

VT-1600: VETERINARY SURGICAL NURSING AND ASSISTING

Cuyahoga Community College

Viewing: VT-1600 : Veterinary Surgical Nursing and Assisting

Board of Trustees:

1/30/2025

Academic Term:

Fall 2025

Subject Code

VT - Veterinary Technology

Course Number:

1600

Title:

Veterinary Surgical Nursing and Assisting

Catalog Description:

Fundamentals of routine veterinary surgery including instrumentation, patient preparation, aseptic technique, fluid therapy, wound healing, specialized procedures, and general nursing care. Fundamentals of electrocardiography including operation of electrocardiograph, origin of the ECG tracing and recognition of common cardiac arrhythmias.

Credit Hour(s):

3

Lecture Hour(s):

1

Lab Hour(s):

6

Other Hour(s):

0

Requisites

Prerequisite and Corequisite

VT-1401 Veterinary Science I, and BIO-1420 Anatomy and Physiology of Domestic Animals II or concurrent enrollment.

Outcomes

Course Outcome(s):

Perform and integrate all aspects of patient management for common surgical procedures in a variety of animal species.

Objective(s):

1. Identify commonly used veterinary surgical instruments, equipment, and supplies, and describe the function and use of each.
2. Provide operating room, prep room, treatment room, and patient ward sanitation and care.
3. Describe routine and non-routine surgical procedures and the standard patient preparation, positioning, and equipment required for each procedure.
4. Maintain patient operative records and surgery logs.
5. Identify and classify suture materials and describe their usages.
6. Operate and maintain autoclaves and other types of sterilization equipment.
7. Operate and maintain suction and cautery equipment and describe operation and maintenance of fiber optic equipment.
8. Prepare sterile surgical packs, instruments, soft goods, and other supplies, and maintain surgical instruments in good working condition.
9. Clip, scrub, aseptically prepare, and position a patient for surgery.
10. Perform pre-surgical set-up of the surgery suite, instruments, and supplies.
11. Apply the principles of operating room conduct and aseptic technique including sterile gloving, gowning, and functioning as either a scrub nurse or a circulating nurse.
12. Assist in surgery by passing instruments and supplies, retracting tissues, protecting tissues, and cutting suture.

Course Outcome(s):

Coordinate routine pre-and post-operative care of small and large animal patients.

Objective(s):

1. Coordinate and review pre-operative patient identification, assessment, fasting, care, and stabilization.
2. Administer an enema to either a dog or a cat.
3. Place and remove sutures and staples from a pre-existing skin wound.
4. Describe the principles of wound healing, wound care, and abscess management.
5. Apply and remove bandages, splints, and slings.
6. Coordinate pre-operative and intra-operative pain management including patient evaluation and implementation of protocols.
7. Evaluate patient status intra-operatively and post-operatively.
8. Coordinate post-operative nutritional support and fluid therapy.
9. Develop and explain appropriate discharge instructions.

Course Outcome(s):

Provide pre-operative, intra-operative, and post-operative fluid therapy.

Objective(s):

1. Place and maintain intravenous catheters in dogs and cats and understand the methodology of placement of these catheters in large animals.
2. Assess and maintain patient hydration status.
3. Recognize and treat dehydration, over hydration, hypovolemia and shock as ordered by the attending veterinarian.
4. Explain the principles of fluid therapy for both surgical and hospitalized patients.
5. Perform fluid therapy calculations including infusion rates, drip rates, volume to be infused, infusion times, dilutions, and conversions.
6. Administer subcutaneous fluids and administer and monitor intravenous fluids.

Course Outcome(s):

Perform specialized nursing care procedures on hospitalized patients.

Objective(s):

1. Explain the principles of placement, maintenance, and use of chest tubes, urinary catheters, and feeding tubes.
2. Place and remove urinary catheters in dogs and cats.
3. Describe the principles of urine collection from a dog or cat by voiding, expression, catheterization, and cystocentesis and collect urine using these techniques.
4. Assist with orogastric intubation and gastric lavage.
5. Explain the principles of enteral and parenteral nutritional support.
6. Describe principles of operation and maintenance of fiber optic equipment.
7. Explain principles of permanent identification and perform microchip implantation and scanning.
8. Explain the principles of electrocardiography.
9. Describe the production of a diagnostic electrocardiogram on a small or large animal using a variety of equipment.
10. Record an artifact-free diagnostic quality electrocardiogram.
11. Differentiate normal from abnormal electrocardiogram tracings and identify abnormal rhythms that must be reported to the attending veterinarian immediately.

