

Veterinary Orthopaedic and Mobility Center (VOMC) Anesthesia Continuing Education Course

Protocol and Training Program for Teaching

Agricultural Education Distance Non-Thesis Masters

[Katie Orben]

[Summer 2020]

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Anesthesia Continuing Education Course

Program Mission Statement

Promoting the health and up to date care of small animal surgical candidates through the continuing education of staff veterinary technicians.

Values

- To promote and provide continuing education opportunities that are relevant and accessible to staff technicians and assistants
- To endorse continuing education for Veterinary Technicians studying to obtain the Veterinary Technician Specialty VTS – Anesthesia & Analgesia.

Learning Principles

- Integrating technicians into our healthcare team and scientific community through participation in the daily case management of live animals that are current patients of the hospital services.
- Coordinating and documenting the progressive vertical acquisition and demonstration of competence in communication, technical, and critical thinking skills, medical record management, and lifelong self-directed learning expected of competent technicians.
- Increase exposure to and knowledge of pre-operative, intra-operative, and post-operative anesthetic monitoring of surgical cases.

Transfer Goals

1. Continue education to stay current with innovative veterinary medical advancements.
 2. Participate in an active role in care of small animal surgical patients in a veterinary hospital setting.
 3. Fine tune time management skills when assigned critical surgical patients.
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Time and Location

The program is offered as needed in conjunction with normal work flow during normal business hours for surgical nurses and assistants during their first six months of new hire.

Course Description

This course is intended to provide continuing education opportunities for veterinary technicians on anesthesia and analgesia techniques and protocols for small animal surgical candidates in accordance with FVTA (Florida Veterinary Technician Association) guidelines to fulfill requirements for Certified Veterinary Technicians. This will also lay the groundwork for technicians studying to obtain the Veterinary Technician Specialty in Anesthesia & Analgesia (VTS-Anesthesia and Analgesia).

Theoretical Foundation

Through experience and reflection, the learner in this program becomes responsible for their own capacity to grow and learn through anesthetic cases presented in house. Program leaders will embody the skills approach for this program. The surgical team lead and senior nurses are responsible for identifying that at each level of administration, a different extent of skill must be expressed. Each skill is interrelated for the success of the anesthetic case, but developed individually. Each of these skills are focused on an ability which can be developed, manifested in performance. Employees will have the technical understanding of and proficiency in anesthesia

and analgesia. This specialized knowledge and analytical ability will provide them the opportunity to use these specific tools to a case by case basis that is personalized for each patient. Employees will have to work effectively as a group member and build collaborative efforts for correct, safe anesthesia. Before starting this program, employees must be aware of personal abilities, assumptions and beliefs in order to be sensitive and willing to act in a way which takes others' perceptions into account. Anesthetic teams must be able to effectively communicate with others about case outcome, procedures, and expectations. Employees must have the ability to see the enterprise as a whole is a result of the interconnectedness of the parts. Setting the standards for practicing anesthesia connects VOMC to other similar organizations, the community, and political, social and economic forces. VOMC is providing a service to the community to improve the health of our client's beloved pets.

The surgical team lead and senior nurses will motivate subordinates to accomplish designated goals through path goal theory. Path-goal provides a means for leaders to assess their strategy, assess the characteristics of the followers, determine the task/work setting, and adjust to leadership style align with followers. Leaders will identify the behaviors are best situated to meet follower motivational needs. Subordinate characteristics could range though any of the following: need for affiliation, preference for structure, desire for control, ability perception. Leadership should be able to respond to follower needs by demonstrating directive, supportive, participative, achievement-oriented behaviors. Employees will be motivated if they feel competent. Providing opportunities for continuing education in house on pertinent topics or topics necessary will provide an opportunity to achieve personal and/or professional goals.

Course/Workshop Understandings

Learners will understand that:

1. The Anesthesia Continuing Education Course is intended to provide continuing education opportunities for veterinary technicians on anesthesia techniques and protocols for small animals in accordance with FVTA (Florida Veterinary Technician Association) guidelines.
2. Patients or cases in the veterinary industry can have similar symptoms, diagnosis and treatments but can be treated in a multitude of different ways.
3. This course is envisioned to give participants the opportunity to learn advanced anesthesia and analgesia skills they can be built upon to make successful and efficient treatment choices.

Course Essential Questions & Objectives

Consultation and history unit

- 1) What are the common diseases for specific breeds?
 - **Objective:** Identify basic disease process based on breed specificity.
- 2) What are the common diseases in age groups?
 - **Objective:** Identify basic disease process based on age of patient.
- 3) What body systems are affected?
 - **Objective:** Describe the order of body systems in order from head to tail.

Small animal physical exam unit

- 4) What are the body systems to evaluate?
 - **Objective:** Investigate the body systems that will provide repeatable numerical data.
- 5) What are the normal parameter ranges?
 - **Objective:** Determine the acceptable ranges of repeatable numerical data.
- 6) What parameters are considered abnormal?
 - **Objective:** Determine the unacceptable ranges of repeatable numerical data.

Small animal pre-operative blood work unit

- 7) What information is obtained from various blood work?
 - **Objective:** Describe the following
 - Complete blood count
 - Chemistry
 - Blood glucose
 - Packed cell volume and total solids

Anesthetic protocol unit

- 8) What types of anesthetic induction agents are best suited for administration in small animals?
 - **Objective:** Outline commercially available anesthetic induction agents in the veterinary industry.
 - **Objective:** Identify the type of medications to be used for each class of patients (cardiac disease; brachycephalic airway syndrome; diabetes; geriatric, etc.) and how to alter to patient need.

- 9) How do you calculate fluid requirements?
- **Objective:** Calculating average daily fluid requirement and rates for intravenous administration.

