



**Minimum Requirements for Certification of
Veterinary Emergency and Critical Care Facilities**
(effective 1/14/2021)

The Veterinary Emergency and Critical Care Society (VECCS) advocates the following building standards, infrastructure, staffing, equipment, supplies, medical records, and references as the minimum requirements for all (Levels I-III) Veterinary Emergency and Critical Care Facilities. These minimum requirements allow veterinary emergency and critical care facilities to identify themselves, using a certification process endorsed by VECCS. The certification process is intended to raise the standard of care, in accordance with the Vision Statement of the Society, and increase public and professional awareness in the area of veterinary emergency and critical patient care.

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PART 1: OPERATIONS OVERVIEW FOR A VETERINARY EMERGENCY FACILITY

Staffing

1. A licensed veterinarian, dedicated exclusively to the practice of emergency and critical care medicine, must be on the premises during operating hours. It is required (**Level I**), or recommended (**Level II and III**), that the veterinarian on duty have one of the following profiles: 1) a minimum of 2 years of practice experience, 2) completion of a one year rotating internship and is currently in a focused ECC internship, 3) a first year ECC resident OR 4) a first year intern after 5 months in a focused ECC internship.
 - For **Level I** certification, a DACVECC must be employed full time.
2. Effective 1/14/2021, it is required there be at least one credentialed Veterinary Technician Specialist (Emergency and Critical Care), (VTS(ECC)) on the staff (**Level I**).
3. At least 2 credentialed veterinary technicians or veterinary nurses (CVT, RVT, LVT or LMVT provided by the credentialing body of the state or country if outside of the United States) employed full time. (**Levels I, II, and III**). It is highly recommended that there is at least 1 credentialed technician on shift at all times .
4. A working relationship with a DACVR (onsite or via remote access) for the review of diagnostic images when necessary. (**Required Level I, Recommended for Levels II and III**)
5. There must be sufficient support staff available and trained to provide timely patient care and support including:
 - Processing multiple patients concurrently
 - Performance of advanced life-saving procedures to include, but not be limited to, cardiopulmonary resuscitation in accordance with current RECOVER guidelines, and emergency surgery. This requires the presence of two people. One must be a veterinarian and the other may be a veterinary technician, veterinary nurse, or trained assistant.
 - The ability to call in additional staff as needed.
 - Provision of timely and appropriate in-hospital care.
 - Timely and appropriate consultation with veterinary specialists via phone or internet.

Medical Records

1. A complete, accurate, and thorough medical record for each patient should be kept on file at the emergency and critical care facility. Because of the importance of legibility and availability of medical records, all summary medical records should be computer generated, digitally stored, and backed up. Additionally, the emergency and critical care facility must comply with State/Province/Country Veterinary Practice Act and other administrative codes for informed consent, patient record keeping, and the release of

patient records. Terminology and abbreviations should be generally recognizable and acceptable across the profession.

2. The Medical Record must include, but not be limited to:
 - Client information
 - Name
 - Address
 - Phone number
 - Referring veterinarian/clinic
 - Patient identification or signalment
 - Name
 - Species
 - Breed
 - Age
 - Gender, including reproductive status
 - Color (or photograph of the patient embedded into the template, which clearly identifies the patient)
 - Patient Rabies vaccination status
 - Patient body weight
 - Chief complaint
 - Patient history
 - Vital signs
 - Temperature
 - Heart Rate
 - Pulse Quality
 - Respiratory Rate
 - Respiratory Effort
 - Mucous Membrane Color
 - Mental Status
 - Pain score (as evaluated and expressed numerically with a recognized veterinary pain scoring scale)
 - Physical exam findings
 - Clinical pathology tests performed; all abnormal results definitively listed.
 - Diagnostic imaging performed, and their interpretation(s)
 - Assessment, diagnosis, or differential diagnosis
 - Procedures performed (include all anesthetic and surgical release forms, anesthesia logs, and surgery reports)
 - All drugs administered, admixed, prescribed, and dispensed, to include:
 - Name of drug
 - Dose, by weight; frequency, and length of treatment
 - Route of administration
 - Progress notes, such as SOAPs at shift changes.
 - Additional treatment and nursing notes, including ICU flow sheets

- Client discharge instructions, including follow up instructions
- All entries in the medical records should identify the individuals who administered the care, and entered data, with the date and time included.