Methods of Evaluation:

1. Quizzes
2. Unit lecture examinations
3. Laboratory practical examinations
4. Clinical performance evaluations
5. Homework assignments
6. Presentations
7. Final examination
8. Class participation

Course Content Outline:

1. Surgical Nursing
 - a. The surgery suite
 - i. Surgery suite design
 - ii. The surgical team
 - iii. Preparation, sanitation, and care of the surgery suite
 - iv. Post-surgical clean-up
 - b. Surgical instruments
 - i. Classifications and usages
 - ii. Identification
 - iii. Cleaning and care
 - c. Surgical pack and instrument preparation
 - i. General, emergency and specialty packs
 - ii. Instruments, bowls and supplies
 - iii. Soft goods packs
 - d. Sterilization
 - i. Steam autoclaving
 - ii. Gas sterilization
 - iii. Chemical sterilization
 - iv. Other methods of sterilization
 - e. Preparation of operating room personnel
 - i. Surgical scrub
 - ii. Open gloving
 - iii. Gowning and closed gloving
 - f. Patient preparation
 - i. Identification
 - ii. Clipping
 - iii. Positioning
 - iv. Initial and final scrub
 - v. Draping
 - g. Surgical assisting
 - i. Operating room conduct and maintenance of asepsis
 - ii. Sterile transfer technique
 - iii. Care of exposed tissues and organs
 - iv. Instrument passing
 - v. Setup and operation of electrocautery and suction
 - vi. Use of fiberoptic equipment
 - h. Routine veterinary surgical procedures
 - i. Scheduling
 - ii. Routine pre-operative care
 - iii. Pre-surgical set-up
 - iv. Routine intra-operative care
 - v. Routine post-operative care
 - vi. Intra-operative pain management
 - i. Elective, non-elective, and emergency procedures in small animals
 - i. Ovariohysterectomy
 - ii. Orchiectomy
 - iii. Onychectomy
 - iv. Cesarean section
 - v. Orthopedic procedures
 - vi. Tail docking and dewclaw removal
 - vii. Laparotomies and abdominal procedures
 - j. Closing surgical wounds
 - i. Suture types, characteristics, and sizes
 - ii. Suture care and storage
 - iii. Selection and use of suture
 - iv. Suture patterns

- v. Suturing or stapling a skin wound
 - vi. Suture or staple removal
- k. Routine post-operative care
 - i. Post-operative pain management
 - ii. Fluid therapy
 - iii. Post-operative nutritional support
 - iv. Discharge instructions
 - v. Anesthesia/surgery logs
- l. Wound management
 - i. Wound types and classifications
 - ii. Process of wound healing
 - iii. Types of wound healing
 - iv. Complications of wound healing
 - v. Factors influencing wound healing
 - vi. Wound and abscess management
 - vii. Drain placement and management
- m. Bandaging
 - i. Bandaging materials and layers
 - ii. Principles of bandage placement
 - iii. Applying wound and support bandages
 - iv. Bandage care and maintenance
 - v. Applying and maintaining splints, slings, and casts
 - vi. Removing bandages, slings, casts, and splints
- 2. Fluid therapy
 - a. Normal fluid physiology
 - i. Composition of body fluids
 - ii. Fluid dynamics
 - iii. Hypovolemia, shock, systemic inflammatory response syndrome (SIRS) and multiple organ dysfunction syndrome (MODS)
 - b. Principles of fluid therapy
 - i. Assessing hydration
 - ii. Indications for fluid therapy
 - iii. Classifying therapeutic fluids
 - iv. Choosing therapeutic fluids
 - c. Intravenous (IV) catheter placement
 - i. Catheter types and uses
 - ii. Placing and maintaining a winged infusion set
 - iii. Placing and maintaining an over-the-needle catheter
 - iv. Placing and maintaining a through-the-needle catheter
 - v. Removing catheters and winged infusion sets
 - vi. Complications of IV catheterization
 - d. Fluid administration equipment
 - i. Fluid types and uses
 - ii. Administration sets and ancillary equipment
 - iii. Administration pumps
 - iv. Fluid administration equipment set-up and use
 - e. Performing fluid therapy calculations
 - i. Calculating fluid needs for surgery patients, patients in shock, and sick patients
 - ii. Calculating infusion rates and drip rates
 - iii. Calculating infusion volumes and times
 - iv. Calculating ratios and percents
 - v. Diluting and reconstituting drugs and fluids
 - vi. Calculating constant rate infusions
 - f. Administering fluids
 - i. Methods
 - ii. Administering fluids subcutaneously
 - iii. Administering fluids intravenously
 - iv. Monitoring fluid administration
 - v. Complications of fluid administration