Anesthetic Monitoring Unit

- 10) What are normal small animal vitals parameters?
- **Objective:** Observe and identify vital signs and classify if normal or abnormal.
- 11) What do the abnormal vital signs suggest?
- **Objective:** Explain which disease processes or body system response typically present with the coordinating behaviors.
- 12) How do you react and change anesthetic plan based on patient's vital signs under anesthesia?
- **Objective:** Outline "what if" scenario for each body system's change in vital signs.

Time management unit

- 13) How do I set up my treatments?
- **Objective:** Identify patient need.
- 14) What nursing care duties require the most input?
- **Objective:** Explain time, skill level, strength level needed for each nursing care duty.

Pain management unit

- 15) What are the different categories and dosages of veterinary pain management medications?
- **Objective:** Create reference manual of commonly used pain management medications.
- 16) What appropriate patient warning parameters must be included?
- **Objective:** Identify abnormal parameter associated with specific medications.

[Required Texts and/or Materials](#)

Anesthesia and Analgesia for Veterinary Technicians
by John A. Thomas, DVM and Phillip Lerche, BVSc, PhD, Dipl ACVA
Mosby; Fourth Edition (June 23, 2010)
ISBN-13: 978-0323055048

Additional handouts will be provided by the course instructor.

Description of Tasks

Quizzes:

Weekly quizzes pertaining to the key ideas from each week's topic.

Field work/experience case study:

Students will discuss a personal case from prior field work/experience. Should include complete patient history, triage information, treatment plan, financial constraints and patient outcome.

Anesthetic protocol development for instructor proposed surgical case:

Create a complete anesthetic plan based on the individual instructor provided scenario. Treatments will include but not limited to perioperative monitoring, fluid therapy, medications, and analgesia.

Weekly muster sessions:

Weekly discussions provided from the instructor on various topics within the industry. Each day the new surgical nurses and assistants will be alternately paired with a senior surgical nurse or the surgical team lead for guidance with mastering new skills. There will be a weekly follow up meeting privately with the surgery lead nurse and then with all staff to determine feedback on this week's skills.

Small animal anesthesia and analgesia unit test and alternative assessment:

Students will participate in a hands-on set up for an instructor provided emergency scenario and complete the final module test. There will be a one-hour exam session at the completion of the 6 months. Further time needed for specific skills will be discussed on a case by case basis.

Skills checklists:

Evaluating the core benchmark skills will help determine program impact of how well nurses and assistants are being effectively prepared for specialty clinical practice. This data can help determine if the delivery of the instruction of skills need to be improved and in which ways to aid in program development.

Course Tasks and Grading

Cornerstone Task/Assignment	Points
Quizzes	120
Field work/experience case study	200
Anesthetic protocol development for instructor proposed surgical case	400
Discussion board posts	60
Small animal anesthesia and analgesia unit test and alternative assessment	55/65
Course participation/skills checklists	100
Total	1000

Grading / Assessment

Grading Scale

- A 1000 - 900
- B 899 - 800
- C 799 - 700
- D 699 - 500
- F 500 or below

The course will be delivered in a face to face format during normal business hours. All assignments are due by the Monday following the assigned week at 8:00am. Failure to turn assignment in on time will result in half credit for assignment.

Staff have the opportunity at the end of the semester to provide course evaluations to highlight what they felt was effective and areas for improvement.

After completion of the course work, all information will be entered into the staff members file.

Grading is S/U and will be evaluated with written assignments, laboratory skills checklists, small individual projects and a final exam. *Students must attain 80% of the points to pass the course.*

Other Information

Program evaluation reporting plan

Upon conclusion of the course, please set up the best time for an interview with the practice partners and lead surgery nurse. Be prepared for interviews to last approximately 45 minutes to discuss your most successful and unsuccessful cases from your six-month probationary period following the completion of the course. Please have all entries in six months following your original hire date. Credit for course completion and ability to increase technician rating will not be granted until the program evaluation is submitted.

Part B: Instructional Design Matrix

Anesthetic Continuing Education Course [Summer 2020]

School/Agency: Veterinary Orthopaedic and Mobility Center (VOMC)

Certification Title: Basic Anesthesia Continuing Education - VOMC

Consultation and History
<p>Unit Length</p> <ul style="list-style-type: none">• Two weeks
<p>Standard &/or Benchmark</p> <ul style="list-style-type: none">• Recognizing and understanding common diseases that pose an anesthetic risk
<p>Unit Essential Questions</p> <ul style="list-style-type: none">• What are the common diseases for specific breeds?• What are the common diseases in age groups?• What body systems are affected?• What is the prognosis?
<p>Content: <i>Learners will know...</i></p> <ul style="list-style-type: none">• How to identify basic disease process that can affect the success of anesthesia based on breed specificity, age, and history of the patient
<p>Skill: <i>Learners will be skilled at...</i></p> <ul style="list-style-type: none">• Understanding interdependencies of body systems at various stages of the disease process• Understanding patient prognosis and providing appropriate supportive care
<p>Evidence Collected: <i>Learners will demonstrate knowledge/skill by...</i></p> <ul style="list-style-type: none">• Common disease quiz• Function of body systems quiz• Discussion board post regarding diseases that pose an anesthetic risk
<p>Learning Activities/Events (<i>Teaching/Learning Strategies</i>)</p>

- This two-week unit will be divided into two separate 30 minute recorded lectures with supplemental PowerPoint slides. These lectures will contain information regarding:
 - Ten most common diseases
 - Diseases most common in popular breeds
 - How body systems are affected by the disease process

Small Physical Exam
<p>Unit Length</p> <ul style="list-style-type: none"> • Two weeks
<p>Standard &/or Benchmark</p> <ul style="list-style-type: none"> • Tailoring normal physical exam to check for anesthetic risk factors
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> • What are the body systems to evaluate? • What are the normal parameter ranges? • What parameters are considered abnormal?
<p>Content: <i>Learners will know...</i></p> <ul style="list-style-type: none"> • How to evaluate each body system to assess overall patient
<p>Skill: <i>Learners will be skilled at...</i></p> <ul style="list-style-type: none"> • Variations and ranges of normal small animal parameters
<p>Evidence Collected <i>Learners will demonstrate knowledge/skill by...</i></p> <ul style="list-style-type: none"> • Quiz assessing various patient data sets • Body system parameter quiz • Field work/experience case study • Discussion board post regarding vital sign fluctuations
<p>Learning Activities/Events (<i>Teaching/Learning Strategies</i>)</p> <ul style="list-style-type: none"> • This two-week unit will be divided into two separate 30 minute recorded lectures with supplemental PowerPoint slides. These lectures will contain information regarding:

- Body system evaluation
- Normal ranges for parameters
- Supplemental videos of physical exam evaluations will also be available for additional information.

