

# **The Academy of Veterinary Technicians in Clinical Practice**



## **Exotic Companion Animal Application Packet 2021 Case Year**

# **SUBMISSION GUIDELINES**

The application year begins January 1, 2021 and ends at 11:59pm December 31, 2021. All skills, logs, reports, reference, and signatures must be obtained during the application year.

Part 1 of the application process must be submitted no later than 11:59pm PST, Wednesday, March 31<sup>st</sup>, 2021. All of Part 1 is to be completed on the “Application Information” page on our website via the links provided.

Once Part 1 has been accepted, applicants will receive an invitation to place their Part 2 documents in the secure AVTCP DropBox. Case logs must be submitted sequentially in 1 MS Word document. Reports must be submitted sequentially as 1 MS Word document. PDF scans of logs and reports will not be accepted. Other documents may be submitted as PDFs or MS Word documents.

Part 2 submissions, including all applicable documents, attachments, and letters of recommendation, will be accepted up to 11:59pm PST, Friday, December 31, 2021. No Part 2 applications will be accepted beyond the due date and time.

The application fee of \$50 is required upon submission of Part 1 of the application using the Paypal link provided. Please allow enough time to set up your Paypal account in order for AVTCP to receive payment by the due date and time.

**International applicants must ensure their fee is paid in US dollars.**

## **APPLICATION PART 1**

**Due March 31**

Please go to the AVTCP Website’s “Application Information” page to access all of the elements required of Part 1 of the application. The elements include:

- Waiver, Release, and Indemnity Agreement
- Professional History
- Veterinary Technician Employment History
- Continuing Education Log
- Knowledge List
- Proposed Recommendation Letter Writers
- Payment of \$50

## **APPLICATION PART 2**

### **Due December 31**

Part 2 elements include:

- Exam Questions
- Case Logs
- Case Reports

### Instructions for writing exam questions

Stem - introductory statement (information required) and the question itself that elicits the correct answer.

#### **DO THIS**

- 1) Develop patient based questions but don't present a real case. Present a scenario.
- 2) Stems should be complete and as succinct as possible. Avoid adding unnecessary or misleading information.
- 3) The stem should be clear enough to provide the examinee with sufficient information to anticipate the type of answer before looking at the responses.
- 4) Items should be written to assess knowledge of meaningful facts and concepts, not trivial information. Avoid tricks.
- 5) Include in the stem all words that would otherwise have to be repeated in each of the responses.

#### **DON'T DO THIS**

- 6) Don't test more than one point
- 7) Avoid using "What would you do?" or "What do you believe?" as these statements cannot be tested
- 8) Avoid the use of gender pronouns
- 9) Avoid ambiguous terms such as rarely, commonly, frequently, generally, sometimes and usually. Avoid jargon
- 10) Never use flawed question formats – negative question, true/false, least likely, none of the above, all of the above

Responses or Options – 1 correct “answer” plus 3 incorrect “distractors”.

- a) Always list the correct answer first.
- b) Always start with a capital letter unless part of a sentence.
- c) The correct answer must be absolutely correct. Pitfall: Lack of one clearly best answer
- d) Incorrect answers should be realistic and plausible. No nonsense distractors
- e) Make sure you aren't including unintentional clues to the correct answer
- f) Distractors should represent unsafe practices or commonly held misconceptions and should be plausible.
- g) All responses should be grammatically consistent with the item stem, and all responses should be parallel.
- h) Do not make the correct answer substantially longer or more detailed than the distractors
- i) Do not use non-homogenous options, don't make the candidate choose between apples and oranges

Rationale – Brief statement explaining the testing point, be sure to describe

- (1) the testing point
- (2) why you picked the different options
- (3) why the indicated answer is best.

References – Author, Title, Publisher, year, page

References should be current, ideally less than 10 years and on the reading list of the specialty.

Avoid proceedings or journal articles as not every candidate will have access to these documents.

References must agree. For example, normal heart rate of a dog differs slightly depending on the text. There is no one answer.

## AVTCP EXAM QUESTION FORM

- Please submit 5 exam questions specific to your practice category for committee review for possible use on future AVTCP examinations.
- These questions must be advanced in nature and follow the AVTCP format using the instruction provided.
- Questions must be submitted in a WORD document only.

Question # \_\_\_\_\_

**Question:** (Stem)

**Responses:** (Please list the correct response **first**, capitalize first letter of each response)

- A.
- B.
- C.
- D.

**Reference:** (Source you would quote to prove the correct answer is in fact correct)

Author:

Title:

Publisher:

Year:

Page(s):

**Rationale:** (A short statement explaining the testing point)

**Name:**

**Contact information:**

**E-mail address:**

### Practice Category

☐ Canine/Feline Medicine    ☐ Feline    ☐ Exotic Companion Animal    ☐ Production

### Domain

<input type="checkbox"/> Anesthesia and Analgesia	<input type="checkbox"/> Body Mechanics & Systems
<input type="checkbox"/> Diagnostic & Laboratory	<input type="checkbox"/> Diseases
<input type="checkbox"/> Pharmacology	<input type="checkbox"/> Animal Care & Treatment
<input type="checkbox"/> Surgical Nursing	<input type="checkbox"/> Dentistry
<input type="checkbox"/> Behavior	<input type="checkbox"/> Practice Management

## AVTCP CASE LOGS – Instructions/Guidelines

- A *minimum* of 50 cases (maximum of 75) reflecting the mastery of advanced clinical practice knowledge and skills are required. Applicants are encouraged to submit > 50 cases as cases may be rejected.
- Logs must be submitted in 1 complete WORD document, not multiple separately saved documents or as PDFs.
- Acceptable case logs in clinical practice must be taken from experience obtained while practicing with companion animals or production animals relevant to your specialty category. Case logs taken from zoo medicine, laboratory medicine, shelter medicine, or wildlife medicine will not be accepted.
- Case logs will not be accepted from patients belonging to the applicant.
- Cases submitted must take place between January 1<sup>st</sup> to December 31<sup>st</sup> of the application year, and should be listed in sequential order from oldest to newest.
- A *minimum* of 80% of the skills list must be cross-referenced in the case logs. Please indicate the skill number in parentheses after citation. You are encouraged to select cases that demonstrate more than one advanced skill. Submission of multiple similar/repetitive cases is discouraged.
- Skills list items should be referenced by skill number and description of skill performed.
- Please be sure to specify details, such as sites/locations for skills list items such as IV catheter placement, venipuncture, drug administration sites, etc.
- The AVTCP case log outline should be utilized. Each case log should be numbered individually and no case log should be longer than one page in length.
- Each case log should only include details for a single patient visit. Multiple visits by the same patient count as only one case unless presented for an entirely new problem. Multiple patient visits can be utilized to demonstrate advanced nursing skills but they will not count towards your total case count after the initial entry.
- Abbreviations should be expanded on first mention if not on AVTCP's acceptable abbreviation list.
- When a validated pain score scale is not available, give a subjective pain score of mild, moderate, or severe. It is also recommended to use the mouse, rat, and rabbit Grimace Scale: <https://www.nc3rs.org.uk/grimacescales>
- When a validated BCS scale is not available, give a subjective score. The 9 point scale is recommended.
  - Body condition assessment for ECA: <https://www.pfma.org.uk/pet-size-o-meter>
  - Rabbit BCS Reference: <https://www.pfma.org.uk/rabbit-size-o-meter>
  - Avian BCS Reference: <https://www.pfma.org.uk/bird-size-o-meter>
  - Guinea Pig BCS Reference: <https://www.pfma.org.uk/guinea-pig-size-o-meter>
- Logs should be written in 3<sup>rd</sup> person with perfect spelling and grammar.
- Logs should be written in Times New Roman 10pt with 1" margins.
- Medications should be referred to by drug name, not brand or trade name.
- Drug dosages must be expressed in metric units with specific dosage, time intervals, and route of administration.
  - *Correct – enrofloxacin (10mg/kg) 200 mg IV q12h ; Incorrect – Baytril<sup>®</sup> 8.8 mL bid.*
- ***Please see any additional case log requirements in your specific practice category application.***