Communications

1. Effective communications must be maintained to allow efficient transfer of patient information between the emergency and critical care facility and the primary care veterinarians in a timely manner. It is highly recommended that the emergency and critical care facility maintain an updated list of primary care veterinarians that includes an after-hours contact number and indicates whether or not they are willing to be contacted after-hours. A copy of the case summary including discharge instructions should be given to the clients at the time of patient discharge and a faxed or electronic medical record/report should be sent to the primary care veterinarian within 12 hours of patient discharge in order to ensure immediate continuity of care and for inclusion in the patient's permanent record.

Continuing Education

1. Continuing education (CE) must be provided for professional and technical staff.
2. All emergency staff veterinarians should obtain a minimum of 28 hours of CE every two years in the field of emergency medicine, emergency (soft tissue or urgent orthopedic) surgery, and/or critical care medicine. A minimum of 75% of CE hours per two year period must be obtained via RACE-approved CE courses, either in-person or on-line. The remaining 25% of CE can be non-RACE approved courses/lectures.
3. ACVECC residents are exempt from the 28 hours/2 years CE requirement but must be in compliance with the requirements of their training program.
4. First year interns, and new graduates for the first calendar year after graduation are excluded from this requirement.
5. An in-house training program should be provided for all technical/nursing staff to assure teamwork and familiarity with the facility's current procedures, protocols, practices and guidelines. Documentation of all in-house training, and how it was performed, must be provided/described for CE credit. In-house immersion training in an area to complement an individual's expertise in anesthesia, surgical prep, diagnostic imaging (radiographs, CT, MRI) that can benefit the hospital's needs can be used toward the 10 hours of CE required per 2 years; however, must not exceed 25% of non-RACE-approved CE for credit.
6. Credentialed and non-credentialed technical staff (veterinary assistants), who have completed the in-house training program, should obtain a minimum of ten (10) hours of CE every 2 years, in the field of emergency and critical care medicine. This CE can be obtained through several routes:
 - Enrollment in a local community college/technical program

- Attendance at local, state, regional, national, or international veterinary meetings.
 - In-house CE classes, given by credentialed staff or doctors. Dates, topics and hours of CE obtained must be documented.
 - In-house immersion training in an area to compliment an individual's expertise in anesthesia, surgical prep, diagnostic imaging (radiographs, CT, MRI) that can benefit the hospital's needs.
 - Online options: Credentialed technicians and non-credentialed veterinary assistants can use RACE-approved, online CE for the 10 hours of required continuing education, provided that 75% of the hours are RACE-approved.
7. A comprehensive, written, in house training and continuing education program to include as a minimum, the following components: journal club, morbidity and mortality rounds, and wet labs **(Level I)**.

Resources

1. The emergency and critical care facility must have current references appropriate for the emergency and critical care mission available to the staff at all times. A list of required textbook and journal references may be found in Part 2 of this document.
2. Internet access to online emergency and critical care resource information must be available.

Emergency Capabilities

1. The level of care and maintenance provided in areas of laboratory, pharmacy, medicine, surgery, anesthesiology, diagnostic imaging, infectious disease control, and housekeeping should be consistent with currently accepted practice standards, and comply with state, federal, and provincial directives. Instrumentation, pharmaceuticals, and supplies should be sufficient for the practice of veterinary medicine and surgery at a level of care equal to or higher than the standard of care dictated by the individual country, state, or provincial practice acts.
2. All emergency and critical care facilities must have the capacity to:
 - Diagnose and manage life threatening emergencies, including cardiovascular, respiratory, metabolic, gastrointestinal, urogenital, neurologic, environmental, hematologic, hemorrhagic, toxicologic, and coagulopathic problems.
 - Perform procedures to address life-threatening problems including but not limited to:
 - Cardiopulmonary resuscitation consistent with RECOVER guidelines
 - Placement and maintenance of thoracostomy tubes
 - Emergency tracheostomy and tracheostomy tube care
 - Blood product administration
 - Oxygen supplementation
 - Assisted ventilation