Small Animal Pre-Operative Blood Work

Unit Length

- Two weeks

Standard &/or Benchmark

- Interpreting small animal pre-anesthetic blood work to evaluate normal values and disease correlation

Unit Essential Questions

- What information is obtained from various blood work:
- Complete blood count
- Chemistry
- Blood glucose
- Packed cell volume and total solids

Content: *Learners will know...*

- Normal ranges for various in-house blood work

Skill: *Learners will be skilled at...*

- Recognizing the abnormal data and how it corresponds to specific disease processes

Evidence Collected *Learners will demonstrate knowledge/skill by...*

- Complete blood count data sheet quiz
- Chemistry data sheet quiz
- Discussion board post regarding analysis of blood smears and cell count

Learning Activities/Events (*Teaching/Learning Strategies*)

- This two-week unit will be divided into two separate 30 minute recorded lectures with supplemental PowerPoint slides. These lectures will contain information regarding:

- Typical blood analysis performed
- Normal reference ranges for each test
- How to recognize abnormal ranges
- Correlation to disease process

Anesthetic Protocol

Unit Length

- Two weeks

Standard &/or Benchmark

- Choosing the most appropriate type of anesthetic protocol to meet patient's needs

Unit Essential Questions

- What types of anesthetic induction agents are best suited for administration in small animals?
- How do you calculate fluid requirements?
- Are there any types of common interactions?

Content: *Learners will know...*

- Type of treatment and maintenance procedures best suited to for general anesthesia

Skill: *Learners will be skilled at...*

- Identifying the potential risk factors that could have an effect on the type of induction agents used for each case

Evidence Collected *Learners will demonstrate knowledge/skill by...*

- Performing drug calculation quiz
- Discussion board post regarding common anesthetic agents

Learning Activities/Events (*Teaching/Learning Strategies*)

- This two-week unit will be divided into two separate 30 minute recorded lectures with supplemental PowerPoint slides. These lectures will contain information regarding:
 - Types of induction agents available
 - Drug interactions

- Recognizing symptoms of drug reactions

Anesthetic Monitoring

Unit Length

- One week

Standard &/or Benchmark

- Recognizing normal vs abnormal vital parameters

Unit Essential Questions

- What are normal small animal vitals parameters?
- What do the abnormal vital signs suggest?
- How do you react and change anesthetic plan based on patient's vital signs under anesthesia?

Content: *Learners will know...*

- Identifying normal small animal vital signs

Skill: *Learners will be skilled at...*

- Identifying what abnormal vital signs suggest

Evidence Collected *Learners will demonstrate knowledge/skill by...*

- Picture quiz of various small animal monitoring data sets

Learning Activities/Events (*Teaching/Learning Strategies*)

- This one-week unit will include a 30 minute recorded lecture with supplemental PowerPoint slides. These lectures will contain information regarding:
 - Video of various monitor views of anesthetized cases (normal vs abnormal)

Time Management

Unit Length

- One week

Standard &/or Benchmark

- Manage time spent on various nursing care duties to maximize efficiency

Unit Essential Questions

<ul style="list-style-type: none"> • How do I set up my treatments? • What nursing care duties require the most input (ex: time, skill level, strength level)?
<p>Content: <i>Learners will know...</i></p> <ul style="list-style-type: none"> • Time necessary for various treatments to be performed
<p>Skill: <i>Learners will be skilled at...</i></p> <ul style="list-style-type: none"> • Set up flow of treatment care plan to maximize time and efficiency without compromising nursing care
<p>Evidence Collected <i>Learners will demonstrate knowledge/skill by...</i></p> <ul style="list-style-type: none"> • Discussion board post explaining the most time-consuming skill/treatment
<p>Learning Activities/Events (<i>Teaching/Learning Strategies</i>)</p> <ul style="list-style-type: none"> • This one-week unit will include a 30 minute recorded lecture with supplemental PowerPoint slides. These lectures will contain information regarding: <ul style="list-style-type: none"> ○ Maximizing efficiency ○ Time management ○ Delegation of treatments

Pain Management
<p>Unit Length</p> <ul style="list-style-type: none"> • One week
<p>Standard &/or Benchmark</p> <ul style="list-style-type: none"> • Complete look at types of analgesia used for post-operative pain management
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> • What are the different categories and dosages of veterinary pain management medications? • What appropriate patient warning parameters must be included?
<p>Content: <i>Learners will know...</i></p> <ul style="list-style-type: none"> • Categories of pain management medications
<p>Skill: <i>Learners will be skilled at...</i></p>

<ul style="list-style-type: none"> • How to organize a formulary of medications to be used for small animal post-operative pain.
<p>Evidence Collected <i>Learners will demonstrate knowledge/skill by...</i></p> <ul style="list-style-type: none"> • Anesthetic protocol development for instructor proposed surgical case • Quiz on anesthetic terminology • Discussion board post regarding DEA regulations for controlled drugs used in veterinary medicine
<p>Learning Activities/Events (<i>Teaching/Learning Strategies</i>)</p> <ul style="list-style-type: none"> • This one-week unit will include a 30 minute recorded lecture with supplemental PowerPoint slides. These lectures will contain information regarding: <ul style="list-style-type: none"> ○ Required drug class categories ○ Anesthetic terminology

[Example of Lesson Plan](#)

