

# **ACVECC Small Animal EXPERIENCE AND SKILLS REQUIREMENTS**

“Minimum Level of Proficiency” is defined in the same way that Angoff Scoring defines for examination purposes a “Minimally Qualified Candidate” i.e. a resident who has the knowledge, experience, and skill in any given task to be considered proficient at an entry level for board certification. It is the expectation of the College that, during their career, each new Diplomate will build on this entry level of proficiency to become more proficient in the common tasks of our specialty and to become expert in their particular area of interest. There are strengths and weaknesses in each training facility and training program. Each Mentor will be responsible for finding the means to help the Resident gain proficiency in each task, including allowing the Resident time away from their primary Residency Training Facility to achieve the necessary experience and training elsewhere.

For the requirements listed below, the terms “perform”, “demonstrate the technique”, and “understand” are often used. “Perform” indicates that the skill has been performed by the resident on a clinical case. “Demonstrate” indicates that the skill has been performed or simulated in a laboratory setting at least. “Understand” indicates that the skill has been discussed adequately, including indications, complications, and techniques. For any technique/skill that “perform” or “demonstrate” is required, “understand” would be obviously indicated as well. The method used to simulate a “demonstrate” skill is up to the mentor.

This list does not include numerical requirements (i.e. perform 3 GDV surgeries). As such, there is no list for the resident to maintain and submit for evaluation. However, the resident and mentor should submit a signed statement with each annual update indicating that progress towards completion of the Skills and Experience List is occurring. Upon submission of credentials, the resident and mentor will sign a statement indicating that completion of the Skills and Experience List has occurred.

This list should be evaluated by the RTC every 3 years to determine if new Skills should be added, or others removed.

## **1) History and Physical Examination**

- a) It will be assumed that each Resident will receive advanced experience and skill in performing triage, accurate history taking, physical examination, the development of problem lists and rule outs, financial estimate preparation, and client communication.

## **2) Cardiovascular/Fluid Therapy**

- a) ***Diagnostics and Monitoring***. Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results. Understand the categories and stages of shock.
  - i. Perform serial physical examination and interpret trends

- ii. Perform and interpret laboratory tests (to include serum [lactate], measured osmolality, colloid osmometry)
- iii. Assess fluid balance (including urine specific gravity and urine [sodium])
- iv. Perform and interpret ECG
- v. Perform direct blood pressure measurement and interpretation
  - a. Perform arterial catheterization
  - b. Analyze arterial pressure waveforms
- vi. Perform indirect blood pressure measurement and interpretation
  - a. Doppler
  - b. Oscillometric
- vii. Perform central venous pressure measurement and interpretation
  - a. Perform central venous catheterization
  - b. Analyze central venous pressure waveforms
- viii. Perform echocardiography (diagnose pericardial effusion, calculate fractional shortening, and note gross cardiac abnormalities)
- ix. Demonstrate the technique for cardiac catheterization and measurement of cardiac output—understand methods and interpret results
- x. Demonstrate the technique to measure pulmonary capillary wedge pressure
  - a. Understand methods of pulmonary artery catheter placement
  - b. Understand methods of performing measurements
  - c. Interpret results
- xi. Understand non-invasive cardiac output monitoring

**b) *Medical Procedures***

- i. Demonstrate the techniques to control massive bleeding from a major arterial injury
- ii. Perform placement of an intraosseous catheter
- iii. Perform placement of a catheter using Seldinger technique
- iv. Perform cutdown and catheterization of central vein, peripheral vein, and artery
- v. Perform pericardiocentesis
- vi. Demonstrate the technique for cardiac pacing (external, temporary)

**c) *Therapy***

- i. Fluid therapy
  - a. Perform administration of crystalloids for
    - (a) Hypovolemia
    - (b) Deficit replacement
    - (c) Maintenance
    - (d) Diuresis
    - (e) Electrolyte and acid/base disorders
  - b. Perform administration of colloids for
    - (a) Hypovolemia
    - (b) Maintenance
- ii. Perform and demonstrate understanding of the appropriate use of antiarrhythmics
- iii. Perform therapy for life-threatening congestive heart failure using diuretics, vasodilators, inotropes as indicated

- iv. Perform therapy of severe hypertension
- v. Perform therapy of aortic thromboembolism
- vi. Calculate and perform administration of constant rate infusions (vasopressors, diuretics, etc.)