- Perform emergency surgery including, but not limited to:
 - Surgical hemostasis, wound debridement, and application of wound dressings
 - Stabilization of musculoskeletal injuries
 - Aseptic thoracic and abdominal surgery
- Treat circulatory shock using but not limited to:
 - Crystalloid fluids
 - Colloid fluids
 - Blood products (whole blood, pRBCs, plasma products, albumin)
 - Vasoactive drugs
- Allow accurate delivery of fluids using calibrated burettes, mechanical infusion pumps, and syringe pumps.
- Administer natural and/or artificial blood products, as well as type and crossmatch donor and recipient blood.
- Administer analgesic therapy and anesthetic agents including, but not limited to,
 - Pure opioid agonist analgesics
 - Non-steroidal anti-inflammatory analgesic medications
 - Alpha-2 agonists
 - Partial mu opioid agonist analgesics
 - Injectable and inhalant anesthetics
 - Reversal agents for opiates, alpha-2 agonists and benzodiazepines
 - Sedative medication
- Provide intraoperative monitoring to include, but not be limited to:
 - Body temperature
 - Electrocardiography
 - Blood pressure
 - Capnography
 - Pulse oximetry
- Maintain an anesthetic log for all anesthetized patients, documenting duration of anesthesia, monitoring parameters, and medications administered, expressed in weight measures, where appropriate (milligrams, etc.).
- Decontaminate and administer antidotes, when indicated for toxin exposure.
- Perform, in a timely manner, the onsite laboratory procedures listed in Part 3 of this document.
- Perform diagnostic imaging to include, but not limited to:
 - Digital radiography
 - Ultrasonography, with the associated minimum requirement that all staff veterinarians have proficiency in the detection of life threatening clinical problems to include (but not limited to) fluid in the thoracic, pericardial, and abdominal cavities.
 - Diagnostic abdominal ultrasound, and echocardiography

- The ability to perform intravenous renal replacement therapy OR refer to a regional specialty hospital for intravenous renal replacement therapy **(Levels I, II and III)**
- Perform long term, volume or pressure-cycled mechanical ventilation, in the ICU setting, using a critical care ventilator **(Level I)**.
- Perform invasive blood pressure monitoring **(Level I)**
- Perform endoscopic removal of esophageal foreign bodies **(Level I and Level II)**, and bronchoscopy **(Level I)**.

Avian and Exotic Companion Animal Capabilities

1. **Level 1** facilities must have the capacity to receive, evaluate, stabilize, and provide limited, emergency medical support for any small (pet) mammal, avian, or reptilian species that is commonly found in the pet trade, until such time that the patient can be referred to another facility which can provide specific, expert, diagnostic procedures and care for these so called 'exotic' species, i.e., species other than felines and canines.
2. There are definitions, exceptions, inclusions, and limitations associated with this requirement, as follows:
 - Primates, dangerous mammals or reptiles, zoological specimens, and species commonly regarded as livestock, are not considered pets.
 - Wild animals are not considered pets. However, VECCS certified facilities should accept critically ill or injured wildlife, using appropriate personal safety precautions, but only for the purposes of providing temporary shelter and relief from pain, until they can be redirected to a licensed rehabilitator, within the constraints of local, state, federal, or provincial statues for that species. This requirement does not preclude the facility from providing timely relief from pain and suffering for any wild animal through properly administered humane euthanasia, as recommended by the AVMA Guidelines for Humane Euthanasia.
 - Koi and aquarium fish are considered pets, but are excluded from this requirement.
 - For the purposes of this requirement, 'receive' means to not turn away a 'walk-up' emergency patient at your door, if that patient is an 'exotic' species. If a phone call is received, that pet owner can be referred to another emergency facility that routinely deals with 'exotics', if one is available. If there is no other facility available, the VECCS Certified Facility should be capable of accepting the emergent exotic patient.
 - For the purposes of this requirement, 'evaluate' means to look at the patient, obtain a history, and do, at a minimum, a visual exam. A 'hands-on' exam can be done within the limits of the patient's and the examiner's safety and comfort level, understanding that some exotic species may not be able to tolerate handling. The use of species-specific references, such as those listed in Part 2 of

this document, the Minimum Required Reference List, would be expected, and encouraged.

- For the purposes of this requirement, 'stabilize' means to have available in the facility equipment and supplies necessary to provide basic support, such as species specific housing, warmth, oxygen, if needed, possibly fluid therapy, and some form of pain relief, to include humane euthanasia if no other options are available.
- The capability to do species specific diagnostic testing, or surgical procedures, on exotic pet species is not a minimum requirement for emergency and critical care facilities.

