Reference Number	C-ECC.2
Module Title	Emergency Care A
Category and Value	C – 10 credits
Study Hours	100

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:

a) Completed module B-SAP.1
b) 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. This module is focused on recognition and treatment of common emergencies of the cardiovascular, respiratory, haemo-lymphatic, musculoskeletal and nervous 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.3, 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 cardiovascular, respiratory, haemo-lymphatic, musculoskeletal, or nervous systems. Examples of acute dysfunction include, but are not limited to, the following conditions:

    - **Cardiovascular**: mitral valve insufficiency, congestive heart failure, ruptured chordae tendinae, pericardial effusion, hypertrophic cardiomyopathy, dilated cardiomyopathy, bacterial endocarditis, heart base tumours, toxin induced arrhythmias, ventricular tachycardia, accelerated idioventricular rhythm, atrial fibrillation, ventricular fibrillation, ventricular premature complexes, sick sinus syndrome, 1st, 2nd and 3rd degree AV block, causes of sinus bradycardia, causes of sinus tachycardia, thromboembolic disease, common congenital cardiac and vascular malformations, cardiopulmonary arrest.

    - **Respiratory**: cardiogenic and non-cardiogenic pulmonary oedema, bacterial pneumonia, aspiration pneumonia, common mediastinal and pulmonary neoplastic conditions, pleural effusion, pyothorax, pneumothorax, haemothorax, tracheal collapse, brachycephalic obstructive airway syndrome, laryngeal paralysis, pharyngeal and tracheal injuries, diaphragmatic rupture, broken ribs/ flail chest, bite wounds to the chest, smoke inhalation, pulmonary thromboembolism.

    - **Haemo-Lymphatic**: anaemia of any cause, leukaemia, paracetamol toxicity, methaemoglobinaemia, haemangiosarcoma, lymphoma, haemorrhage, transfusion therapy, coagulation, sepsis, anticoagulant rodenticide toxicity, anaphylactic reactions.

    - **Musculoskeletal**: acute lameness of any cause, management of abdominal / inguinal/ umbilical hernia, cellulitis, tendon and pad injuries, acute myositis, recognition and prognosis of fractures, approach to the polytrauma patient, necrotising fasciitis

    - **Neurologic**: degenerative myelopathy, intervertebral disc disease, fibrocartilaginous embolism, brachial plexus avulsion, epilepsy, intracranial neoplasia, inflammatory CNS disease of any cause, ataxia, tremors, seizures, vestibular disease, neurotoxins including but not limited to metaldehyde, tremorgenic mycotoxins, theobromine, pyrethrin, illicit drugs.

2. The technique for performing common emergency procedures, such as (but not limited to) those listed below. This list is not intended to be restrictive or prescriptive.

- **Cardiovascular**:
  - Perform pericardiocentesis to relieve pericardial tamponade
  - Measure blood pressure indirectly using a Doppler probe and sphygmomanometer with cuff
  - Obtain Lead II ECG trace and assess it for life-threatening arrhythmias
  - Use of drugs for tachydysrhythmias
  - Manage a cardiopulmonary arrest and resuscitation
  - Use of point of care ultrasound (POCUS) to assess left atrial:aorta
  - Use of POCUS to assess for presence of pericardial effusion

- **Respiratory**:
  - Place a nasal catheter for intranasal oxygen administration
  - Place an indwelling thoracostomy tube using trochar and Seldinger methods
  - Use POCUS to document pleural effusion, alveolar-interstitial disease and pneumothorax
  - Perform thoracocentesis
  - Interpret the PaO2 and SaO2 from blood gas measurements
  - Interpret pH, HCO^-_3 and Pa/vCO_2 on blood gas analysis
  - Provide positive-pressure ventilation during anaesthesia

- **Haemo-Lymphatic**:
  - Perform and interpret a platelet estimate from a blood smear
  - Evaluate red blood cell morphology on a blood smear for an anaemic patient
  - Recognise white cell parameters associated with inflammation/infection/neoplasia on a blood smear
  - Interpret coagulation parameters
  - Administer a whole blood, PRBC or plasma transfusion including dose calculation and recognise complications associated with this.

- **Musculo-Skeletal**:
  - Replace a dislocated hip under anaesthesia
  - Place an Ehmer sling on the hind limb
  - Manage open fractures in the initial period
  - Accurately describe and manage wounds in the initial period

- **Neurologic**:
  - Neurological examination including localisation of myelopathic patients, interpretation of cranial nerve deficits and assessment of mentation changes

Assessment Strategy

Module providers are responsible for deciding on assessment strategies and methods, subject to accreditation by RCVS.