3) **Cardiopulmonary-Cerebral Resuscitation**

- i. Perform endotracheal intubation
- ii. Perform manual positive pressure ventilation
- iii. Perform closed chest compression CPR
- iv. Assess compression efficacy (via digital pulse pressure, Doppler, ETCO<sub>2</sub> measurement)
- v. Perform interposed abdominal compression--understand indications and contraindications, possible complications, and technique
- vi. Perform administration of drugs for resuscitation—intravenous, intraosseous, intratracheal
- vii. Perform external defibrillation
- viii. Perform simultaneous ventilation-compression—understand indications and contraindications, possible complications, and technique
- ix. Demonstrate the technique of open chest cardiac massage
  - a. Demonstrate the technique of emergency thoracotomy
  - b. Demonstrate the technique of wound closure after emergency thoracotomy
- x. Demonstrate the technique of internal defibrillation
- xi. Demonstrate the technique to cross-clamp or Rumel tourniquet the descending aorta--understand indications and contraindications, complications, instruments and methods, and technique
- xii. Perform management of the post-resuscitative patient

4) **Metabolic/Acid-Base/Electrolyte**

- a) ***Diagnostcs.*** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Interpret blood gases (arterial and venous), including traditional methods, anion gap, quantitative method, and Stewart method
  - ii. Interpret osmolality compared with calculated value
- b) ***Therapy***
  - i. Perform therapy to correct acid-base derangements
  - ii. Perform therapy to correct electrolyte derangements (Na, K, Ca, Mg)

5) **Gastrointestinal/Hepatic/Abdominal**

- a) ***Diagnostcs.*** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Laboratory tests
    - a. Interpret blood ammonia concentration
    - b. Interpret bile acid serum concentrations
    - c. Interpret fecal Examination (direct, flotation, cytology, culture, and immunologic assays)
  - ii. Interpret abdominal radiographs

- iii. Interpret upper gastrointestinal contrast radiography
- iv. Perform and interpret abdominal ultrasound
- v. Perform FAST and T-FAST
- vi. Perform ultrasound guided fluid/organ aspiration
- vii. Demonstrate endoscopy and endoscopic foreign body extraction

b) ***Medical Techniques***

- i. Perform abdominocentesis
- ii. Understand diagnostic peritoneal lavage
- iii. Perform intraabdominal pressure measurement
- iv. Demonstrate technique to control massive abdominal bleeding via emergency laparotomy
- v. Demonstrate the technique to control abdominal bleeding via external counterpressure—understand indications and contraindications, techniques

c) ***Therapy***

- i. Perform the appropriate use of antiemetics and gastric protectants
- ii. Perform the appropriate use of emetics
- iii. Demonstrate the technique to manage traumatic and non-traumatic hemoabdomen
- iv. Perform a complete exploratory celiotomy
- v. Perform the incision and closure of a hollow abdominal organ (gastrotomy, enterotomy, colonotomy, cystotomy, etc.)
- vi. Perform an intestinal resection and anastomosis
- vii. Perform the management of gastric dilation-volvulus
  - a. Perform gastric decompression
  - b. Perform gastric lavage
  - c. Demonstrate the technique for surgical derotation and gastropexy
- viii. Demonstrate the technique to repair a diaphragmatic hernia
- ix. Demonstrate the technique to repair a body wall hernia
- x. Demonstrate the technique to perform a liver lobectomy
- xi. Demonstrate the technique to perform a total or partial splenectomy
- xii. Perform placement and management of an active drainage/suction device
- xiii. Understand open abdomen versus closed abdomen management of septic abdomen
- xiv. Understand the technique to remove an esophageal foreign body surgically

6) **Respiratory**

a) ***Diagnostics and Monitoring.*** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.

- i. Perform physical examination and assessment (initial and serial) of the respiratory distress patient
- ii. Interpret pulse oximetry
- iii. Interpret co-oximetry
- iv. Analyze arterial and venous blood gases
  - a. Perform arterial puncture and catheter placement

