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\textsubscript{2} 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) Diagnostics. 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) Diagnostics. 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$_2$:FiO$_2$, 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 thoracocentesis

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) 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. 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 ovariohysterectomy
   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) **Diagnostics.** 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) **Diagnostics.** 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 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