practicing Veterinarian
- Clinical Techniques in Equine Practice