- b. Calculate A – a (alveolar – arterial) gradient, PaO<sub>2</sub>:FiO<sub>2</sub>, Shunt fraction, and use these techniques in serial patient monitoring
  - v. Interpret thoracic radiographs and understand the basics of advanced imaging
  - vi. Interpret capnography
  - vii. Understand indications for mechanical ventilation
- b) **Medical Procedures**
  - i. Understand bronchoscopy
  - ii. Understand broncho-alveolar lavage
  - iii. Demonstrate removal of tracheal/bronchial foreign body removal
  - iv. Perform transtracheal and endotracheal wash
  - v. Perform thoracentesis
- c) **Therapy**
  - i. Perform techniques of oxygen support via:
    - a. Bag, mask, or hood
    - b. Nasal catheter
    - c. Oxygen cage
    - d. Mechanical ventilator
  - ii. Perform the set up, management, and monitoring of a patient on a ventilator. Understand and be able to use appropriately:
    - a. PEEP
    - b. CPAP
    - c. CMV/Asst CMV
    - d. SIMV
  - iii. Perform the proper technique and protocols for oral care
  - iv. Demonstrate the technique to wean a patient off the ventilator
  - v. Perform management of severe asthma
  - vi. Perform management of severe pneumonia
  - vii. Perform management of pleural effusion (hemothorax, chylothorax, pyothorax)
  - viii. Perform placement and management of a thoracostomy tube using continuous and intermittent pleural drainage
  - ix. Demonstrate the technique to perform a tracheotomy with temporary tracheostomy tube placement
  - x. Demonstrate the technique to repair a tracheal laceration
  - xi. Demonstrate the technique to stabilize a flail chest
  - xii. Understand the technique to control massive thoracic bleeding – understand indications and techniques for emergency thoracotomy
  - xiii. Demonstrate lung lobectomy

## 7) **Urinary**

- a) **Diagnosics and Monitoring.** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Urine output measurement, and calculation of fluid balance
  - ii. Complete urinalysis
  - iii. Urine protein:creatinine

- iv. Urine electrolyte and osmolality measurement and interpretation
- v. Intravenous urography
- vi. Cystourethrogram
- vii. Microbiologic culture
- b) ***Therapy/Medical Procedures***
  - i. Perform cystocentesis
  - ii. Demonstrate placement and verify function of a peritoneal dialysis catheter
  - iii. Understand concepts and techniques for hemodialysis, continuous renal replacement therapy
  - iv. Perform therapeutic management of acute renal failure, including oliguria/anuria
  - v. Perform relief of urethral obstruction via catheterization (cat, dog)
  - vi. Perform placement and maintenance of an indwelling urethral catheter (cat, dog)
  - vii. Demonstrate the technique to perform a cystotomy
  - viii. Demonstrate the technique to place a cystostomy tube
  - ix. Understand ureteral/urethral stenting

8) **Reproduction and neonatology**

- a) ***Diagnostics and Monitoring.*** Be able to diagnose and properly manage the following emergencies.
  - i. Pyometra
  - ii. Dystocia
  - iii. Eclampsia
  - iv. Paraphimosis
  - v. Vaginal/Uterine prolapse
  - vi. Neonatal resuscitation
- b) ***Therapy***
  - i. Perform an ovariectomy
  - ii. Demonstrate the technique to perform a caesarian section

9) **Ophthalmology**

- a) ***Diagnostics.*** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Perform intraocular pressure measurement
  - ii. Perform fluorescein staining
  - iii. Perform Schirmer tear test
  - iv. Perform ophthalmoscopy, direct and indirect
- b) ***Therapy***
  - i. Understand management of acute glaucoma
  - ii. Demonstrate management of proptosed globe
  - iii. Understand management of acute anterior uveitis
  - iv. Understand management of corneal ulcer/laceration
  - v. Demonstrate an enucleation
  - vi. Demonstrate a temporary tarsorrhaphy

10) **Endocrine. Be able to diagnose and properly manage the following**

- i. Perform management of diabetic ketoacidosis
- ii. Perform management of hypoadrenal crisis
- iii. Perform management of hypoglycemic crisis
- iv. Understand management of myxedema coma

11) **Musculoskeletal**

- a) Demonstrate the technique to perform the stabilization and management of fractures (spinal, pelvic, limb)
- b) Understand wound care for contaminated and infected wounds
- c) Demonstrate the technique to reduce and stabilize luxations of
  - i. Elbow
  - ii. Hip
  - iii. Shoulder
  - iv. Tarsus
- d) Demonstrate the application of the following:
  - i. Half-cast or bi-valve cast
  - ii. Metasplint
  - iii. Spica bandage or splint
  - iv. Metal rod (lateral) splint
  - v. Modified Robert Jones bandage
  - vi. Ehmer sling
- e) Perform the application of these wound dressings:
  - i. Non-adherent
  - ii. Wet-to-dry
- f) Perform wound cleaning and lavage
- g) Perform wound debridement
- h) Perform wound closure
- i) Perform wound closure with tension relieving procedures
- j) Perform a wound closure with a suction drain
- k) Perform arthrocentesis

12) **Oncology**

- a) Understand the indications for and adverse effects associated with chemotherapeutics and radiation therapy

