Certificate in Advanced Veterinary Practice

C-ECC.3 Emergency Care B

Module Outline

Module Leader:

Dr Karen Humm MA VetMB MSc CertVA DACVECC DipECVECC FHEA MRCVS
RCVS Recognised Specialist in Emergency and Critical Care
Associate Professor in Transfusion Medicine and Emergency and Critical Care

Introduction

This module is aimed at veterinary surgeons in general small animal practice or at an emergency service. The module is written from a small animal perspective and 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.

You should fulfil the following criteria to be enrolled:

- Completed module B-SAP.1
- It is your responsibility to ensure that you have access to sufficient emergency cases to both produce adequate material for the case reports and also to allow sufficient experience to develop in this area as this will greatly enhance your ability to pass the written examination.

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.

The module is one of three C- level modules in Emergency and Critical Care. The module is focused on recognition and treatment of common emergencies of the gastrointestinal (includes liver and pancreas), urinary, reproductive, endocrine, oculo-otic and integumentary systems. For a designated Certificate in Advanced Veterinary Practice (Emergency and Critical Care) you must complete this module with a combination of C-ECC.1, C-ECC.2, C-VA.3 or a fourth 10 credit module and an RCVS synoptic assessment.

Aims

The aims of the module are to extend and consolidate clinical knowledge and skills gained at undergraduate level, in order to implement a prioritised, problem-based approach to the initial assessment and subsequent management of emergency cases; and to enable the candidate to critically evaluate their own standards of practice and develop strategies for continuous improvement in the future. The candidate is encouraged to develop a cross-disciplinary approach to patient care.

Learning outcomes

By the end of the module, successful candidates should be able to:
1. Demonstrate a thorough understanding of the pathophysiology, treatment and differential diagnosis of common emergency conditions in the aforementioned body systems.
2. Develop a systematic understanding of the knowledge and techniques required to manage the common emergency presentations seen in general practice.
3. Critically appraise current working practices, working environment, staff and equipment with regard to preparation for and management of the emergency patient and plan suitable protocols for optimising their outcomes.
4. Critically evaluate the literature in order that evidence-based medicine underpins their decision making processes.

Module content

1. The aetiologies, typical history, physical examination findings, diagnostic algorithm and treatment options for the patient which has acute dysfunction in the gastrointestinal, urinary, reproductive, endocrine, ocular, otic or integumentary systems or organs. Examples of acute dysfunction include, but are not limited to, the following conditions:

   - **Gastrointestinal, Hepatic and Pancreatic**: vomiting or diarrhoea of any cause, gastric dilation-volvulus, intestinal foreign bodies, gastric decontamination in toxicities, surgical repair of gastrointestinal wounds, rectal prolapse, dental trauma, mandibular fractures, intussusception, megaoesophagus, portosystemic shunt, end-

stage liver disease, acute liver injury/hepatic failure, hepatic encephalopathy, hepatic lipidosis, acute pancreatitis, anorexia of the rabbit

- **Urinary**: urethral or ureteral obstruction, urinary tract infection, pyelonephritis, uroabdomen, intrinsic acute kidney injury of any cause, decompensated chronic kidney disease

- **Reproductive**: pyometra, dystocia, misalliance, paraphimosis, prostatic abscess

- **Endocrine**: hyperthyroidism in the cat, hypoadrenocorticism in the dog, diabetic ketoacidosis, hypoglycaemia, insulinoma, diabetes mellitus.

- **Oculo-Otic**: acute vestibular disease, otitis externa and media, aural haematoma, uveitis, glaucoma, corneal abrasions/ ulcers/ lacerations, keratoconjunctivitis sicca, hyphaema, hypopyon, retinal detachment.

- **Integumentary**: acute moist dermatitis, ectoparasite infestation, lacerations, thermal burns, chemical burns, necrotising fasciitis

2. Technique for performing common emergency procedures, such as (but not limited to) those listed below.

- **Gastrointestinal / Hepatic**:
    - Place a naso-gastric/-oesophageal tube and administer enteral nutritional support
    - Place an oesophagostomy tube and administer enteral nutritional support
    - Surgical repair and post-operative management of a gastric dilation-volvulus
    - Calculate daily caloric requirements for enteral nutrition
    - Perform a diagnostic peritoneal lavage and interpret the findings
    - Calculate the daily fluid balance for a patient on intravenous fluids
    - Perform a point of case abdominal ultrasound (POCUS) and recognise free abdominal fluid