3. Special Nursing Procedures

- a. Urinary collection
 - i. Voided
 - ii. Expression
 - iii. Cystocentesis
 - iv. Catheterization
- b. Specialized therapeutic procedures
 - i. Thoracentesis and chest tube placement
 - ii. Orogastric intubation and gastric lavage
 - iii. Enema administration
 - iv. Enteral feeding tube placement
 - v. Providing enteral and parenteral nutrition
 - vi. Microchip placement and scanning

4. Electrocardiography

- a. Basic principles of electrocardiography
 - i. Introduction to electrocardiography
 - ii. The cardiac conduction system
 - iii. Electrical activity of the heart
 - iv. Origin of waveforms, intervals, and segments
 - v. Indications for electrocardiography
 - vi. Waveforms, intervals, and segments
 - 1. P wave
 - 2. P-R interval
 - 3. QRS complex
 - 4. S-T segment
- b. Types of electrocardiographic equipment
 - i. Single and multiple channel recorders
 - ii. Point of care systems
 - iii. Mobile-device applications
 - iv. Oscilloscope monitors
 - v. Computer analyzer systems
 - vi. Transtelephonic systems
 - vii. Holter monitors and event monitors
- c. Recording the electrocardiogram (ECG)
 - i. ECG machine controls
 - ii. Patient preparation and positioning
 - iii. Electrode placement
 - iv. Recording the tracing
- d. Recognition and elimination of artifacts
 - i. Respiratory artifacts
 - ii. Movement artifacts
 - iii. Electrical artifacts
- e. ECG evaluation
 - i. ECG record keeping
 - ii. How to use standard ECG paper
 - iii. Determining the heart rate
 - iv. Evaluating waveforms, intervals, and segments
 - v. Determining heart rhythm
 - vi. Normal rhythms in common domestic species
 - 1. Normal sinus rhythm
 - 2. Sinus arrhythmia
 - 3. 1st and 2nd degree heart block
 - vii. Common electrocardiographic abnormalities
 - 1. Supraventricular rhythms
 - 2. Ventricular rhythms
 - 3. Premature complexes
 - 4. A-V heart block
 - 5. Fibrillation
 - 6. Escape beats

- viii. Differentiating normal from abnormal rhythms
- ix. Identifying dangerous rhythms

Resources

Bassett, Joanna, Angela D. Beal, Oreta M. Samples. *McCurnin's Clinical Textbook for Veterinary Technicians*. 10th ed. St. Louis: Elsevier, 2021.

Tear, Marianne. *Small Animal Surgical Nursing*. 4th. St. Louis: Elsevier, 2021.

Lake, Terry and Nicola Green. *Essential Calculations for Veterinary Nurses and Technicians*. 4th. St. Louis: Elsevier, 2022.

Taylor, Susan M. *Small Animal Clinical Techniques*. 2nd ed. St. Louis: Elsevier, 2016.

Battaglia, Andrea M. and Andrea M. Steele. *Small Animal Emergency and Critical Care for Veterinary Technicians*. 3rd ed. St. Louis: Elsevier, 2016.

Dibartola, Stephen. *Fluid, Electrolyte, and Acid-Base Disorders in Small Animal Practice*. 4th ed. St. Louis: Elsevier, 2012.

Wells, Maryann M. Papanier. *Surgical Instruments*. 4th ed. St. Louis: Elsevier, 2011.

Tilley, Larry P. and Naomi L. Burtnick. *Electrocardiography for the Small Animal Practitioner*. 1st ed. Jackson, Wyoming: Teton NewMedia, 1999.

Thomas, John and Lerche, Phillip. *Anesthesia and Analgesia for Veterinary Technicians*. 5th. Mosby, 2016. 2016.

Resources Other

Today's Veterinary Practice <https://todaysveterinarypractice.com/>

Clinician's Brief <http://www.cliniciansbrief.com/> (<http://www.cliniciansbrief.com/>)

DVM360 <http://www.dvm360.com/>

<https://go.atdove.org/> Videos and articles

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