## AVTCP CASE LOG - Format

Applicant's name: \_\_\_\_\_

*Case log #* \_\_\_\_\_ *Date* \_\_\_\_\_ *Patient ID* \_\_\_\_\_

*Species/Breed* \_\_\_\_\_ *Age* \_\_\_\_\_ *Sex* \_\_\_\_\_ *Wt* \_\_\_\_\_ (kg) *BCS* \_\_\_\_\_ *Pain Score* \_\_\_\_\_

*Diagnosis* \_\_\_\_\_

\_\_\_\_\_

*Treatment Plan* \_\_\_\_\_

\_\_\_\_\_

*Advanced skills & procedures performed* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Outcome* \_\_\_\_\_

\_\_\_\_\_

## AVTCP CASE REPORTS – Instructions/Guidelines

- Four (4) complete case reports are required.
- Only cases that take place after the applicant reaches the employment history requirements will be accepted.
- Acceptable case reports in clinical practice must be taken from experience obtained while practicing with companion animals or production animals relevant to your specialty category. Case reports taken from zoo medicine, laboratory medicine, shelter medicine, or wildlife medicine will not be accepted.
- Case reports will not be accepted from patients belonging to the applicant.
- Reports must be no more than five(5) pages each, 1" margins, Times New Roman 10pt., and double-spaced. References and any appendices (e.g. laboratory and/or diagnostic imaging reports, etc.) are not included as part of the five-page maximum.
- The case report must be taken from the case logs. The case log # must be included in the case report.
- Abbreviations should be expanded on first mention if not on AVTCP's acceptable abbreviation list.
- Reports must demonstrate expertise in the management and treatment of clinical cases and will be reviewed for overall quality of nursing care, therapy instituted by the technician, goals of care and therapy, and the technician's role in the management as it relates to the case.
- All case reports involving procedures with animals that are heavily sedated or anesthetized must include an anesthetic monitoring log. This report is not included as part of the 5-page maximum.
- Case reports will be scored on writing (style, grammar, syntax, ability to communicate clearly, concisely yet thoroughly), disease/condition (demonstrating a clear understanding of the disease/condition and explaining the relevant anatomy, pathology and pathophysiology), diagnostics (explanation of diagnostics including reason for test, role in performing test, both

normal & abnormal results and nursing response to test), and nursing care and therapy (explanation of goals of nursing care and therapy and role in care).

- Appendices may be included if necessary/desired (ECG tracings, chemotherapy protocols, radiology reports, etc.).
- Reports should be written in 3<sup>rd</sup> person with perfect spelling and grammar.
- The use of references is encouraged. Plagiarism will not be tolerated.
- Medications should be referred to by drug name, not brand or trade name.
- When a validated pain score scale is not available, give a subjective pain score of mild, moderate, or severe. It is also recommended to use the mouse, rat, and rabbit Grimace Scale: <https://www.nc3rs.org.uk/grimacescales>
- When a validated BCS scale is not available, give a subjective score. The 9 point scale is recommended.
  - Body condition assessment for ECA: <https://www.pfma.org.uk/pet-size-o-meter>
  - Rabbit BCS Reference: <https://www.pfma.org.uk/rabbit-size-o-meter>
  - Avian BCS Reference: <https://www.pfma.org.uk/bird-size-o-meter>
  - Guinea Pig BCS Reference: <https://www.pfma.org.uk/guinea-pig-size-o-meter>
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- Drug dosages must be expressed in metric units with specific dosage, time intervals, and route of administration.
  - *Correct – enrofloxacin (10mg/kg) 200 mg IV q12h ; Incorrect – Baytril<sup>®</sup> 8.8 mL bid.*
- Any attached laboratory reports should be reported in Conventional Units. The following internet conversion page is acceptable to use: [AMA Manual of Style Conversion Calculator](#)
- ***Please see any additional case report requirements in your specific practice category application.***



## AVTCP CASE REPORTS - Format

**AVTCP Case Report #**

**Case Log#**

**Title**

**Author**

Signalment

*Age, weight, species, breed, gender, BCS, pain score*

Presenting Complaint

History

Physical Exam Findings/Observations (admit/first contact)

Problem List/Differential Diagnosis

Diagnostic Approach

*State whether lab work was performed in-house or at an outside laboratory.*

Treatment Plan

Final Diagnosis

Outcome

*Necropsy and postmortem testing is included here if appropriate.*

Conclusion/Case Summary

*Include information on the disease/condition, the typical history and presentation, the diagnostic approach, treatment and management options, expected outcome and prognosis, and any other pertinent information. Information should be current and high quality; standard textbooks and peer-reviewed journal articles are preferred. All researched information is to be cited.*

Discussion

*The Discussion section is used to evaluate and critique the case. Unlike the actual Case Report, which is an objective recording of the facts of the case, the Discussion is a subjective analysis of the case management. Explain any deficiencies or potential errors in the case, and justify any steps taken or choices made that differ from case management.*

## AVTCP ACCEPTABLE ABBREVIATIONS

**These abbreviations may be used without expansion in AVTCP applications:**

Ab	antibody	FeLV	feline leukemia virus
ACT	activated clotting time	FIP	feline infectious peritonitis
aPTT	activated partial	FIV	feline immunodeficiency
thromboplastin time		virus	
ASA	American Society of	g	gram(s)
Anesthesiologists		g	gauge
AS	left ear	gr	grain(s)
AD	right ear	h/hr	hour(s)
AU	both ears	Hct	hematocrit
BAR	bright, alert, and responsive	Hgb	hemoglobin
BMBT	buccal mucosal bleeding time	hpf	high power field
BP	blood pressure	HR	heart rate
bpm	beats per minute	IFA	indirect fluorescent antibody
BUN	blood urea nitrogen	IT	intratracheal
°C	degree Celsius	IM	intramuscular
Ca	Calcium	IN	intranasal
C1, C2...	cervical vertebrae	IO	intraosseous
C/M	castrated male	IP	intraperitoneal
CBC	complete blood count	ICe	intracoelomic
cc	cubic centimeter	IV	intravenous
cm	centimeter	kg	kilogram
CNS	central nervous system	kVp	peak kilovoltage
CO <sub>2</sub>	carbon dioxide	L1, L2...	lumbar vertebrae
CPK	creatinine phosphokinase	L	liter
CPR	cardiopulmonary	lpf	low power field
resuscitation		m	meter
CRI	constant rate infusion	mAs	milliampere per second
CRT	capillary refill time	MM	mucus membranes
CSF	cerebrospinal fluid	M/N	male/neutered
CT	computed tomography	MCH	mean corpuscular
d	day	hemoglobin	
dl	deciliter	MCHC	mean corpuscular
DNA	deoxyribonucleic acid	hemoglobin concentration	
ECG/EKG	electrocardiogram or	MCV	mean corpuscular volume
electrocardiograph		min	minute
EDTA	ethylenediaminetetraacetic	mg	milligrams
acid		mL	milliliter
ELISA	enzyme-linked	MMOL/L	millimole per liter
immunosorbent assay		MRI	magnetic resonance imaging
ET	endotracheal	NPO	nothing by mouth (nil per os)
ETCO <sub>2</sub>	end-tidal carbon dioxide	NIBP	non-invasive blood pressure
EO	Ethelene Oxide	NSAID	non-steroidal anti-
°F	degree Fahrenheit	inflammatory drug	
F/S	female/spayed	NSF	no significant findings

O <sub>2</sub>	oxygen	rDVM	referring doctor of veterinary
OD	right eye (oculus dexter)	medicine	
OS	left eye (oculus sinister)	RER	resting energy requirement
OU	both eyes	RNA	ribonucleic acid
PCV	packed cell volume	RR	respiration rate
PE	physical exam	Rx	take, receive – used to
pH	measure of the acidity of a	indicate a prescription or treatment	
solution		SC	subcutaneous
PO	per os	sec	second
POTZ	preferred optimal temperature	SpO <sub>2</sub>	peripheral capillary oxygen
zone		saturation	
PT	prothrombin time	T1, T2...	thoracic vertebrae
Q	every	T <sub>4</sub>	thyroxine
QAR	quiet, alert, and responsive	T <sub>3</sub>	triiodothyronine
QD	once daily	TP	total proteins
Q72H	every 72 hours	TS	total solids
Q48H	every 48 hours	TSH	thyroid stimulating hormone
Q24H	every 24 hours	UA	urine analysis
Q12H	every 12 hours	WBC	white blood cell
Q8H	every 8 hours	wk	week
Q4H	every 4 hours	WNL	within normal limits
RBC	red blood cell	wt	weight
		yr	year