13) **Environmental. Be able to diagnose and properly manage the following types of cases.**

- a) Perform management of heatstroke
- b) Perform management of hypothermia
- c) Demonstrate the proper technique for management of envenomation
- d) Demonstrate the proper technique for management of smoke inhalation
- e) Demonstrate the proper technique for management of burns
- f) Demonstrate the proper technique for management of drowning and near-drowning

14) **Toxicology**

- a) ***Diagnostcs.*** . Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Toxicologic tests (ethylene glycol, lead, illicit drug screens, etc.)
  - ii. Other appropriate diagnostic tests (coagulation assays for anticoagulant rodenticides, comparison of measured and calculated osmolality for ethylene glycol, etc.)
- b) ***Therapy***
  - i. Perform the management of acute intoxications (ingested, topical, other)
  - ii. Perform administration of activated charcoal, cathartics
  - iii. Perform selection and use of appropriate antidotes or specific therapies
  - iv. Perform gastric lavage

15) **Hematology/Coagulation**

- a) ***Diagnostcs.*** Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. CBC
  - ii. Slide agglutination test
  - iii. Coombs test
  - iv. Coagulation profiles (ACT, PT and PTT, fibrinogen, FDP, d-dimers, platelet estimate, etc.)
  - v. Platelet function tests and thromboelastography
  - vi. Blood typing
  - vii. Crossmatch
- b) ***Medical Procedures***
  - i. Perform bone marrow aspirate and core biopsy
  - ii. Perform buccal mucosal bleeding time
  - iii. Perform transfusion therapy
    - a. Select and administer appropriate transfusion products (FWB, FFP, pRBCs, FP, cryoprecipitate, HBOC, etc.)
    - b. Understand autotransfusion
    - c. Understand transfusion monitoring rationale and techniques
    - d. Manage transfusion reactions
  - iv. Perform management of IMHA
  - v. Perform management of ITP
  - vi. Perform management of DIC
  - vii. Perform management of severe coagulopathy
  - viii. Perform management of hypercoagulability
  - ix. Perform management of severe neutropenia

16) **Nutrition**

- a) Perform calculation of nutritional requirements
- b) Perform placement of:
  - i. Nasoesophageal or nasogastric tube
  - ii. Esophagostomy tube
  - iii. Demonstrate placement of gastrostomy tube

- iv. Demonstrate placement of jejunostomy tube
- c) Perform formulation and administration of parenteral nutrition

17) **Anesthesia/Analgesia**

- a) Perform pain assessment – localization and intensity
- b) Perform designing and implementation of an anesthetic protocol for both critical and non-critical patients
- c) Understand mechanism of action, indications/contraindications, and adverse effects. Perform the administration and management of, as indicated:
  - i. Sedatives
  - ii. Analgesics
  - iii. Injectable anesthetics
  - iv. Inhalant anesthetics
- d) Perform administration of epidural anesthesia and analgesia
- e) Perform intercostal nerve blocks
- f) Perform intracavitary analgesia as indicated
- g) Understand neuromuscular blockade and the technique of repetitive nerve stimulation (train of four) for patients under neuromuscular blockade

18) **Infectious/Inflammatory**

- a) ***Diagnostics***. Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Microbiological culture (bacterial, fungal), interpretation of MICs / sensitivities
  - ii. Understand spectrum, indications, contraindications, method of action, and adverse effects of antimicrobials.
  - iii. Interpret serologic testing (FeLV/FIV, heartworm, Parvo, rickettsial, etc.)
  - iv. Perform blood culture collection
  - v. Perform cytologic interpretation of infectious exudate
- b) ***Therapy***
  - i. Perform appropriate choice and administration of antimicrobials
  - ii. Perform diagnosis and management of septic shock, SIRS, MODS, and MOF

19) **Neurologic**

- a) ***Diagnostics and Monitoring***. Be able to determine indications for diagnostic tests. Understand the benefits and limitations of diagnostic tests and be able to interpret results.
  - i. Perform serial neurologic examinations
  - ii. Demonstrate CSF tap, lumbar and cervical
  - iii. Understand principles of intracranial pressure monitoring
  - iv. Understand principles of electroencephalography (BIS)
  - v. Interpret skull radiographs and understand the basics of CT and MRI
- b) ***Therapy***
  - i. Understand MOA, indications and contraindications, and adverse effects of anticonvulsants
  - ii. Perform the management of status epilepticus and refractory seizures

- iii. Perform the management of head trauma
- iv. Perform diagnosis and management of hepatic encephalopathy