Daily Plan		Educator: Katie Orben, BS, CVT
Lesson Title:	Intravenous Catheter Placement	
Unit/Program:	VOMC Anesthesia skills course	
Estimated Time:	Approx 30 mins	

Materials, Supplies, Equipment, References, and Other Resources:
<ul style="list-style-type: none"> • Chlorhexadine Scrub • Alcohol • Clippers • Exam gloves • Sterile gloves • 1 inch White tape • 2 inch cotton cast padding • 2 inch vet wrap • Assorted gauge Mila I.V. Catheter (18g, 20g, 22g) • Mila T port extension • Heparinized saline

- Patient or model

Learning Outcomes	
Essential Question:	What is the purpose of placing an intravenous catheter in surgical patients?
Learning Objectives:	
<p>1. Nurses and assistants become familiar with supplies necessary for placement of an intravenous catheter in canine and feline patients.</p> <p>2. Nurses and assistants become familiar with techniques necessary for placement of an intravenous catheter in canine and feline patients.</p>	

Preflection/Introduction (Interest Approach)	Estimated Time: 15 mins
<ul style="list-style-type: none"> • What procedures require use of an intravenous catheter? • Benefits of IVC • Phlebotomy basics 	

Learning Activity 1: IVC Basics		Estimated Time: 10 mins
Instructor Directions / Materials	Brief Content Outline	
In class discussion with supplemental handout explaining proper IVC placement procedures.	<p><i>Safety precautions</i></p> <ul style="list-style-type: none"> - Proper restraint of patient - Hydration status of patient - Disposal of sharp objects <p><i>Daily maintenance</i></p> <ul style="list-style-type: none"> - Flushed every 6 hours with 10 mLs heparinized saline - Injections caps changed every 24 hours - Monitor insertion site for any redness/swelling/patency issues <p><i>Anatomy of forelimb</i></p> <ul style="list-style-type: none"> - Stay to caudal 1/3 just above the carpus - Vein vs artery - Points of interest: cephalic vein vs accessory vein 	

Learning Activity 2: Necessary Materials/Prep		Estimated Time: 10 mins
Instructor Directions / Materials	Brief Content Outline	
<p>Discuss importance/use of each material used for ICV placement.</p> <p>Have set of materials easily visual to the group of students.</p>	<p>Explanation of materials, precautions, and how they are used in each step:</p> <ul style="list-style-type: none"> • Chlorhexadine Scrub • Alcohol • Clippers • Exam gloves • Sterile gloves • 1 inch White tape • 2 inch cotton cast padding • 2 inch vet wrap • Assorted guage Mila I.V. Catheter (18g, 20g, 22g) • Mila T port extension • Heparinized saline • Patient or model 	

Learning Activity 3: Placement of IVC		Estimated Time: 30 mins
Instructor Directions / Materials	Brief Content Outline	
<p>Instructor will demonstrate step by step on the model while students are still in the large group.</p>	<p><i>Explain each step in process</i></p> <p><i>Work through each step in process until completion</i></p> <p><i>Transition to the model for more tactile learners</i></p> <p><i>Repeat entire process</i></p> <p><i>Questions and answer session for difficult steps or necessary clarifications</i></p> <p><i>Demonstrate on both left and right cephalic veins to show hand dominance can be overcome by the changing of the angles of body/hands during placement</i></p>	

Learning Activity 4: Student Placement of IVC		Estimated Time: 60 mins
Instructor Directions / Materials	Brief Content Outline	
<p>Students will have several attempts (as much as time allows) to work through the steps of the IVC placement</p> <p>Senior nurse or team lead will be paired with nurse or assistant for student support/clarification during this time</p>	<p><i>Nurses will have all supplies displayed at the station for successful IVC placement</i></p> <p><i>After completion on left cephalic of model, switch to the right side</i></p> <ul style="list-style-type: none"> - <i>Students should get comfortable with the angles of the hands for successful placement on either side of the forelimb</i> - <i>Reinforce that hand dominance should have no effect of success of placement</i> 	

Summary (Reflection)	Estimated Time: 20 mins
<p>What steps do you foresee as difficult?</p> <p>Is there content you do not understand?</p> <p>Do you need more practice attempts?</p> <p>Have nurses/assistants reiterate the steps of the process.</p>	

Evaluation
<p>Nurses/assistants will time on various dates though out the course of the program (with senior nurse and/or team lead support) to practice the entire step by step process.</p> <ul style="list-style-type: none"> - The skill must be approved by the supervising technician on shift and course coordinator or during a final hands on practical will be at the end of the course. - Nurses/ assistants will draw at random which cephalic, (right of left) with be used for testing purposes.

[Instructional Design Summary](#)

The purpose of the program is to provide the opportunity for newly hired surgical nurses and assistants to learn and practice the hands-on skills necessary to be successful during their daily

tasks of performing anesthesia. These skills will be able to translate into daily clinical practice after completion of the course and continue to expand and grow. After completion of the coursework, employees are eligible for the possibility to increase their technician rating which could lead to higher financial compensation. Course work delivered will lay the building blocks to achieve a specialization in anesthesia and analgesia. Application into the Veterinary Technician Specialty (VTS) is encouraged and applications fees will be covered by Veterinary Orthopaedic and Mobility Center. Final testing fees for the veterinary technician specialty – anesthesia & analgesia will be at the discretion of the employee.