### **AVTCP Exotic Companion Animal Skills List 2021**

- *A minimum of 80% of the skills must be mastered.*
  - *Mastery is defined as to be able to perform a task consistently and competently without being coached or directed.*
  - *Mastery requires having performed the task in a wide variety of patients and situations.*
- *Skills must be cross-referenced in the case logs.*
- *The use of personal pets or clinic animals is unacceptable.*
- *The use of deceased/cadaver animals to obtain skills is unacceptable.*

### **Husbandry Requirements**

	Skill	Case Log Number(s)	Vet or VTS Signature
1.	Ability to recognize and identify different species of both common and rare avian and exotic pets		
2.	Mastery of husbandry requirements for the most common avian and exotic species including, but not limited to nutritional requirements, caging/housing, substrate, temperatures, humidity, lighting, grooming, bathing, foraging, enrichment, etc.		
3.	Expertise in the application of husbandry requirements in the hospital setting to maximize patient care and comfort		
4.	Proficiency in the education of clients and coworkers in the proper care of individual species of avian and exotic pets		

### **General Nursing**

	Skill	Case Log Number(s)	Vet or VTS Signature
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5.	Perform a comprehensive physical exam: identify normal/abnormal eyes, ears, nares, oral cavity, dentition, vent, choana, heart and lung sounds, pain assessment, body condition score, hydration status		
6.	Recognize signs of respiratory failure and shock		
7.	Accurately and efficiently triage patients presenting for emergent conditions		
8.	In association with other medical team members, administer CPR, evaluate effectiveness, and troubleshoot therapy		
9.	Thorough knowledge of substances that, when ingested, result in toxicity		
10.	Efficient and accurate calculation of drug doses, solutions, and IV fluid rates		
11.	Demonstrate thorough knowledge of metric conversions		
12.	Mastery of venipuncture in healthy, sick, and/or debilitated animals		
13.	Mastery of jugular and peripheral IV catheter placement in a variety of sites in healthy sick, and/or debilitated animals		
14.	Mastery of intraosseous catheterization in a variety of sites in healthy, sick, and/or debilitated animals		
15.	Set up and maintain an IV fluid pump and syringe pump and be able to troubleshoot equipment malfunction		
16.	Mastery of various methods of centesis (cysto, percutaneous, and abdominal/coelomic)		
17.	Proficiency in placement and maintenance of a urinary catheter in ferrets, rabbits, and guinea pigs (male and female)		
18.	Proper placement and/or maintenance of at least two (2) of the following types of enteral feeding tubes: nasogastric, esophageal, gastric, jejunal, crop/proventricular		
19.	Properly administer blood products, including obtaining donor blood and monitoring techniques throughout the transfusion		
20.	Set up and perform non-invasive blood pressure monitoring, evaluate blood pressure status, and troubleshoot equipment malfunction		
21.	Set up and monitor heart rate and rhythm with ECG monitoring, recognize normal and abnormal tracings, and troubleshoot equipment malfunction		
22.	Set up a pulse oximeter, evaluate oxygen status, and troubleshoot equipment malfunction		
23.	Administration of fluids and medications via various parenteral administration sites (IM, SC, ICe, IV, IO)		

**Anesthesia/Analgesia**

	SKILL	Case Log Number(s)	Vet or VTS Signature
24.	Assign appropriate ASA status after reviewing patient history, PE, and diagnostic results in collaboration with a veterinarian		
25.	In collaboration with a veterinarian, determine appropriate anesthetic and peri-anesthetic protocols to provide effective pain management and maximum anesthetic safety and effectiveness		

26.	Perform local and regional nerve blocks		
27.	Evaluate the effects of common pre-anesthetic, induction, and maintenance drugs		
28.	Evaluate and respond to adverse reactions to and/or complications from pre-anesthetic, induction, and maintenance drugs		
29.	Implement appropriate pre-oxygenation technique and know rationale with regards to species, anemia, etc.		
30.	Mastery of endotracheal intubation and tube placement with understanding of size, length, safe technique, and when to use cuffed vs. non-cuffed tubes in routine and emergent situations		
31.	Thorough knowledge of the risks associated with intubation and the appropriate steps to avoid these risks		
32.	Set up a capnograph end-tidal CO2 monitor, evaluate ventilation status, and troubleshoot equipment malfunction		
33.	Set up a continuous respiratory rate monitor, evaluate respiratory rate status, and troubleshoot equipment malfunction		
34.	Perform manual intermittent positive pressure ventilation with an anesthesia breathing bag and evaluate its effectiveness		
35.	Set up ventilator, calculate appropriate tidal volume and respiratory rate, and troubleshoot machine as needed		
36.	Set up and monitor temperature (esophageal, rectal, external), evaluate patient status, and troubleshoot machine malfunction		
37.	Implement techniques to prevent hypothermia/hyperthermia and resolve these issues by safely and effectively using devices such as warm air blankets, circulating water blankets, IV fluid warmers, radiant heating devices, and incubators pre and post surgically		
38.	Monitor and evaluate patient status and anesthetic depth using established parameters such as outward involuntary physical response (i.e. jaw tone, palpebral reflex, eye position), blood pressure, ECG, pulse oximetry, heart rate, respiratory rate, and ventilation status		
39.	Administer and evaluate the effects of IV fluid (crystalloid and colloid) and blood component therapy during anesthesia		
40.	Ability to assess appropriate extubation time for various species, (such as reptiles versus ferrets) with consideration of regurgitation/aspiration, and emergence from anesthesia		
41.	Set up, maintain, and troubleshoot a non-rebreathing system		
42.	Set up, maintain, and troubleshoot a rebreathing system		
43.	Set up, maintain, and troubleshoot an anesthesia machine (oxygen tank, vaporizer, CO2 absorbent, scavenger system)		
44.	Set up, maintain, and troubleshoot an anesthetic induction chamber		
45.	Set up, maintain, and troubleshoot a waste gas scavenging system		

**Surgical Nursing**

	<b>Skill</b>	<b>Case Log Number(s)</b>	<b>Vet or VTS Signature</b>
46.	Mastery of the unique and varied individual surgical nursing requirements of various species (ferrets, small rodents, birds, rabbits, guinea pigs, reptiles, etc.)		
47.	Extensive knowledge of and ability to set up necessary equipment and supplies for a variety of surgeries (i.e. reproductive tract, GI tract, ophthalmic, orthopedic, soft tissue, rigid and flexible endoscopy, laparoscopy/coeleoscopy) for each species		
48.	Coordinate the process of preparation, safe use, and maintenance of suction equipment, radiosurgery, electrocautery, and laser units		
49.	Coordinate the process of preparation and positioning of patients for a variety of surgical procedures (i.e. reproductive tract, GI tract, ophthalmic, orthopedic, soft tissue, rigid and flexible endoscopy, laparoscopy/coeleoscopy) for each species		
50.	Coordinate pre and post-operative care of surgical patients		
51.	Supervise staff in the care of surgical instruments		
52.	Supervise staff in proper surgical sterilization procedures (autoclave, ethylene oxide, glutaraldehyde, etc.)		