PART 2: MINIMUM REQUIRED REFERENCE LIST

General physiology-an edition of ONE of the following textbooks published within the past 10 years

- Medical Physiology: A Cellular and Molecular Approach, 3rd edition.- Boron WF, Boulpaep EL (2017)
 - Ganong's Review of Medical Physiology, 25th edition. - Barrett KE, Barman SM, Heddwen L Brooks JK. Yuan J. (2019)
 - Guyton and Hall Textbook of Medical Physiology, 13th edition. - Hall JE, 2015.
 - Berne and Levy Principles of Physiology, 7th edition. - Koepfen BM, Stanton BA (2017)
 - Cunningham's Textbook of Veterinary Physiology, 6th edition. - Klein BG. (2019)
2. Veterinary Pharmacology-an edition of ONE of the following, published within the previous 15 years
- Small Animal Clinical Pharmacology and Therapeutics, 2nd edition. - Boothe DM (ed). (2012)
 - Small Animal Clinical Pharmacology, 2nd edition. - Maddison JE, Page SW, Church DB. (2008)
 - Veterinary Pharmacology and Therapeutics, 10th edition. - Riviere JE, Papich MG (2018)
3. Veterinary Emergency and Critical Care-an edition of **EACH** of the following, published within the previous 10 years
- Small Animal Critical Care Medicine, 2nd edition. - Silverstein DC, Hopper K. (2014)
 - Manual of Trauma Management in the Dog and Cat - Drobatz KJ, Beal MW, and Syring RS. (2011).
 - Monitoring and Intervention for the Critically Ill Small Animal (The Rule of 20) - Kirby R, Linklater A. (2016)
 - Textbook of Small Animal Emergency Medicine - Drobatz KJ, Hopper K, Rozanski E, Silverstein DC (eds). (2019)
4. Veterinary ECC Technician Manuals-an edition of ONE of the following, published within the previous 10 years.
- Veterinary Emergency and Critical Care Manual, 3rd edition. - Mathews K. (2018)
 - Veterinary Emergency and Critical Care Procedures, 2nd edition. - Hackett TB, Mazzaferro EM (2012).
 - Manual of SA Emergency and Critical Care Medicine, 2nd edition.- Macintire DK, Drobatz KJ, Haskins SC, Saxon WD. et al (2012)
 - Advanced Monitoring and Procedures for Small Animal Emergency and Critical Care, Burkitt-Creedon JM, Davis H. (2012)
5. Fluid Therapy/Acid-Base/Electrolyte Disorders-an edition of the following text published within the previous 10 years

- Fluid, Electrolyte, and Acid-Base Disorders in Small Animal Practice, 4th edition. - DiBartola SP (2012)
6. General Veterinary Internal Medicine-an edition of ONE of the following, published within the previous 10 years
 - Textbook of Veterinary Internal Medicine, 8th edition. - Ettinger SJ, Feldman EC, Cole E (eds) (2017)
 - Small Animal Internal Medicine, 5th edition - Nelson RW, Couto CG. (2014)
 7. Respiratory Medicine.
 - Clinical Canine and Feline Respiratory Medicine - Johnson LR (2010)
 - Textbook of Respiratory Disease in Dogs and Cats - King LG (ed) (2004)
 8. Veterinary Surgery-an edition of ONE of the following, published within the previous 10 years
 - Small Animal Surgery, 5th edition. - Fossum TW (ed) (2018)
 - Textbook of Veterinary Small Animal Surgery, 3rd edition. - Slatter D (2002)
 - Veterinary Surgery: Small Animal Expert Consult, 2nd edition. - Johnston SA, Tobias KM. (2018)
 8. Veterinary Anesthesia-an edition of ONE of the following published within the previous 10 years
 - Veterinary Anesthesia & Analgesia, 3rd edition. – McKelvey D, Hollingshead KW (2003)
 - Veterinary Anesthesia and Analgesia, 5th edition of Lumb and Jones - Grimm KA, Lamont LA, Tranquilli WJ, Green SA, Roberston SA (2015)
 - Handbook of Veterinary Anesthesia, 5th edition. - Muir WW, Hubbell JAE (2012)
 9. Veterinary Ophthalmology – an edition of ONE of the following, published within the previous 15 years
 - Essentials of Veterinary Ophthalmology, 3rd edition. - Gelatt KN (2014)
 - Slatter’s Fundamentals of Veterinary Ophthalmology, 6th edition. Maggs D, Miller P, Ofri R. (2017)
 10. Veterinary Neurology-an edition of ONE of the following, published within the previous 15 years
 - Fundamentals of Veterinary Clinical Neurology. Bagley RS (2005)
 - Handbook of Veterinary Neurology, 5th edition. - Lorenz MD, Coates J, Kent M (2010)
 - BSAVA Manual of Canine and Feline Neurology, 4th edition. - Platt S, Olby N (2013)
 - Veterinary Neuroanatomy and Clinical Neurology, 4th edition. - de Lahunta A, Glass E (2015)
 - Atlas and Textbook of Small Animal Neurology - Jaggy A, LeCouter R, Kent M (2010)