The Academy of Veterinary Technicians in Anesthesia & Analgesia is offering the Veterinary Technician Specialty – Anesthesia & Analgesia (VTS-AA) to certified veterinary technicians who are looking to continue their education by obtaining the necessary coursework required to obtain the specific specialty. Technicians should strive to promote the health and up to date care of the small animal surgical candidates through the continuing education acquired during this course to enhance overall patient care in their perspective hospitals. Since most of the participants that enroll in this course are working professionals in the veterinary industry, the course is tailored to reflect average caseload and common occurrence is daily hospital function. The course is set up to be taken at the participant leisure during the assigned topic period online over the six-month period to best fit a 24-hour hospital schedule. Information in the course should reflect building upon the foundation of surgical anesthesia and analgesia with the ability to recognize abnormal occurrences. Upon completion of this course, technicians should be able to perform the following:

- Integrate into our healthcare team and scientific community through participation in the daily case management of live animals that are current patients of the hospital services.
- Coordinating and documenting the progressive vertical acquisition and demonstration of competence in communication, technical, and critical thinking skills, medical record management, and lifelong self-directed learning expected of competent technicians.
- Increase exposure to and knowledge of pre/intra/post anesthetic monitoring of surgical cases.

Part C: Instructional Assessment Guide

Assessment Plan

Due to the nature of the day to day delivery of the course and unknown volume of caseload, the majority of assessments will be performed online. Course progress and learning will be assessed bi-weekly following the submission of each module's assignment. Students will participate in a hands-on set up for an instructor provided emergency scenario and complete the final module test. There will be a one-hour exam session at the completion after a minimum of six months from the original hire date. Further time needed for specific skills will be discussed on a case by case basis.

Table of Specifications

Unit Title	Unit Essential Questions/Objectives	Where/How Assessed
Consultation and history	<p>What are the common diseases for specific breeds?</p> <ul style="list-style-type: none"> • Objective: Identify basic disease process based on breed specificity <p>What are the common diseases in age groups?</p> <ul style="list-style-type: none"> • Objective: Identify basic disease process based on age of neonate. <p>What body systems are affected?</p> <ul style="list-style-type: none"> • Objective: Describe the order of body systems in order from head to tail 	<p>Common disease quiz</p> <p>Function of body systems quiz</p> <p>Discussion board post regarding diseases that pose an anesthetic risk</p>
Small animal physical exam	<p>What are the body systems to evaluate?</p> <ul style="list-style-type: none"> • Objective: Investigate the body systems that will provide repeatable numerical data <p>What are the normal parameter ranges?</p> <ul style="list-style-type: none"> • Objective: Determine the acceptable ranges of repeatable numerical data <p>What parameters are considered abnormal?</p> <ul style="list-style-type: none"> • Objective: Determine the unacceptable ranges of repeatable numerical data 	<p>Quiz assessing various patient data sets</p> <p>Body system parameter quiz</p> <p>Field work/experience case study</p> <p>Discussion board post regarding vital sign fluctuations</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Small animal pre-anesthetic blood work</p>	<p>What information is obtained from various blood work?</p> <ul style="list-style-type: none"> • Objective: Describe the following <ul style="list-style-type: none"> - Complete blood count - Chemistry - Blood glucose - Packed cell volume and total solids 	<p>Complete blood count data sheet quiz</p> <p>Chemistry data sheet quiz</p> <p>Discussion board post regarding analysis of blood smears and cell count</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Anesthetic protocol</p>	<p>What types of anesthetic induction agents are best suited for administration in small animals?</p> <ul style="list-style-type: none"> • Objective: Outline commercially available anesthetic induction agents in the veterinary industry • Objective: Identify the type of medications to be used for each class of patients (cardiac disease; brachycephalic airway syndrome; diabetes; geriatric, etc.) and how to tailor to patient need. <p>How do you calculate fluid requirements?</p> <ul style="list-style-type: none"> • Objective: Calculating average daily fluid requirement and rates for intravenous administration. 	<p>Types of induction agents available</p> <p>Drug interactions</p> <p>Recognizing symptoms of drug reactions</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Anesthetic Monitoring</p>	<p>What are normal small animal vitals parameters?</p> <ul style="list-style-type: none"> • Objective: Observe and identify vital signs and classify if normal or abnormal <p>What do the abnormal vital signs suggest?</p> <ul style="list-style-type: none"> • Objective: Explain which disease processes typically present with the coordinating behaviors. <p>How do you react and change anesthetic plan based on patient's vital signs under anesthesia?</p> <ul style="list-style-type: none"> • Objective: Outline "what if" scenario for each body system's change in vital signs. 	<p>Picture quiz of various small animal monitoring data sets</p>

<p style="text-align: center;">Time management</p>	<p>How do I set up my treatments?</p> <ul style="list-style-type: none"> • Objective: Identify patient need <p>What nursing care duties require the most input?</p> <ul style="list-style-type: none"> • Objective: Explain time, skill level, strength level needed for each nursing care duty 	<p>Discussion board post explaining the most time-consuming skill/treatment</p>
<p style="text-align: center;">Pain management</p>	<p>What are the different categories and dosages of veterinary pain management medications?</p> <ul style="list-style-type: none"> • Objective: Create reference manual of commonly used pain management medications <p>What appropriate patient warning parameters must be included?</p> <ul style="list-style-type: none"> • Objective: Identify abnormal parameter associated with specific medications. 	<p>Anesthetic protocol development for instructor proposed surgical case</p> <p>Quiz on anesthetic terminology</p> <p>Discussion board post regarding DEA regulations for controlled drugs used in veterinary medicine</p>

Small Animal Anesthesia and Analgesia Unit Test

1. Identify this piece of monitoring equipment. (7 points)

a. What is it monitoring?

b. Is this normal?