**Laboratory**

	<b>Skill</b>	<b>Case Log Number(s)</b>	<b>Vet or VTS Signature</b>
53.	Mastery of all basic laboratory testing: PCV, TP, UA, fecal analysis (direct smears, floats, gram stains, acid fast stains), external parasite analysis, basic cytology, blood smear evaluation, and estimated WBC count		
54.	Utilize, maintain, and troubleshoot in-house hematology and clinical chemistry analyzers and evaluate results		
55.	Demonstrate the ability to perform at least 2 different in-house clotting tests (BMBT, ACT, Platelet evaluation, PT, APTT)		
56.	Demonstrate the ability to obtain samples for tests such as, but not limited to, CBC, clinical chemistries, PCR, serology, and virology. This includes: appropriate fasting protocols, correct timing of sample collection, and correct sample collection and handling		
57.	Properly collect, handle, and store samples of excretion, secretion, and effusion for laboratory evaluation		
58.	Properly collect, handle, and submit cytology and samples for laboratory evaluation		
59.	Properly collect, handle, and submit samples for bacterial and fungal culturing		
60.	Properly collect, handle, and submit samples for histopathology		

**Diagnostic Imaging**

	<b>Skill</b>	<b>Case Log Number(s)</b>	<b>Vet or VTS Signature</b>
61.	Coordinate the radiographic process by directing team members to consistently and efficiently produce radiographs of diagnostic quality		
62.	Proficiency in evaluating the patient's condition (medical, surgical, behavioral) and adapting the radiographic procedures to those conditions		
63.	Demonstrate accuracy and efficiency in positioning patients for a variety of radiographic studies (thorax, abdomen, spine, skull, extremity, pelvis, dental)		
64.	Accurate and consistent evaluation and modification of radiographic technique		
65.	Perform and/or demonstrate the ability to set up and assist in contrast studies (i.e. GI studies, double contrast, cystograms, myelograms) including the setup of necessary equipment, patient preparation, and administration of contrast media		
66.	Ability to maintain radiograph cassettes, radiology processor and develop radiographs properly		
67.	Ability to utilize, troubleshoot, and manipulate technique using digital radiology		
68.	Demonstrate the ability to set up, maintain equipment, and assist with or perform ultrasonography		

**Dentistry**

	<b>Skill</b>	<b>Case Log Number(s)</b>	<b>Vet or VTS Signature</b>
69.	Thorough knowledge of dental anatomy for all species (rodent, rabbit, ferret, hedgehog, sugar glider, etc.)		
70.	Efficiently perform a comprehensive oral exam		
71.	Readily identify oral pathology and anatomic abnormalities		
72.	Comprehensive knowledge of how to use and care for dental hand instruments and power instruments		
73.	Perform thorough and efficient dental prophylaxis		
74.	Efficiently and consistently produce dental radiographs of diagnostic quality		
75.	Ability to perform and/or assist with rodent/rabbit dental trimming		
76.	Ability to maintain and troubleshoot dental machinery and equipment		

**Pharmacology**

	Skill	Case Log Number(s)	Vet or VTS Signature
77.	Extensive knowledge of groups of drugs, their mechanisms, clinically relevant side effects, and accurate evaluation of therapeutic responses		
78.	Extensive knowledge of types of vaccines, their immunological mechanisms, and adverse vaccine reactions		

**Behavior**

	Skill	Case Log Number(s)	Vet or VTS Signature
79.	Knowledge of basic behavioral learning concepts (i.e. punishment, positive reinforcement, rewards, operant conditioning)		
80.	Ability to recognize appropriate and inappropriate behaviors in several species (birds, rabbits, reptiles, etc.) and provide information to clients regarding current scientifically based techniques of training, management, and behavior modification		
81.	Familiarity with a variety of training tools and their uses		
82.	Train practice staff in recognizing and managing aggressive behavior in the practice setting (i.e. use of proper restraint techniques, muzzles, sedation, etc.)		

**Leadership Roles**

	Skill	Case Log Number(s)	Vet or VTS Signature
83.	Supervise the creation and maintenance of all appropriate facility records and logs in compliance with regulatory guidelines (e.g. radiology, surgery, anesthesia, laboratory, controlled substances		
84.	Instruct and supervise staff in the accurate recording of medical information		
85.	Manage inventory control		
86.	Establish and supervise the maintenance of appropriate sanitation and nosocomial protocols for a veterinary facility including patient and laboratory areas		
87.	Educate hospital staff in the recognition and proper handling and housing of patients with potentially infectious diseases		
88.	Proficient at developing and providing client education in a clear and accurate manner at the level the client understands (i.e. oral and written form including educational handouts)		
89.	Outstanding interpersonal and public relations skills		
90.	Skilled application of crisis intervention/grief management skills with clients		



***The AVTCP requires that a licensed veterinarian or a Veterinary Technician Specialist who has mastered the skill, attest to your ability to perform the task. Mastery is defined as being able to perform the task safely, with a high degree of success, and without being coached or prompted. Mastery requires having performed the task in a wide variety of patients and situations. The applicant must have mastered a minimum of 80% of the skills listed. All skills mastered must be demonstrated in the case logs and reports. The use of cadavers, clinic animals, or personal pets is unacceptable.***

***I, the undersigned, declare that I have read the entire AVTCP application packet. I further attest that the above-named applicant has achieved the AVTCP definition of mastery for the above skills that are marked with my signature.***

_____ Signature	/	_____ Printed Name and Degree
_____ Signature	/	_____ Printed Name and Degree
_____ Signature	/	_____ Printed Name and Degree
_____ Signature	/	_____ Printed Name and Degree
_____ Signature	/	_____ Printed Name and Degree

Please provide the names and credentials of all persons who have signed this form attesting to your mastery of advanced skills in clinical practice.

## **AVTCP Exotic Companion Animal Knowledge Lists**

This list is both a guide for applicants to prepare for studying as well as to supply a list of acceptable species for case logs and reports. Any questions regarding species outside of this list, particularly for reptiles, amphibian, and fish which could encompass companion species not listed here, should be emailed to the ECA Member at Large Kathryn Torres: [kgtorres@san.rr.com](mailto:kgtorres@san.rr.com). Please note that crocodilian and venomous species will not be accepted.

### **Species List**

**Please note that logs, reports, and skills must be from exotic companion animals compiled from this list, not wildlife or zoo cases. For example, if writing about a case involving a falconiform, it must belong to a falconer who keeps them for sport/companionship and not to be released.**

- Pet Birds
  - Psittacines (eg: parrots, lorries)
  - Passerines (eg: canaries, finches)
  - Columbiformes (eg: doves, pigeons)
  - Ramphastidae (eg: toucan, toucanettes)
  - Falconiformes (eg: falcons, hawks, kestrels)
  - Galliformes (eg: chicken, quail)
  - Anseriformes (eg: ducks, geese)
- Pet Mammals:
  - Lagomorph (eg: rabbits)
  - Rodentia (eg: guinea pigs, chinchillas, rats, mice, hamsters, gerbils, prairie dogs, degus)
  - Diprotodontia (eg: sugar gliders)
  - Eulipotyphla (eg: hedgehogs)
  - Carnivora (eg: ferrets, skunks)
  - Artiodactyla (eg: miniature pigs)
- Pet Reptiles: No venomous or crocodilians permitted
  - Squamates (eg: lizards, monitors, snakes)
  - Testudines (eg: tortoises, turtles)
- Pet Amphibians

- Anura (eg: frogs, toads)
  - Urodela (eg: salamanders, newts, axolotls, sirens)
- Pet Fish
  - Cypriniformes (eg: koi, goldfish)
  - Perciformes (eg: Oscars, cichlids, bettas)

### **Anatomy and Physiology**

For each species on the “Species List”, the following topics should be mastered. These parameters are meant to be for captive avian and exotic pets, which is very different from zoo exhibits and the differences should be clearly understood.

- Physiologic values
  - Life span
  - Average body weight
  - Body temperature
  - Heart rate
  - Respiratory rate
  - Sexual maturity
  - Type of estrous cycle
  - Ovulation
  - Gestation period
  - Litter/clutch size
  - Incubation period
  - Normal weight at birth
  - Eyes and ears open
  - Weaning age
- Integument
  - Fur
  - Feathers
  - Glands
  - Skin and dermal layers
  - Scales
  - Chromatophores
  - Osteoderms
  - Femoral pores
- Senses
  - Visual
    - Pupillary light response
    - Visual spectrum
    - Eye shape
    - Eye lids
    - Lens
    - Avascular retinas
    - Tapetum
    - Spectacle
    - Nasolacrimal duct system
    - Parietal eye
  - Auditory
    - Acoustical ability
    - Pinna
    - Ear canal
    - Tympanic membrane
    - Operculum
    - Sound frequency ranges
  - Olfactory
  - Tactile
- Metabolism
  - POTZ—preferred optimal temperature zone
  - Ectothermic
- Behavioral thermoregulation
  - Hibernation, brumation
  - Osmoregulation
- Gastrointestinal System
  - Herbivores
  - Carnivores
  - Omnivores
  - Granivore
  - Insectivore
  - Frugivore
  - Nectarivore
  - Florivores
  - GI transit time
  - Dental formulas for the variety of species
    - Incisors
    - Canine teeth
    - Deciduous teeth
    - Permanent teeth
    - Premolars
    - Molars
    - Diphyodont dentition
    - Peg teeth
  - Tongue
  - Salivary glands
  - Beak
    - Rhamphotheca
    - Rhinotheca
  - Oropharynx
  - Choanal slit
  - Palatal ostium
  - Diastema mastication
  - Esophagus
  - Crop
  - Stomach
  - Pylorus
    - Ability to vomit
  - Liver—number of lobes
  - Intestines
  - Gallbladder (which species have one)
  - Pancreas
  - Spleen
  - Splenopancreas
  - Adrenal glands
  - Hind gut fermenters
  - Cecum
  - Colon