- A Practical Guide to Canine and Feline Neurology, 3rd edition. - Dewey CW, da Costa RC (eds) (2015)
 - Small Animal Neurological Emergencies, Platt S, Garosi L (eds) (2012)
11. Veterinary Oncology-an edition published within the previous 15 years
- Withrow and MacEwen's Small Animal Clinical Oncology, 5th edition. - Vail DM, Thamm DH, Liptak J. (2019)
12. Veterinary Cardiology-an edition of ONE of the following, published within the previous 15 years
- Textbook of Canine and Feline Cardiology - Fox PR, Sisson D, Moise NS (1999)
 - Small Animal Cardiovascular Medicine - Kittleson MD, Keinle RD (1998)
 - Cardiovascular Disease in Small Animal Medicine, 2nd edition. Ware WA (2018)
 - Manual of Canine and Feline Cardiology, 5th edition. - Smith FWK, Tilley LP, Oyama M, Sleeper MM (2015)
13. Veterinary Pediatrics-an edition of ONE of the following, published within the previous 15 years
- Veterinary Pediatrics- Dogs and Cats from Birth to Six Months - Hoskins JD (year)
 - Small Animal Pediatrics, by Peterson ME, Kutzler M (eds) (2010)
 - BSAVA Manual of Canine and Feline Reproduction and Neonatology, 2nd edition. - England G, von Heimendahl A (2010)
 - Canine Reproduction and Neonatology - Greer ML (2014)
14. Veterinary Avian Medicine and Surgery-an edition of ONE of the following, published within the previous 15 years
- Avian Medicine and Surgery - Altman RB, Clubb SL, Dorrestein GM, Quesenberry K. (1997)
 - Avian Medicine and Surgery in Practice - Donely B. (2016)
 - Essentials of Avian Medicine and Surgery, 3rd edition. -Coles B (2006)
15. Veterinary Toxicology-an edition of ONE of the following, published within the previous 15 years
- Veterinary Toxicology: Basic and Clinical Principles, 3rd edition. - Gupta RC (ed) (2018)
 - Clinical Veterinary Toxicology - Plumlee KH. (2004)
 - Small Animal Toxicology, 3rd edition. - Peterson ME, Talcott MA (eds) (2013)
 - Blackwell's Five Minute Veterinary Consult Clinical Companion: Small Animal Toxicology, 2nd edition. - Hovda L, Brutlag A, Poppenga R, Peterson K. (2016)
16. Veterinary Diagnostic Imaging
- Textbook of Veterinary Diagnostic Radiology, 6th edition. Thrall DE (ed) (2012)
 - Focused Ultrasound Techniques for the Small Animal Practitioner, Lisciandro GR (ed) (2014)
17. Veterinary Clinical Pathology-an edition of ONE of the following published within the previous 15 years
- Fundamentals of Veterinary Clinical Pathology, 2nd edition. - Stockham SL, Scott MA. (2008)

- Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, 5th edition. - Latimer KS (ed) (2011)
- Small Animal Clinical Diagnosis by Laboratory Methods, 5th edition. - Willard MD, Tvedten H (eds) (2012)
- Veterinary Hematology and Clinical Chemistry, 2nd edition. - Thrall MA, Weiser G, Allison R, Campbell T. (2012)