2. Name one common disease that is considered pre-anesthetic risk factor? (1 point)

3. Name 3 reasons for use of post-operative pain management medications. (3 point)

-
-
-

4. What does TPR stand for? (3 points)

T:

P:

R:

5. What DEA schedule for controlled substances is Ketamine? (1 point)

- Schedule 1
- Schedule 2
- Schedule 3
- Schedule 4

6. You have a geriatric patient that is presenting for a mass removal surgery consultation, what pre-anesthetic diagnostics should be performed? (1 point)

- a. Thoracic radiographs
- b. Abdominal radiographs
- c. Both A & B
- d. None of the above

7. SpO2 monitors are best placed on the _____ and _____. (2 points)

8. What are the normal ranges for canine physical exams? (5 points)

Temperature:

Pulse:

Respiration:

Mucous membranes:

Capillary refill time:

9. What is the formula used to correct for fluid loss? (1 point)

10. How much Cerenia would need to be administered subcutaneously to a 35kg dog? (1 point)

11. Describe which type of patients are more prone to sinus arrhythmia. Explain why this behavior is considered normal? What common pre-medication can temporarily cause this? (5 points)

12. Why are pre-medication measures so important in for success of anesthesia? (5 points)

13. Define the following medical terminology: (5 points)

BID:

Q6H:

SQ:

PRN:

NPO:

14. True or false: Colloid fluids contain large molecules that are retained within the circulating blood stream to help correct hypovolemia. (1 point)

15. True or false: Age is a pre-anesthetic risk factor. (1 point)

16. True or false: Fentanyl is considered a controlled drug in human medicine but not in veterinary medicine and does not need to be reported. (1 point)

17. _____ is administered intravenously as a part of the fluid therapy plan to small animal patients who present in shock. (1 point)

18. Fluid lines containing _____ should be changed out every 24 hours to minimize the potential for bacterial growth. (1 point)

19. When pertaining to blood work, what do PCV and TP stand for? (2 points)

-
-

20. Name the parts of a complete physical examination. (8 points)

-
-
-
-
-
-
-
-

Small Animal Anesthesia and Analgesia Unit Test: KEY – 55 points total

1. Identify this piece of monitoring equipment. (7 points)

Mossimo – Emma (capnograph)

- What is it monitoring? Expired endotracheal carbon dioxide
- Is this normal? Yes, this is within the normal parameters for CO₂



2. Name one common disease that is considered pre-anesthetic risk factor? (1 point)

Cardiac disease, brachycephalic airway syndrome, diabetes, thyroid disease, cancer, respiratory disease, etc.

3. Name 3 reasons for use of post-operative pain management medications. (3 point)

- Reduce/regulate pain
- Minimize potential post-operative complications
- Earlier mobilization

4. What does TPR stand for? (3 points)

T: Temperature

P: Pulse

R: Respiration

5. What DEA schedule for controlled substances is Ketamine? (1 point)

- Schedule 1
- Schedule 2
- Schedule 3
- Schedule 4

6. You have a geriatric patient that is presenting for a mass removal surgery consultation, what pre-anesthetic diagnostics should be performed? (1 point)

- a. Thoracic radiographs
- b. Abdominal radiographs
- c. Both A & B
- d. None of the above

7. SpO2 monitors are best placed on the tongue and pinna of the ear (2 points)

8. What are the normal ranges for canine physical exams? (5 points)

Temperature: 99.0 °F- 102.5 °F

Pulse: Canine- 80-160 bpm; Feline - 110-200 bpm

Respiration: Canine - 15-30 bpm; Feline - 20-40 bpm

Mucous membranes: Pink, moist

Capillary refill time: <2 seconds

9. What is the formula used to correct for fluid loss? (1 point)

Body weight (kilograms) x estimated dehydration (%) = volume of fluid to be administered (Liters)

10. How much Cerenia would need to be administered subcutaneously to a 35kg dog? (1 point)

Cerenia dose = 1mg/kg → 35mg

Concentration = 10mg/mL → 3.5mL

11. Describe which type of patients are more prone to sinus arrhythmia. Explain why this behavior is considered normal? What common pre-medication can temporarily cause this? (5 points)

12. Why are pre-medication measures so important in for success of anesthesia? (5 points)

13. Define the following medical terminology: (5 points)

BID – twice a day

Q6H – every 6 hours

SQ – subcutaneous

PRN – As needed

NPO – None per os (mouth)

14. **True** or false: Colloid fluids contain large molecules that are retained within the circulating blood stream to help correct hypovolemia. (1 point)

15. True or **false**: Age is a pre-anesthetic risk factor. (1 point)

16. True or **false**: Fentanyl is considered a controlled drug in human medicine but not in veterinary medicine and does not need to be reported. (1 point)

17. **Hypertonic saline** is administered intravenously as a part of the fluid therapy plan to small animal patients who present in shock. (1 point)

18. Fluid lines containing **dextrose** should be changed out every 24 hours to minimize the potential for bacterial growth. (1 point)

19. When pertaining to blood work, what do PCV and TP stand for? (2 points)

- Packed cell volume
- Total protein

20. Name the parts of a complete physical examination. (8 points)

Physical examination - heart rate, mucous membranes, capillary refill time, skin turgor, temperature of the distal extremities, gastrointestinal sounds, lung sound/respiratory rate, rectal temperature.

Alternative Assessment

Small animal anesthesia and analgesia emergency anesthetic case:

Objective: Students will experience all unit objectives in responding to a typical emergency scenario for an anesthetic case.

Students will set up the supplies necessary for initial intake and triage of 12 year old, 40 kg, neutered male, Golden Retriever is presenting afterhours for a suspected hemoabdomen on an emergency basis. Patient is recumbent and has been previously seen by a referring veterinarian where a full CBC/chemistry and thoracic/abdominal radiographs were performed. Additional information is unknown about patient status