- Fusus coli
- Cloaca
  - Coprodeum
  - Urodeum
  - Proctodeum
- Vent
- Respiratory System
  - Nares
  - Cere
  - Obligate nasal breathers
  - Operculum
  - Infraorbital sinus
  - Larynx
  - Glottis
  - Trachea
    - Cartilaginous tracheal rings
  - Bronchi
  - Parabronchi
  - Syrinx
  - Lungs
    - Anatomy
    - Quantity
    - Function
  - Diaphragm
  - Air sacs
  - Vascularity
  - Gas exchange
  - Breathing cycles
- Cardiovascular System
  - Heart
  - Hepatic and renal portal systems
  - Cardiac shunting
  - Venous circulation
  - Arterial circulation
  - Lymphatic system
- Nervous System
  - Circadian Pacemaker
  - Brain
  - Spinal cord
  - Cranial nerves
  - Peripheral nerves
  - Autonomic nervous system
  - Parasympathetic nervous system
  - Vasovagal reflex
  - Melatonin
  - Pineal gland
- Musculoskeletal system
  - Pneumatic bones
  - Medullary bones
  - Skull
  - Vertebral Column
  - Vertebrae number
  - Occipital condyle
  - Synsacral
  - Coccygeal
  - Pygostyle
  - Tail autotomy and regeneration
  - Shell—modifications between species
- Carapace
- Plastron
- Scutes
- Musculature anatomy
- Skeletal anatomy
- Forms of locomotion
- Digit anatomy
- Reproductive Systems
  - Sex chromosomes
  - Sex determination
  - Anogenital distance
  - Sexual dimorphism
    - Testes
    - Baculum
    - Hemipenes
    - Prostate
    - Penis vs. Phallus
    - Os penis
    - Colors
  - Female Reproductive System
    - Ovulation
    - Ovary
    - Oviduct
    - Fertilization
    - Egg formation
    - Oviparous
    - Viviparous
    - Egg anatomy
    - Incubation
    - Gestation
    - Postovulatory follicle
    - Uterus
    - Cervix
    - Ossification of pelvic symphysis
    - Mammary glands
  - Copulation techniques
  - Seasonal variances in habits
- Urinary System
  - Kidneys
  - Osmoregulation
  - Urates
  - Renal Portal System
  - Salt Gland
  - Uricotelic
  - Bladder
  - Urine consistency and color
  - Urates
- Endocrine System
  - Pituitary gland
  - Growth hormones
  - Thyroid
  - Parathyroid
  - Thymus
  - Adrenal glands
  - Corticosterone
  - Nasal salt glands
  - Pancreas
  - Insulin

- Glucoregulation
  - Glucose
  - Glycogen
  - Somatostatin
- Circulatory System
  - Heart
  - Purkinje fibers
  - Aorta
  - Cerebral arterial Circle of Willis
  - Hepatic and renal portal systems
  - Arteriovenous networks
  - Blood
  - Extrinsic and intrinsic pathways
- Lymphatic and immune system
  - Thymus
  - Spleen
  - Specific immunity
  - Bursa of Fabricius
  - IgG
  - IgE
  - IgA
  - IgM

### Anesthesia

Candidate must have a complete understanding of the theoretical and technical use, application, and relevance of these anesthetic issues for each individual species on the “species list”.

- Anesthetic equipment
  - ETCO<sub>2</sub>
  - Doppler
  - EKG
  - Indirect blood pressure
  - Direct blood pressure
  - Blood gas analysis
  - SPO<sub>2</sub>
  - Ventilation options
  - Core body temperature measurement
  - Respiratory monitoring
  - IV/IO infusion options
- Proper thermal support
- Analgesics
- Pre-anesthetic agents
- Induction agents
  - Inhalants
  - Injectables
- Administration sites
- CRI options
- Normal physiologic reference ranges
  - Heart Rate
  - Respiratory Rate

- Core body temperature
- Anesthetic techniques
  - Intubation
  - Induction
  - IV/IO/air sac catheter placement sites and sizes
- Intra-operative fluid therapy options
- Blood transfusions
  - Blood typing
  - Rates and administration methods
  - Recognize blood transfusion reactions
- Troubleshooting anesthetic reactions
- Emergency interventions and CPR (see Knowledge list)
- Post-anesthetic complications

### Diseases and Conditions

Candidates are expected to recognize which of these diseases are species specific, and how certain diseases can and do manifest differently between varying species. Candidates must have a complete knowledge of each of these diseases for every species on the “species list” including:

- Causes
  - Symptoms
  - Modes of transmission
  - Proper testing
  - Treatment options
  - Prognosis
- Abscesses
- Antibiotic toxicities
- Adrenal disease
- Alleutian’s disease
- Amyloidosis
- Anaphylaxis
- Anemia
- Atrial thrombosis
- Aural Abscess
- Autoimmune diseases
- Avian Bornavirus
- Barbering
- Behavioral Disorders
  - Feather Destructive
  - Skin mutilation
  - Screaming/Biting
- Biliary cysts/adenocarcinoma
- Blood parasites
- Cardiac Disease
- Cecal impaction
- Cheek pouch impaction
- Cherry eye
- Chlamydiosis

- Chordoma
- Clostridium piliforme (Tyzzer's disease)
- Crop diseases
  - Stasis
  - Infection (bacterial/fungal)
  - Impaction
  - Burn
- Cryptorchidism
- Cryptosporidiosis
- Cystitis
- Dental disease
  - Malocclusion
  - Abscess
  - Gingivitis
  - Gingival hyperplasia
- Dermatitis
- Dermatophytosis
- Dirofilaria
- Distemper virus
- Diabetes Mellitus/Insipidus
- Dystocia
- Dysecdysis
- ECE (Epizootic catarrhal enteritis)
- Edema (Dropsy)
- Egg binding/dystocia
- Egg peritonitis
- Encephalitozoon cuniculi
- Endometrial hyperplasia
- Eosinophilic enteritis
- Estrogen toxicity
- Estrus associated aplastic anemia
- Fecal impactions
- Fibroma
- Foreign body
  - Crop
  - Proventricular/Ventricular
  - Gastro-Intestinal
  - Tracheal
- Fungal infections
  - Aspergillosis
  - Candida
  - Ornithogaster
- Fur slip
- Gastro-Intestinal obstruction or torsion
- Gastrointestinal stasis/Ileus
- Granulomatosis
- Helicobacter pylori
- Hemipene impaction/infection
- Hepatic lipidosis
- Herpes Virus
  - Pacheco's Disease
  - Papillomavirus/Papillomatosis
  - Marek's Disease
- Hydronephrosis
- Hypercalciuria
- Hypersplenism
- Hyper/hypothermia
- Hyper/hypocalcemia
- Hyper/hypovitaminosis
- Ileus
- Inclusion Body Disease (IBD)
- Inflammatory bowel disease
- Influenza
- Inhalant Toxins
  - PTFE
  - Air fresheners
  - Incense
  - Gas
- Insulinoma
- Intussusception
- Iron Storage Disease
- Lawsonia intracellularis infection
- Limb constriction- foreign object
- Liver disease
  - Infectious
  - Nutritional
  - Neoplastic
  - Hepatic Lipidosis
- Lymphoma
- Lymphadenitis
- Lymphocytic choriomeningitis virus
- Mammary neoplasia
- Mast cell tumor
- Megaesophagus
- Mucoid enteritis
- Mycobacterium
- Neoplasia varieties
- Nidovirus
- Nutritional secondary hyperparathyroidism (Metabolic Bone Disease)
- Obesity
- Ophthalmologic disease
- Osteoarthritis
- Osteomyelitis
- Otitis
- Ovarian cysts
- Paramyxovirus
- Parasitism