18. Specific Topic Areas of Veterinary Medicine, published within the previous 15 years

- Canine and Feline Endocrinology, 4th edition. - Feldman EC, Nelson RW, Reusch C, Scott-Moncrieff JC. (2015)
- Infectious Diseases of the Dog and Cat, 4th edition. - Greene CE, Sykes J (eds) (2011)
- Nutritional Management of Hospitalized Small Animals, Chan DL (ed) (2015)
- Canine and Feline Gastroenterology, - Washabau RJ, Day MJ (2012)
- Manual of Veterinary Transfusion Medicine and Blood Banking - Yagi K, Holowaychuk M (2016)
- Ferrets, Rabbits, and Rodents, 4th edition. - Quesenberry K, Mans C, Orcutt C, Carpenter J (ed). (2020)
- Current Therapy in Reptile Medicine and Surgery- Mader D, Divers SJ (eds).(2013)
- Exotic Animal Formulary, 5th edition. - Carpenter R, Carpenter J, Marion C. (2017)
- Clinical Veterinary Advisor-Birds and Exotic Pets - Mayer J, Donnelly TM. (2012)

19. The use of e-books for reference texts is acceptable provided the following information is supplied:

- The e-books must be legally purchased or obtained
- Proof of purchase, including the hospital's address, must be submitted
- Everyone in the hospital's ECC department must have access to the books at all times

20. If any of the above textbooks have been purchased but are not yet available, proof of purchase will be sufficient for initial review of application for certification.

21. Veterinary Journals

- Journal of Veterinary Emergency and Critical Care
- Journal of the American Veterinary Medical Association
- NAVTA Journal

PART 3: MINIMUM REQUIREMENTS FOR A CERTIFIED VETERINARY EMERGENCY FACILITY

Facilities

1. ER receiving and triage area, or 'STAT' area
2. ICU area, or dedicated room
 - Avian and small mammal patients may share the ICU with canines and felines, but spatial segregation should be provided wherever feasible.
3. Dedicated isolation room.
 - Comprehensive biosecurity plan, including infectious disease control, handwashing and sanitation protocols, and zoonotic disease control.
4. Dedicated anesthesia and surgery preparation area, for patient prep, not to be in the surgery room. (Levels I, II and III) .
5. Dedicated surgery room(s).
6. Radiology room that is compliant with federal, state, or provincial radiation safety requirements.
7. Oxygen available in the triage area, ICU, isolation, surgery rooms, and radiology.
8. Anesthesia scavenging available in the ICU, surgery rooms, and radiology.
9. Suction; dedicated suction capability in the surgery rooms; suction capability should also be available in the triage area, and ICU; may be portable unit or central.
10. Equipment sterilization capability with quality control.
11. Emergency preparedness plan, or on site backup power supply, in case of power loss to the facility.
12. System in place to ensure continuous, ongoing electric power in case of power outage (**Level I**)

In-Patient Support

1. Species appropriate housing (e.g., avian/small mammal/reptile ICU unit for exotics; bird cage; aquarium with heat source and full spectrum UV lighting)
2. Species appropriate, commercially available, critical care diets for herbivores, carnivores and omnivores.
3. Anesthesia
 - Warming support (e.g., forced air, circulating warm water blanket, or Hot Dog thermal unit)
 - Logs/records
 - Dedicated anesthesia flow chart for each patient

- Dedicated form or computer generated printout of continuous rate infusion (CRI) calculations for emergency and anesthesia drugs for each patient.
- 4. Small animal blood products
 - Blood typing capability for canines and felines
 - Fresh frozen plasma
 - Canine
 - Feline (**Levels I and II**)
 - Packed red blood cells (**Level I and II**)
 - Canine
 - Feline, Type A
 - Feline Type B, or readily available donor (recommended)
 - Readily available, screened canine and feline donors, either onsite, or a local blood bank with 24 hour service, in lieu of canine and feline packed red cells (**Level III**)
 - Red blood cell substitute, if available
- 5. Fluid therapy
 - Crystalloids
 - Hypertonic saline
 - Replacement fluids-isotonic, buffered (e.g., LRS, Plasmalyte, Normosol-R)
 - 0.9% NaCl
 - Maintenance fluids (Plasmalyte 56, 0.45% saline w 5% dextrose, Normosol-M) (Levels I and II)
 - Carrier fluid, traditionally 5% dextrose in water or 0.9% NaCl
 - Synthetic colloids
- 6. Fluid pumps
- 7. Syringe pumps
- 8. Calibrated burettes
- 9. Intravenous catheters
 - Peripheral
 - Central (**Levels I and II**)
 - Intraosseous fluid administration supplies, e.g., spinal or hypodermic needles
- 10. Nutritional support
 - Nasoesophageal or nasogastric tube feeding
 - Esophagostomy tube feeding (**Level I and Level II**)
 - Gavage tube feeding of small mammals, birds and reptiles
 - Partial parenteral nutrition capability (**Level I and Level II**)