Skill	Excellent 5 points	Good/Fair 3 points	Poor 1 points	Absent 0 points	Points Earned
Catheter set up	Catheter set up is available and primed	Catheter set up is available but not primed	Parts of set up are missing	No supplies available	
Anesthesia machine	Anesthesia machines are set up/primed and ready to be attached to patient	Anesthesia machines are set up but not primed	Supplies are available but incorrect breathing circuit	No supplies available	
Notifying appropriate emergency personnel	All emergency personnel (anesthesiologist, OR nurse, etc) has been notified with 30 minute out calls	Some emergency personnel have been notified with 30 minute out calls	Emergency personnel was called upon patient arrival	No emergency personnel have been notified	
Monitoring cart	Cart is available/stocked/ powered up and in prime location to OR	Cart is available, fully stocked, but not turned on	Cart is available but not fully stocked or turned on	No supplies available	
Diagnostic supplies	Ultrasound, blood work requests are	Ultrasound and blood work	Ultrasound or blood work	No supplies available	

	complete and available	supplies are available but not submitted	supplies are missing and not submitted	
Anesthetic protocol	Anesthetic protocol has been approved and drugs are drawn up and available for administration	Anesthetic protocol has been approved but drugs are not drawn up	Anesthetic protocol has not been approved and drugs are not drawn up	Anesthetic protocol has not been created yet
Infection control	Patient areas and OR are clean and neat with disinfectant available	Patient areas and OR have some order with disinfectant available	Patient areas and OR are cluttered with disinfectant available	Patient areas and OR are cluttered with no disinfectant available
Total Points earned: /35				
Additional comments:				

Key Instructional/Learning Activity Plan

Facilities/Supplies Needed Per Unit:

1. Consultation and history
 - a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Common disease quiz
 - ii. Function of body systems quiz
 - iii. Discussion board post regarding diseases that pose an anesthetic risk
2. Small animal physical exam
 - a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Quiz assessing various patient data sets
 - ii. Body system parameter quiz
 - iii. Field work/experience case study
 - iv. Discussion board post regarding vital sign fluctuations
3. Small animal pre-anesthetic blood work
 - a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Complete blood count data sheet quiz
 - ii. Chemistry data sheet quiz
 - iii. Discussion board post regarding analysis of blood smears and cell count
4. Anesthetic protocol
 - a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Types of induction agents available
 - ii. Drug interactions
 - iii. Recognizing symptoms of drug reactions
5. Anesthetic monitoring
 - a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Picture quiz of various small animal monitoring data sets
6. Time management

- a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Discussion board post explaining the most time-consuming skill/treatment
7. Pain management
- a. Student access to e-learning
 - b. IT support for e-learning troubleshooting
 - c. Additional handouts as needed by professor
 - d. Access to the following assessments on e-learning:
 - i. Anesthetic protocol development for instructor proposed surgical case
 - ii. Quiz on anesthetic terminology
 - iii. Discussion board post regarding DEA regulations for controlled drugs used in veterinary medicine
8. Final assessment
- a. Will be a weekend short course held at VOMC's surgery department date/time TBD
 - b. Operating room and meeting with chairs to accommodate approximately four employees with projector screen and computer access
 - c. One operating room in the surgery department
 - d. Access to all hospital supplies
 - e. Access to ultrasound and blood work machines
 - f. Final unit test: handouts to be given at the beginning of the short course
 - g. Signs to direct client traffic to assigned areas and away from unauthorized areas of the hospital

Part D: Instructional Program Evaluation Plan

Program Evaluation Model

The Veterinary Orthopaedic and Mobility Center's anesthesia continuing education course will be evaluated using Brinkerhoff's success case method. This model is specifically developed to determine what aspects of the training were successful and lay the ground work for day to day practice as anesthesia veterinary technicians.

Rationale

The VOMC anesthesia continuing education course is intended to provide continuing education opportunities for veterinary technicians on anesthesia and analgesia techniques and protocols for small animal surgical candidates in accordance with FVTA (Florida Veterinary Technician Association) requirements for continuing education hours required for good standing every two years. Information from this course will allow for a smooth transition into the AVTAA (Academy of Veterinary Technicians in Anesthesia & Analgesia) guidelines to fulfill requirements for Certified Veterinary Technicians studying to obtain the Veterinary Technician Specialty in anesthesia & analgesia (VTS-AA). Since the majority of hands on nursing skills are correlated to human performance, Brinkerhoff's success case method will be applied to determine the overall efficacy of the course. Patients or cases in the veterinary industry can have similar symptoms, diagnosis and treatments but can be treated in a multitude of different ways. This course is envisioned to give participants the tools to equip their toolbox, which they can build upon to make successful and efficient treatment choices. By comparing successful cases to unsuccessful ones, we can analyze the personal and contextual factors to determine if the program's efficacy of conveying the skills necessary to fulfill requirements for the Veterinary Technician Specialty VTS-AA.

Data/evidence to be collected

- Program and purpose
 - The FVTA (Florida Veterinary Technician Association), VOMC practice partners, course instructor, and senior nurses have defined the outline of course and its purpose of providing continuing education opportunities for veterinary technicians on anesthesia and analgesia protocols for small animal surgical candidates. The method of evaluation will determine if the material presented provides participants the opportunity for success with techniques for correct and effective anesthetic protocols. The evaluation will be completed in house so budgeting will be minimal.

- Impact model/ Goals and outcomes

Knowledge/skills to be provided by the program	Conditions necessary to achieve goals	Expected result from the program
<ul style="list-style-type: none"> • Common small animal diseases that affect safe administration of anesthesia • Small animal physical exam • Pre-anesthetic blood work • Anesthetic monitoring parameters • Time management • Treatment plan 	<ul style="list-style-type: none"> • Application of knowledge/skills into daily practice in each participants clinic caseload • Successful patient/case outcomes • Unsuccessful patient/case outcomes 	<ul style="list-style-type: none"> • Ability to perform safe and correct anesthesia and analgesia management of surgical candidates for procedures performed at VOMC • Fulfill the pre-requisites for Veterinary Technicians studying to obtain the Veterinary Technician Specialty VTS-AA

- Survey participants
 - Course participants
 - Course instructor – surgery team lead
 - Supervising mentor – senior surgical nurses
 - Practices partners – staff veterinarians
- Conduct in-depth interview with successful/unsuccessful cases
 - Course participants will be required to discuss case outcome with the course instructor bi-weekly with team lead and fellow staff at the end of each week then at the completion of the six-month probationary period. Details should include full case history, personal contribution to the case, ideas learned from the course that were successful/unsuccessful.
- Summarize and communicate findings
 - Information about what factors produced successful clinical results in hospitalized patients will be used to evaluate the effectiveness of the course.