- Skin
  - Gastro-Intestinal
  - Ears
  - Tracheal/air-sacs
  - Myiasis
- Parvovirus
- Pasteurellosis
- Penial hair ring
- Pheochromocytoma
- Pineconing scales
- Pneumonia
- Pododermatitis
- Polymyositis
- Polyoma Virus
- Porphyrinuria/pigmented urine
- Pre-ovulatory egg binding
- Pregnancy toxemia
- Proliferative colitis
- Prostate disease
- Proventricular Dilatation Disease (PDD)
- Prolapse
  - Cloaca
  - Vent
  - Intestinal
  - Hemipene/penis
  - Oviduct/uterus
  - Bladder
- Psittacine Beak and Feather Disease (PBFD)
- Pseudopregnancy
- Pulmonary mycoses
- Pyometra/metritis
- Rabies
- Renal disease
- Infectious
- Nutritional
- Neoplastic
- Gout
- Respiratory diseases of the small rodent
  - Murine Respiratory Mycoplasmosis (MRM)
  - Cilia-associated Respiratory (CAR) Bacillus
  - Streptococcus pneumoniae
  - Corynebacterium kutscheri (Pseudotuberculosis)
  - Pasteurella pneumotropica
  - Sendai Virus
  - Pneumonia Virus of Mice (PVM)
  - Rat Respiratory Virus (RRV)
  - Pneumonia carinii
- Rotavirus
- Rupture of the eye

- Scurvy
- Salmonellosis
- Self-mutilation
- Sepsis
- Sinusitis/air sacculitis/pneumonia
- Splay-Leg
- Spondylosis
- Stomatitis
- Testicular/ovarian neoplasia
- Thymoma
- Toxicosis
  - Lead
  - Zinc
  - Copper
  - Plant
- Tracheal mites
- Trauma
  - Dermal wounds/burns
  - Orthopedic
  - Soft tissue
  - Ocular
  - Crushing/shell wounds
  - Prey bites
- Treponema
- Trichobezoars
- Uric acid impaction
- Urolythiasis
- Uropygial gland disease
  - Impaction
  - Infection
  - Neoplasia
- Vaccine reaction
- Xanthomatosis

### **Emergency and Critical Care**

**Candidates must demonstrate a complete knowledge of all of these categories and parameters for each species on the “species list”. They must be able to recognize and understand how each situation differs among species and how to troubleshoot between them.**

- Triage the emergency patient
  - Common emergency presentations and causes
  - Follow proper steps once emergency has been determined
- Perform complete physical exam
  - Proper capture and restraint techniques
  - Physiologic normal reference ranges
  - Auscult heart and lungs
  - Hydration status
  - When to perform exam in steps to minimize stress-related deaths

- Recognize the need to receive supplemental oxygen and methods of administration
- Temperatures and humidity requirements
- Fluid therapy regimens
  - Shock fluid therapy rates
  - Maintenance fluid therapy rates
  - Correcting hydration deficits
- Types of fluids used and when to use them
- Catheter placement sites
  - Intravenous sites
  - Intraosseous sites
  - Urinary catheters
- Equipment for fluid therapy delivery
- Analgesics
  - NSAIDS
  - Opioids
  - Local/topical
- Injection routes
- Tube/syringe feeding
  - Equipment/supplies
  - Calculate metabolic caloric requirements
  - Common hand feeding formulas
- Venipuncture
  - Use of lab supplies and packaging supplies
  - Venipuncture sites
  - Blood volume limitations
- Radiology
  - Proper positioning
  - When to sedate
  - Use of positioning board
- Critical care wound management
  - Hemostasis
  - Bandaging techniques
  - Splinting
- Blood transfusion medicine
  - Blood typing
  - Rates and administration methods
  - Recognize blood transfusion reactions
- CPR
  - Common emergency drugs used and routes
  - Intubation techniques in the emergency patient
  - Prep and assist with air sac cannulation
- Equipment knowledge and set up
  - Doppler placement and indirect blood pressure measurement
  - ECG placement
  - Ambu-bag/ventilator
  - Oxygen tanks/cages/Incubators/nebulizers
  - Pulse Oximeters

### Hematology

**Candidates must have a complete understanding of each of these topics for each individual species on the “species list”.**

- Venipuncture
  - Correct site/restraint
  - How much total blood can be pulled safely
- Packed Cell Volume
  - Preparation and reading

- Serum color/quality
- Slide Preparation
  - Correct method of making a smear
  - Staining technique
- Lab supplies
  - Microtainers
  - Special swabs
  - Knowledge of which tests require what sort of sample (ie: plasma vs. serum vs. whole blood)
- Machines and lab devices
  - Proper microscope use and maintenance
  - Centrifuges
  - Hemocytometers
  - Refractometers
  - In-house chemistry/hematology analyzers pros and cons
- Manual count
  - Hemocytometer
  - Solutions used
  - Equation
- Cell Identification
  - Erythrocytes
  - Leukocytes
    - Granulocytes/Heterophils
    - Agranulocytes
  - Thrombocytes/Platelets
- Regeneration
  - Reticulocytes-Calculate mean
  - Grading with Plus System/percentage mean
  - Poikilocytosis/Anisocytosis/Polychromasia
- Toxic/Reactive Changes
  - Identify changes to cells
  - Grading changes
- Hemoparasites
  - Identify
  - Knowledge of different species

### Behavior

**Candidates are expected to master all of these parameters for each species specified on the “Species list”.**

- Normal reproductive behaviors
  - Cycles
  - Oviparous, Viviparous, Ovoviviparous
  - Mating/courtship rituals
  - Sexual maturity
  - Gestation
  - Common physical displays
- Abnormal reproductive behavior
  - How to recognize dystocia
  - Irregular displays
- Age-related behaviors
  - Common chick behaviors (eg: begging, regurgitating, rolling, sleeping, learning/practicing to fly)
  - Differences between age-related blindness/lack of vision and acute blindness

- Difference between normal age-related decrease in activity level vs. illness
- Signs of illness: Differentiate between normal behaviors and illness such as:
  - Vomiting vs. Regurgitating
  - Periods of inappetence
  - Brood patch feather removal/molting vs. feather destructive behavior
  - Mouth gaping vs. respiratory distress
  - Resting vs. lethargy
  - Egg laying vs. dystocia
  - Limping vs. playing/displaying
- Physical displays/body language for each species
  - Territorial displays
  - Affection displays
  - Aggressive/menacing displays
  - Feeding/nurturing displays
  - Mating/sexual
- Seasonal changes and associated behavior changes
  - Hibernation/brumation/estivation
  - Molting/Shedding
  - Appetite variance
  - Dietary requirements based on seasons
  - Reproductive habits
- Candidates should be prepared to advise pet owners of all species on a variety of topics and how to deal with these issues in their captive pets:
  - Biting
  - Excessive screaming
  - Boredom
  - Fighting with cage mates
  - Feather mutilation
  - Skin mutilation
  - Enrichment options
  - Foraging options
  - Basic training techniques:
    - How to medicate
    - How to restrain
    - How to teach birds to step up on a hand
    - How to safely get pets into appropriate transport carriers

### Husbandry

**For each species of pet, the following topics should be mastered. These parameters are meant to be for captive avian and exotic pets, which is very different from zoo exhibits and the differences should be clear in these recommendations.**

- Nutrition
  - Herbivore, omnivore, carnivore, insectivore, frugivore
  - Ideal diets as per native habitat
  - Proper commercially available diets
  - Dangerous/toxic foods
  - Supplements
  - Gut loading