- **Urinary**:
    - Place a urinary catheter in male and female dogs and cats
    - Perform cystocentesis

- **Reproductive**:
  - Surgical management and post-operative care of a pyometra
  - Perform a caesarean section
  - Perform resuscitation of neonates post caesarean section

- **Ocular**:
  - Measure intraocular pressure and treat acute glaucoma
  - Perform a fluoroscein stain of the cornea and manage a corneal ulcer

- **Integumentary**:
  - Manage burns
  - Manage contaminated wounds
  - Manage a degloving injury

Assessment

- 14 short case reports of up to 500 words each:
    - Five gastrointestinal (includes liver and pancreas)
    - Two urinary
    - Two reproductive
    - Two endocrine
    - Two oculo-otic
    - One integumentary

    These cases should demonstrate that you have performed a range of diagnostic and therapeutic procedures commonly used in emergency medicine. Cases seen up to 12 months prior to the date of enrolment on the CertAVP will be accepted. Cases cannot be used for C-ECC.2 or used as the long case reports in this module.

- 2 long case reports of 1,750 words each. Approx. 1,000 words should be case description and approx. 750 words should be a personal reflection which should critically evaluate your management of the case and discuss appropriate literature. Appropriate cases might include those with challenging diagnostic decision making or those that did not respond as expected to therapeutic interventions

- One long case report can be submitted for review prior to being marked. This is only permitted once per candidate per discipline.

- At the end of the short and long case reports you should include a 1,000 word synopsis of what you have learned from the cases and others over your period of working towards ECC.3 work submission. This might include what has changed in your approach to a particular presentation, any new procedures or investigations you have learnt, any additional reading which was helpful, and/or any unexpected features of a case which will influence decision making in the future.

- 2 hour examination (unseen clinical cases) to assess the breadth and depth of your knowledge base and problem solving ability.

Guidance is given for preparation of course work and please do listen to the C-ECC webinar on Learn for further assessment guidance. Examples of successful work are available on Learn. Please use the forum to ask any questions you have about these submissions.

Annual assessment timetable

1st February	If you are submitting work for assessment on the following dates, please inform the CertAVP office
16th February	You are given the opportunity to have one 1750 word case report per discipline reviewed for feedback purposes prior to marking (therefore only one for all ECC modules). Please submit your report by this date if you haven't already had a review.
16th March	Case report feedback returned to you
30th April	Short and long case reports and synopsis to be submitted
30th June	You will be notified of your results
July	2 hour examination (date to be confirmed)
Early September	You will be notified of your exam result

Assessment weighting

- Short case reports and synopsis   33%

- Long case reports   33%

- Exam   34%

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:

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

- Sample short and long case reports, synopses and exam questions
- Guidance for mentors
- Interesting articles to read
- 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 ECC modules or simply to find out who else is out there!
- A webinar which contains guidance on preparing written work for the ECC modules.
- 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. This includes original research articles as well as review articles and case reports. IT and Library support is available for this facility.
- There are also several CPD courses run each year at the RVC that support some of the learning outcomes for ECC 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.

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. 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.

Short case report guidelines

The aim of these reports is to demonstrate that you have exposure to an appropriate range of cases over the time period that you study for this module. A secondary aim is for you to demonstrate to the examiners that you are investigating and managing cases appropriately. 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 emergency case load but we will accept a proportion of cases that have a presumptive diagnosis and those that had limited work-up. For either you should indicate this e.g. 'presumptive diagnosis' or 'limited investigation due to .....'.

The following guidelines will help with compiling your case reports:
- Do not include 2 cases with the same or very similar diagnoses
- Cases can be collected from up to 12 months prior to the date of enrolment on the CertAVP programme.
- These cases cannot be used as short or long case reports for any other C module submission.
- Do not use cases with minimal emergency stabilisation, investigation or management.
- Sample reports are available on Learn.

Suggested format:
- Signalment
- Reason for presentation
- Physical examination findings
- Initial stabilisation if required
- Diagnostic tests performed with justification
- Treatment
- Diagnosis
- Learning points/Reflection (this can link to your synopsis)

Long case report guidelines

The aim of these longer reports is to demonstrate that you are working at the level expected for a CertAVP ECC holder. Cases should be chosen that demonstrate high level emergency care of the patient, with appropriate cases including those with challenging diagnostic decision making or those that did not respond as expected to therapeutic interventions. The patient's major problem should be with one of the organs systems covered by the module, i.e. gastrointestinal/hepatic, urological, endocrinological, reproductive, ocular, integumentary (with each report being on a patient with a disease process in a different group). It is understood that often the care of emergency patients may not be optimal, however where this occurs discussion of reasons and improvements that could be applied should be included in the case discussion. You should have had primary control of the case for the majority of the emergency care provided.