From whom data/evidence will be collected

Data and evidence will be collected from program participants and their supervising mentor (senior nurse or surgery team lead). Employees enrolled in the course will have fellow surgical nurses available throughout the course to act as a supervising mentor(s) for the duration of the course.

Data Management:

- Data will be collected through course evaluation survey administered to current nurses and assistants who have completed the course work after at the completion of six months on the job. The survey will be delivered during the final course module and will be due once their final examination has been completed.
- To best identify course needs, data should be collected from previous staff members who have not participated in the anesthesia continuing education courses.
- This timeline will allow for any amendments to be made to the following presentation of the course.

Bi-Weekly Program Evaluation Reporting Plan

Each day new surgical nurses and assistants will be alternately paired with a senior surgical nurse or the surgical team lead for guidance with mastering new skills. There will be a bi-weekly follow up meeting privately and then with all staff to determine feedback on this week's skills. Constructive case discussion should be as follows:

Discussion of successful cases:

1. What content from this course did you use to contribute to your overall patient care that you consider a success?
2. What successful results/outcomes were achieved and how did they make a difference in the overall treatment of your patient?
3. What factors helped produce successful results?

Discussion of unsuccessful cases:

1. What barriers do you feel contributed to the lack of case success?
2. What skills were not used that were provided thus far the course?
3. What information/skills would you have preferred to see more of? Why?

Stakeholder Groups and Their Interests in the Program

- Staff veterinarians: Surgeons have had difficulties with the large range of skills of technicians in the surgery department. Skills range from seasoned previous veterinary nurses to practically no hands-on experience. Their hopes were to provide an opportunity for all employees to have the same base level skills set to provide them the highest opportunity to build upon these skills during surgical cases.

- Clients: Veterinary Orthopedic and Mobility Center (VOMC) is one of the few specialty veterinary clinics in North Florida that is offering this type of course work for nurses. This could provide an appeal to clients to bring their pets to VOMC vs another specialty hospital due to the high level of care provided.
- Local veterinary professionals: Depending on the success of the program, there is the potential for staff to provide opportunities for local veterinary professionals to attend anesthesia short courses provided by VOMC staff. Veterinarians and staff that are responsible for the delivery of the courses have a vested interest in making the program attractive and successful to help bring new talent into the company and provide continuing education opportunities to enhance the level of care available for our pets for other hospitals in the area.

Dissemination

- Once the course is complete and grades have been administered, course instructor along with the practice partners will interpret the survey data in relation to each course.
- Summation of the results will be presented to practice owners before new hires start the next program to determine the impact of the data on further courses.

Timeline and Resource Implications

- Specific amount of funding is currently unknown. The biggest resource that will be utilized is course instructor time. Once the evaluation is conducted and data is presented to the practice partners, projected costs for implementation of changes will be further determined based on need.

Evaluation Procedures

Summative evaluation through an end of the program survey will help determine the success of the program, take place after implementation, measure the impact on the participants, use the results to design new programs.

Summative evaluation approaches: objectives-based; needs-based; goal-free; process outcome

The VOMC anesthesia skills program's purpose is to provide the opportunity for new hired surgical nurses and assistants to learn and practice the hands-on skills necessary to be successful during their daily tasks of performing anesthesia. These skills will be able to translate into daily clinical practice after completion of the course and continue to expand and grow.

Using the summative assessment to evaluate staff learning will help provide insight for furthering and updating the skills curriculum at the end of an instructional unit by comparing it to a standard or benchmark. The subject of this program evaluation is to determine which core benchmark skills from all courses need to develop different tools and identify if it necessary to update the existing ones.

We are aiming to measure the attitude, knowledge, and skills of course participants using summative evaluation based on the objectives of the anesthesia skills program and the evaluation of its outcomes and impact.

Information to be Collected

Data will be collected from current staff who have not completed the semester course work through the course evaluation survey. This information will provide the difference in status “before” and “after” to determine any changes that may be attributed to the anesthesia skills program.

The survey will be delivered during the final course module and will be due before surgical nurses and assistants start their final examination. Final exam will remain locked until the survey is submitted.

A high percentage of respondents is critical to ensure responses are truly representative of the staff population being studied. Nonresponse error can have a significant effect the validity of the study which is why participation will be heavily recommended as a part of that module’s coursework.

Data will be selected in a stratified random manner. Separate samples from each of the veteran staff and new hires will be randomly selected.

To ensure that the survey is appropriate for the nurses and assistants participating in the anesthesia skills courses, a “field test” questionnaire will be given to the veteran staff before administering the final version.

Key Questions of the Evaluation

1. How could coursework be modified to better prepare nurses and assistants for specialty clinical practice?
2. What skills do you feel were the most helpful?
3. Which skills would you consider irrelevant?

4. How would you change course delivery to be more effective?
5. What skills do you perform differently as a result of the anesthesia skills courses?
6. Are you satisfied with the knowledge they acquired from the program?
7. What are the social, economic, environmental impacts (positive and negative) on the community?
8. What are the strengths and weaknesses of the program?
9. How efficiently are course resources being used? (Clinic space, technician instruction, etc.)

Conclusion of Evaluation

After all program evaluations have been completed course instructor, supervising mentor, and practices partners will meet to discuss the results and identify what changes need to be made for the following semesters delivery of the course. Topics of discussion will include:

- What worthwhile actions and results, if any, is the program helping to produce?
- Are some parts of the program working better than others?
- What environmental factors are helping to support success, and what factors are getting in the way?
- How widespread is the scope of success?
- What is the return-on-investment of the program?
- How much additional value could be derived from the program?

The goal of VOMC's anesthesia continuing education course is to integrate technicians into our healthcare team and scientific community through participation in the daily case management of live animals that are current patients of the hospital services. The program will provide technicians the opportunity to expand upon their ability to communicate, technical skills, critical thinking skills, medical record management, and develop a lifelong self-directed learning expected of competent technicians.