- Proper food presentation
  - Frequency and quantity of feeding
- Enclosures
  - Type (cage vs. aquarium vs. free roam)
  - Natural habitat (Arboreal vs. ground dwelling vs. swamp vs. forest vs. desert vs. rain forest vs. arid)
  - Substrate
  - Important furniture
  - Feeding devices
  - Enrichment devices
- Lighting/sleep cycles
  - Proper spectrum requirements
  - How to provide appropriately for pets in captivity
  - Diurnal vs. Nocturnal vs. Crepuscular
  - Indoor vs. outdoor options
- Temperature/Humidity
  - POTZ for all species
  - Proper gradients
  - How to provide appropriately for pets in captivity
  - What is normal for these species in their natural environments and how best to recreate that for pets in captivity
- Bathing
  - Frequency and techniques (spraying vs. misting vs. fogging vs. soaking, etc.)
  - Which species require alternative “bathing” options (dust or soil baths)
- Hibernation
  - Which species naturally hibernate
  - When, as a pet in captivity, is hibernation appropriate
  - How to safely create an environment for these species to hibernate
  - Brumation vs. hibernation
- Longevity
  - Average life expectancy for captive pet species
- Grooming Needs
  - Which species may need grooming (nails/claws, feathers, beaks, etc)
  - What techniques are commonly used
  - What are signs of illness vs. normal captive overgrowth (ie: overgrown beak of a turtle due to nutritional deficiency vs. improper cage furniture and substrate)

### Surgical Procedures



**Candidate must have a complete understanding of each of these procedures including which species may require specific procedures, how to prep for procedures, how to assist during the procedure, what instruments/tools/equipment will be required and how to properly use them, and possible pre and post surgical/procedural complications. Candidate must also be able to determine what each procedure is for and under what circumstances the procedure may or may not be indicated.**

- Abscess management
- Abscess removal
- Adrenal tumor removal
- Amputation
  - Extremity
  - Penis
  - Hemipene
- Anastomosis
- Aural abscess removal
- Beak repair/reconstruction
- Biopsy
  - Dermal
  - Visceral
- Bite wound repair
- Caesarian
- Cloacalpexy
- Cryosurgery
- Cutaneous parasite removal
- Cystotomy
- Cystectomy
- Dental surgery
- Dental scaling
- Dental trimming
- Descending
- Egg removal
- Endoscopy
  - Coelomic
  - Tracheal/Upper airway
  - Cloacal
  - Gastro-intestinal
  - Nasal
  - Intubation
- Enterotomy
- Enucleation
- Esophageal tube placement
- Exploratory abdominal
- Exploratory coeliotomy
- Gastrotomy
- Laser surgery
- Mammary tumor removal
- Orchiectomy
  - Scrotal
  - Pre-scrotal
  - Abdominal
- Orthopedic surgeries
  - Pinning
  - Plating
  - Splinting
  - Bandaging/external coaptation
  - Luxation reduction
  - Plastron/Carapace traumatic injuries
- Ovariohysterectomy
- Pancreatic tumor removal
- Prolapse repair
  - Hemipene
  - Penis
  - Oviduct
  - Colon
  - Cloaca
  - Bladder
- Radiosurgery
- Salpingectomy
- Salpingotomy
- Salpingohysterectomy
- Soft tissue mass removal
- Thymoma removal
- Tracheal intubation
- Urethrotomy

## **Book List ECA**

### **Pharmacology**

- Exotic Animal Formulary 5<sup>th</sup> edition, J. Carpenter, (Saunders)
- Plumb's Veterinary Drug Handbook 9<sup>th</sup> edition, Plumb, (Wiley-Blackwell)

- The Merck Veterinary Manual 11<sup>th</sup> edition, (Wiley)
- Clinical Pharmacology and Therapeutics for the Veterinary Technician by, 4<sup>th</sup> edition, R. Bill, (Elsevier)

## **Anesthesia**

- Anesthesia and Analgesia for Veterinary Technicians, 5<sup>th</sup> edition, P. Lerche and J. Thomas, (Elsevier)
- Anesthesia of Exotic Pets by, 1<sup>st</sup> edition, Longley, (Saunders)
- Veterinary Anesthesia and Analgesia, 3<sup>rd</sup> edition, McKelvey and Hollingshead, (Mosby)
- Anesthesia for Veterinary Technicians, 1<sup>st</sup> edition, Bryant, (Wiley-Blackwell)

## **General Medicine**

- McCurnin's Clinical Textbook for Veterinary Technicians, 9<sup>th</sup> edition, J. Bassett, Beal, Samples, McCurnin(Elsevier)
- Manual of Exotic Pet Practice, 1<sup>st</sup> edition, Mitchell and Tully Jr., (Saunders)
- Mader's Reptile and Amphibian Medicine and Surgery, 3<sup>rd</sup> edition, Divers and Stahl (Saunders)
- Current Therapy in Reptile Medicine and Surgery, 1<sup>st</sup>, D. Mader and S. Divers, (Elsevier)
- Ferrets, Rabbits, and Rodents: Clinical Medicine and Surgery, 4<sup>th</sup> edition, Quesenberry, Carpenter, Orcutt, Mans (Saunders)
- Rabbit and Rodent Dentistry Handbook, 1<sup>st</sup> edition, Capello, Gracis, Lennox (Zoological Education network)
- Textbook of Rabbit Medicine, 2<sup>nd</sup> edition, Varga and Harcourt-Brown, (Elsevier)
- Exotic Animal Medicine for the Veterinary Technician, 3<sup>rd</sup> edition, Ballard and Cheek, (Wiley-Blackwell)
- Medicine and Surgery of Tortoises and Turtles, 1<sup>st</sup> edition, McArthur, Wilkinson, and Meyer, (Wiley-Blackwell)
- Handbook of Avian Medicine, 2<sup>nd</sup> edition, Tully Jr., Dorrestein, and Jones, (Elsevier)
- Avian Medicine, 3<sup>rd</sup> edition, J. Samour, (Saunders)
- Current Therapy in Avian Medicine and Surgery, B. Speer, (Elsevier)
- Avian Medicine: Principles and Application, Ritchie, Harrison, and Harrison, (HBD International Pub)
- Manual of Avian Practice 1<sup>st</sup> edition, Rupley, (Saunders)
- BSAVA Manual of Exotic Pets: a Foundation Manual, 5<sup>th</sup> edition, Meredith and Johnson Delaney, (BSAVA)
- BSAVA Manual of Rodents and Ferrets, 1<sup>st</sup> edition, Keeble and Meredith, (BSAVA)
- BSAVA Manual of Rabbit Medicine and Surgery, 2<sup>nd</sup> edition, Meredith and Flecknell, (BSAVA)
- BSAVA Manual of Psittacine Birds, 2<sup>nd</sup> edition, Harcourt-Brown and Chitty, (BSAVA)
- BSAVA Manual of Raptors, Pigeons and Passerine Birds, 1<sup>st</sup> edition, Chitty and Lierz, (BSAVA)
- BSAVA Manual of Reptiles, 3<sup>rd</sup> edition, Girling and Raiti, (BSAVA)
- Amphibian Medicine and Captive Husbandry, 1<sup>st</sup> edition, Whitaker and Wright, (Krieger Publishing Company)
- Birds of Prey: Health and Disease, 3<sup>rd</sup> edition, Cooper, (Wiley-Blackwell)
- Poultry Health and Management: Chickens, Turkeys, Ducks, Geese and Quail, 4<sup>th</sup> edition, Sainsbury, (Blackwell Science)
- Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners, 2<sup>nd</sup> edition, C. Greenacre and Morishita, (Wiley Blackwell)
- Principles and Practice of Veterinary Technology, 4<sup>th</sup> Edition, M. Sirois, (Mosby)
- Clinical Avian Medicine Volume 1 & 2, Harrison and Lightfoot, (Spix)
- The Veterinary Clinics of North America: Exotic Animal Practice Series, (Elsevier)

## **Emergency and Critical Care**

- Small Animal Emergency and Critical Care for Veterinary Technicians, 4<sup>th</sup> edition, Battaglia, Steele, (Saunders)

## **Radiology**

- Radiology of Birds: An Atlas of Normal Anatomy and Positioning, 1<sup>st</sup> edition, Silverman, Tell, Nugent-Deal, Palmer-Holtry, West, (Saunders)
- Radiology of Rodents, Rabbits and Ferrets: An Atlas of Normal Anatomy and Positioning, 1<sup>st</sup> edition, Silverman and Tell, (Saunders)

## **Anatomy and Physiology**

- Clinical Anatomy and Physiology of Exotic Species: Structure and Function of mammals, birds, reptiles and amphibians, 1<sup>st</sup> edition, O'Malley, (Saunders)
- Sturkie's Avian Physiology, 6<sup>th</sup> edition, C. Scanes, (Academic Press)
- Manual of Ornithology: Avian Structure and Function, 2<sup>nd</sup> edition, Proctor and Lynch, (Yale University Press)
- Ornithology, 4<sup>th</sup> edition, Gill and Prum, (W.H. Freeman)