- Ability to procure Total parenteral nutrition capability (**Level I**)
- 11. Pharmacy
 - Activated charcoal
 - Analgesia
 - Injectable opioid agonist and partial agonists/antagonists
 - Non-steroidal anti-inflammatory drugs
 - Alpha-2 agonists and reversal agent
 - Local anesthetics, short acting and intermediate or long acting
 - NMDA receptor antagonists
 - Oral analgesic medications
 - Antibiotics
 - Injectables (Minimum: beta-lactam, fluoroquinolone, aminoglycoside, metronidazole)
 - Oral (same spectrum; add potentiated sulfonamide and tetracyclines for small mammals and birds)
 - Antihistamine (injectable)
 - Anti-seizure medications
 - Injectable
 - Oral
 - Corticosteroid (short-acting)
 - Injectable
 - Oral
 - Dextrose injection
 - Drugs for CPR
 - Epinephrine
 - Atropine
 - Vasopressin (recommended)
 - Electrolyte admixtures
 - Calcium gluconate/chloride
 - Potassium chloride
 - Magnesium sulfate or magnesium chloride (**Levels I and II**)
 - Sodium phosphate or potassium phosphate (**Levels I and II**)
 - Sodium bicarbonate
 - Insulin-Regular
 - 20% lipid solution
 - Sedative medications and their reversal agents (where applicable)
 - Injectable
 - Oral
 - Vasoactive/anti-arrhythmic drugs

- Diltiazem (**Level I and Level II**)
 - Dobutamine
 - Dopamine
 - Lidocaine
 - Norepinephrine (**Level I and Level II**)
 - Procainamide (**Level I**)
 - Propranolol or esmolol
 - Sodium nitroprusside, or hydralazine (**Level I and Level II**)
 - Vasopressin (**recommended, Level I**)
- 12. Renal Support
 - Intravenous renal replacement therapy OR ability to refer to a regional specialty center
- 13. Respiratory support
 - Oxygenation therapy, by nasal O2 cannula, oxygen hood, high-flow oxygen or oxygen cage(s)
 - Tracheostomy tubes
- 14. Defibrillator (**Level I and Level II**)
- 15. Ventilation support
 - Ambu bag/anesthetic machine (minimum of 2 in the facility)
 - Anesthetic ventilator
 - ICU ventilator (**Level I required**)
- 16. Monitoring
 - Blood pressure
 - Non-invasive
 - Invasive (**Level I**)
 - Body Temperature
 - Capnometry/Capnography
 - Electrocardiography
 - Pulse oximetry
- 17. Urinary catheters and closed collection systems
- 18. Diagnostics
 - Radiography
 - 300 Ma radiography machine (standard or digital)
 - Automatic processor, with standard radiography
 - Ultrasonography
 - Minimum capability by E/CC staff to do AFAST, TFAST and tri-cavity fluid checks
- 19. Endoscopy (**Level I**)
- 20. Bronchoscopy (**Level I**)

21. Laboratory Equipment, and in-house test capabilities.

- All emergency and critical care facilities (**Levels I, II and III**) must have the necessary laboratory supplies to collect, prepare, preserve, and ship samples for analysis at an offsite (reference) laboratory.
- All VECCS certified emergency and critical care facilities (**Levels I, II and III**) must have the capability to perform the following tests in-house:
 - Packed cell volume
 - Refractometric total solids
 - CBC with manual differential reading
 - Glucose
 - Lactate
 - Dry chemistry analyzer
 - Electrolytes
 - Blood gases
 - Coagulation
 - Prothrombin Time
 - Activated Partial Thromboplastin Time
 - FIV/FELV antigen testing
 - Cytology
 - Urinalysis
 - Fecal flotation
 - Parvoviral antigen testing
 - Tonometry (IOP)