Each case report is to be written up in detail. Images may be used where they provide valuable information for the case. The case report should be written in the third person in a style suitable for publication in a Journal (for example as per Journal of Small Animal Practice guidelines). You are expected to demonstrate a high standard of literacy; please check carefully for any spelling and grammatical errors. You may use well-known abbreviations as long as these are explained in an appendix.

The following framework should be used as a guide to the structure of the case report:
- Signalment of patient
- History
- Clinical signs
- Problem list and differential diagnoses
- Investigation
- Diagnosis
- Treatment
- Outcome
- Discussion
- References

Images
For radiographs lateral views of any part should be orientated with the cranial or rostral part to the viewers left. Ventrodorsal and dorsoventral images should be viewed with the left side

on the viewers right. Lateral and medial should be consistent throughout the report. For ultrasound images cranial should be to the left with ventral surface at the top of the image.

Synopsis guidelines

A single 1,000 word synopsis essay is required which reflects on your short and long case reports (combined). 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
- Whether there has been any impact on you and your team for future practice and learning
- Any additional reading or literature which was helpful

This is a good opportunity to explain or clarify any aspects of your case reports to the examiner and to state any plans you have for future study. Examples are provided although please note that there is not a specific format that must be followed. You will probably find it easier to write your reflective synopsis after you have finished all your long and short case reports. You must stay within the word limit given or the work will be returned unmarked.

Instructions for submitting work

Each piece of work you submit must be anonymous and please ensure that your work includes this table on the front page:

Student number:	
Module:	C-ECC.3
Piece of work:	*For example, short case reports, case report 1, case report 2 or synopsis)*
Word count: (excluding tables, photo titles and references)	

All work should be submitted in Microsoft Word document format.

Contact the CertAVP office if you need a reminder of your student number (found on your Rover email when you first enrolled). All work is submitted online via Learn; you will be given further instructions when you enrol.

We recommend that text font and size, paragraph spacing, layout, spelling and grammar are considered when writing your work. Consider using a suitable font (for example, Arial or Calibri), a font size no smaller than 10 and please use a 1.5 line spacing setting.

References
- These should be properly cited in the text. Do not list references that were not cited in the text or vice versa.
- We recommend using Harvard referencing as described by the Anglia-Ruskin University (https://learn.rvc.ac.uk/mod/book/view.php?id=80252).
- You may find it 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). These should be in the same Word document as your report.
- 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.

Any work that that exceeds the permitted word count will be returned to you for re-submission within the word limit. This is in the interest of fairness as it is difficult to compare work exceeding the word limit with one which has been kept to the required limits. Additionally, the ability to keep a discussion tightly focused, with every word counting, is an important skill to have developed at this level. You should not put important information, such as the physical examination, in a table to avoid the word count; only numerical data should appear within a table (such as laboratory results). Figure legends, appendices and a reference list are NOT included in the word count. The report title and titles within the report ARE included.

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.

Suggested 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 you 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 you feel a particular favourite is missing - feel free to use the Learn discussion board to pass on additional suggestions to other candidates.

ECC Textbooks

BSAVA manual of Emergency and Critical Care - Boag & King

Textbook of Small Animal Emergency Medicine – Drobatz, Hopper, Rozanski and Silverstein

Small Animal Critical Care Medicine – Silverstein & Hopper

Fluid, electrolyte and acid-base disorders in Small Animal Practice, DiBartola

Advanced monitoring and procedures for Small Animal Emergency and Critical Care – Burkitt Creedon and Davis.

Emergency and Critical Care Manual – K Mathews

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

Textbook of Small Animal Surgery - Fossum

Journals

You are encouraged to review recent issues of the Journal of Veterinary Emergency and Critical Care, particularly focusing on papers discussing topics in your case reports and also review articles. ACVIM and ACVECC consensus statements and WSAVA guidelines on relevant ECC topics (published in various journals) are also often very useful e.g. CURATIVE, RECOVER etc.

Online Resources
www.vetlit.org
www.medscape.com
www.webmd.com
www.pubmed.gov