## **Behavior**

- Exotic Pet Behavior: Birds, Reptiles, and Small Mammals, 1<sup>st</sup> edition, Bradley Bays, Lightfoot, and Mayer, (Saunders)
- Manual of Parrot Behavior, Luescher, (Wiley-Blackwell)

## **Laboratory**

- Veterinary Clinical Parasitology, 8<sup>th</sup> edition, Zajac and Conboy, (Wiley-Blackwell)
- Avian and Exotic Animal Hematology and Cytology, 3<sup>rd</sup> edition, Campbell and Ellis, (Wiley-Blackwell)
- Laboratory Medicine: Avian and Exotic Pets, 1<sup>st</sup> edition, Fudge, (Saunders)
- Laboratory Procedures for Veterinary Technicians, 6<sup>th</sup> edition, Sirois and Hendrix, (Mosby)
- Veterinary Parasitology Reference Manual, 5<sup>th</sup> edition, Foreyt (Wiley-Blackwell)
- Clinical Cases in Avian and Exotic Animal Hematology and Cytology, 2<sup>nd</sup> edition, T. Campbell and K. Grant, (Wiley- Blackwell)

## **Aquatic**

- Handbook of Fish Diseases, Untergasser (TFH Publications)
- Fish Disease: Diagnosis and Treatment 2<sup>nd</sup> edition, Noga, (Wiley Blackwell)
- Fish Medicine, 2<sup>nd</sup> edition, Stoskopf, Phelps, Bauer (Art Sciences LLC)
- Fundamentals of Ornamental Fish Health, Roberts, (Wiley-Blackwell)

## **Knowledge list Avian/Exotic Pharmacology and Commonly Used Drugs**

For each species on the "Species List", the following pharmacology topics should be mastered. Knowledge of potential drug side effects and safe handling practices should be mastered for each species on the "Species List". These parameters are meant to be for captive avian and exotic pets, in contrast to zoo exhibits and the differences should be clearly understood for these parameters.

- Drug Action
  - Pharmacokinetic factors of a drug
  - Absorption
  - Distribution
  - Excretion
  - Drug metabolism

- Routes of Administration
    - Oral
    - Parenteral administration
      - Subcutaneous
      - Intramuscular
      - Intravenous
      - Intradermal
      - Intraosseous
      - Intracoelemic
      - Intraperitoneal
  - Neuropharmacology
    - Acetylcholine (Ach)
    - Norepinephrine (NE)
    - Agonists—causative agent
    - Antagonist—reversal, contrary action
    - Cholinomimetic Agents
      - Cholinesterase inhibitors
      - Anticholinesterases
      - Edrophonium chloride
      - Physostigmine
      - Pyridostigmine
      - Neostigmine
      - Organophosphates
        - Echothiophate iodide
    - Anticholinergics
    - Neuromuscular Blockers
    - Sympathomimetics
    - Sympatholytics
  - Alpha-adrenergic blocking agents
  - Beta-adrenergic blocking agents
  - Tranquilizers
    - Phenothiazines
    - Benzodiazepines
  - Sedatives
    - Alpha2 Adrenergic Agonists
  - Hypnotic agents
  - Anticonvulsants
    - Benzodiazepines
    - Barbiturates
    - N-Methyl-D-aspartate Antagonists (NMDA)
  - Opioids
    - Mu & Kappa Agonist
  - Kappa Antagonist
  - Opioid Antagonist
  - Analgesics
  - Antipyretics
  - Anti-inflammatory
  - Corticosteroids
  - Nonsteroidal Anti-Inflammatory Drugs (NSAID)
  - Diuretic and Cardiovascular Drugs
    - Diuretics
    - Cardiac glycosides
    - Antiarrhythmia drugs
  - Calcium channel blockers
  - Angiotensin Converting Enzyme (ACE) Inhibitors
  - Antiparasitic
    - Anthelmintics
    - Anti-protozoal
    - Benzimidazoles
    - Organophosphates
      - 2PAM (Pralidoxime)
    - Tetrahydropyrimidines
    - Imidazothiazoles
    - Milbemycins
    - Ivermectins
    - Anticestodal drugs
    - Chlorinated hydrocarbons
    - Organophosphates
    - Pyrethrins
  - Antibiotic
    - Penicillins
    - Macrolides
    - Fluoroquinolones
    - Sulfonamides
    - Tetracyclines
    - Aminoglycosides
  - Antifungal
    - Polenes
    - Imidazole, triazole, and thiazoles
    - Allylamines
    - Echinocandins
  - Hormones and Synthetic Substitutes
  - Gastrointestinal Drugs
  - Antiemetics
  - Emetics
  - Antidiarrheal Agents
  - Cathartic (laxatives)
  - Ulcer Management Drugs
  - Chelation drugs
- Commonly Used Drugs**
- Parasitocides
    - Carbaryl 5% Powder
    - Fenbendazole
    - Ivermectin
    - Levamisole
    - Metronidazole
    - Oxfendazole
    - Permethrin
    - Praziquantel
    - Sulfa-dimethoxine
    - Fipronil
    - Selamectin
    - Moxydectin
    - Imidoclopid

- Antimicrobial Drugs

- Amikacin
- Amoxicillin
- Amoxicillin/Clavulanate
- Ampicillin
- Azithromycin
- Carbenicillin
- Cefazolin
- Cephalexin
- Cefoxitin
- Cefotaxime
- Ceftazidime
- Chloramphenicol
- Chlortetracycline
- Ciprofloxacin
- Clarithromycin
- Clindamycin
- Clotrimazole
- Doxycycline
- Enrofloxacin
- Erythromycin
- Fenbendazole
- Fluconazole
- Gentamicin (parenteral/ophthalmic)
- Griseofulvin
- Itraconazole
- Ketoconazole
- Lincomycin
- Metronidazole
- Neomycin, polymyxin, bacitracin ophthalmic
- Neomycin, polymyxin, bacitracin, hydrocortisone ophthalmic
- Piperacillin
- Ponazuril
- Ofloxacin ophthalmic
- Oxytetracycline
- Penicillin G Procaine Benzathine
- Silver sulfadiazine
- Tetracycline
- Tetramycin ophthalmic
- Ticarcillin
- Trimethoprim-sulfadimethoxine
- Tylosin
- Vancomycin

- Analgesics/Anesthetics/Sedatives/Reversal Agents

- Alfaxalone
- Acepromazine
- Atipamezole
- Buprenorphine
- Butorphanol
- Carprofen
- Diazepam
- Dexmedetomidine
- Fentanyl
- Flunixin meglumine

- Flurbiprofen ophthalmic
- Gabapentin
- Hydromorphone
- Isoflurane
- Ketamine
- Ketoprofen
- Meloxicam
- Meperidine
- Midazolam
- Morphine
- MS222
- Naloxone
- Propofol
- Sevoflurane
- Terbinafine
- Tiletamine/Zolazepam
- Tramadol
- Xylazine
- Yohimbine

- Emergency drugs

- Atropine (parenteral/ophthalmic)
- Calcium
- Dexamethasone sodium phosphate
- Diazepam
- Midazolam
- Dopamine
- Doxapram
- Epinephrine
- Flumazenil
- Furosemide
- Glycopyrrolate
- Lidocaine
- Sodium bicarbonate
- Vasopressin

- Common Miscellaneous Drugs

- Acyclovir
- Allopurinol
- Aminophylline
- Bismuth subsalicylate
- Calcitonin
- Calcium-EDTA
- Calcium gluconate
- Calcium gluconate
- Cimetidine
- Cisapride
- Deslorelin acetate
- Dexamethasone
- Digoxin
- Dorzolamide ophthalmic
- Enalapril
- Furosemide
- Honey
- Iron dextran
- Lactobacilli
- Loperamide HCL
- Levamisole

- Leuprolide acetate
- Metoclopramide
- Naloxone
- Nystatin
- Oxytocin
- Pentobarbital sodium
- Phenobarbital

- Pimobendan
- Praziquantel
- Prednisone
- Prednisolone
- Probenecid
- Terbutaline
- Vitamins A, B1, B12, C, D, E, K1