REQUIRED PHOTOGRAPHS

- Front of building with name of facility and front door with hours of operation.
- Defibrillator (Level I)
- RECOVER CPR Charts (drug chart and flow chart) posted in Crash area
- Suction (triage area, surgery)
- Fluid pump(s) and syringe pump(s)
- Fluids
 - Crystalloid (Replacement) - isotonic buffered (Plasmalyte-A, Normosol-R) AND 0.9% NaCl
 - Crystalloid (Maintenance – e.g. Plasmalyte-M, 0.45% NaCl + 2.5% dextrose Levels I and II)
 - Crystalloid (Carrier) - D5W, 0.9% NaCl
 - Colloid (synthetic)
 - Lipid solution (20%)
 - Hypertonic saline
 - Central catheter(s) (Level I)
 - Intraosseous catheter(s)
 - Calibrated burette
- Nutrition
 - Esophagostomy tube(s)
 - Amino acid solution (Procalamine, Aminosyn)
 - Distributor or proof of capability of provision of TPN
- Drugs
 - Injectable pure opioid agonists with logbooks and reversal agent
 - Injectable partial opioid agonists or agonist/antagonists with logbook and reversal agent
 - Injectable benzodiazepine(s) with log blood and reversal agent
 - Injectable alpha-2 agonist(s) with reversal agent
 - Injectable anticonvulsants
 - Injectable vasoactive drugs
 - Activated charcoal
- Blood products
 - Blood refrigeration/freezing unit/storage
 - Canine packed red blood cells and/or whole blood
 - Canine fresh frozen plasma
 - Feline packed red blood cells and/or whole blood
 - Feline fresh frozen plasma

- Laboratory Capabilities
 - Hematology analyzer
 - Microhematocrit tubes and centrifuge, refractometer
 - Chemistry analyzer
 - Blood gas/electrolytes
 - APTT/PT
 - FeLV/FIV test
 - Parvovirus test
 - Fecal flotation
 - Urinalysis
 - Lactatometer
 - Glucometer

- Monitoring - for multiparameter monitor please show photograph with monitor attached to a patient and monitoring displayed
 - ECG
 - Indirect BP (oscillometry)
 - ETCO2
 - SpO2
 - Direct blood pressure (Level I, show monitor and transducer)
 - Doppler with crystal, machine and cuffs

- Anesthesia and Surgery
 - Anesthesia ventilator
 - Ambu bag(s) x 2
 - Ambient warming unit/machine
 - Oxygen drop downs in triage, radiology, anesthesia prep, surgery room, isolation
 - Anesthesia scavenge in triage, radiology, specials/endoscopy, anesthesia prep, surgery room

- Tonometry (IOP)
- Endoscopy (Levels I and II)
- Ventilator (Level I)
- Required reference list, in order (left to right)
- Required journals
- Copy of emergency preparedness plan or proof of backup power (Level I)

VIDEO TOUR

The video tour should be no more than 5 minutes, and should highlight the building/facility and flow, and not focus on the materials provided in the required photographs. The video tour should start at the front of the building and show hours of operation, enter the reception area, and go to an exam room, then to the triage area, ES and ICU cage/holding area (if separate),

isolation, laboratory, pharmacy, radiology, special procedures/endoscopy/ultrasound, surgery preparation area, surgery suite, blood storage and backup power supply. Please keep the camera focused and in the same plane throughout the entire video.

APPENDIX: Abbreviations

AFAST	Abdomen Focused Assessment with Sonography for Trauma
APTT	Activated Partial Thromboplastin Time
CBC	Complete Blood Count
CPR	Cardiopulmonary Resuscitation
D5W	5% Dextrose in Water
DACVECC	Diplomate of the American College of Veterinary Emergency and Critical Care
DACVIM	Diplomate of the American College of Veterinary Internal Medicine
DACVR	Diplomate of the American College of Veterinary Radiology
ER	Emergency Room
FIV	Feline Immunodeficiency Virus
FELV	Feline Leukemia Virus
ICU	Intensive care unit
ISO	Isolation ward
NMDA	N-methyl d-aspartate
NAVTA	National Association of Veterinary Technicians in America
PT	Prothrombin Time
RECOVER	Reassessment Campaign on Veterinary Resuscitation
SOAP	S ubjective/ O bjective/ A ssessment/ P lan method of medical record keeping
SX	Surgery (room)
TFAST	Thoracic Focused Assessment with Sonography for Trauma
VTS/(ECC)	Veterinary Technician Specialist (Emergency and Critical Care)

UPDATED 10/3/2020.