VT-2300: PHARMACOLOGY FOR VETERINARY TECHNICIANS

Cuyahoga Community College

Viewing: VT-2300 : Pharmacology for Veterinary Technicians

Board of Trustees:
December 2021

Academic Term:
Fall 2022

Subject Code
VT - Veterinary Technology

Course Number:
2300

Title:
Pharmacology for Veterinary Technicians

Catalog Description:
Introduction to veterinary pharmacology including common drug terminology, classifications and usages of drugs, dosage calculations, methods of drug administration, side effects and contraindications.

Credit Hour(s):
2

Lecture Hour(s):
2

Lab Hour(s):
0

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, and VT-1120 Introduction to Veterinary Technology.

Outcomes

Course Outcome(s):
Safely handle and package veterinary prescription medications and describe what information should be relayed as part of client counseling.

Objective(s):
1. Fill a prescription based on a verbal or written pharmacy order.
2. Label a prescription bottle for a patient with the required information.
3. Explain what information should be shared with a client when a prescription medication is dispensed.
4. List the federal and state regulatory agencies responsible for the legislation, monitoring and oversight of prescription drug prescribing, handling/storage, dispensing and disposal, and know when they should be contacted regarding the handling of a medication.
5. Describe the limitations of a registered veterinary technician's license in regards to prescribing medications.
6. Describe what controlled medications are and explain how they are regulated, stored, and used in practice. Explain who is allowed to handle/administer controlled medications and what special requirements are associated with the prescribing and tracking of these medications due to the abuse potential.
7. Describe appropriate disposal procedures for outdated and unused medications.

8. Explain the concept of withdrawal times in food animals and how this information should be applied in practice.
9. Describe the personal hazards of handling various drugs and what precautions should be taken to avoid unnecessary exposure.

Course Outcome(s):

Identify the basic principles of dose calculation, pharmacokinetics and pharmacodynamics and explain how that information can be used to create patient treatment protocols.

Objective(s):

1. Perform common conversions using the metric, household and apothecary systems of measurement.
2. Explain the common methods and routes of drug administration in veterinary patients.
3. Describe the common factors influencing rate of absorption, drug distribution and drug elimination.
4. Define pharmacokinetics and pharmacodynamics and explain how these concepts influence medication use in veterinary medicine.
5. Perform common dosage calculations for veterinary patients.

Course Outcome(s):

Identify the basic classifications of veterinary drugs and explain key facts relevant to their prescribing/use.

Objective(s):

1. Explain the differences between antibiotics, antibacterials, antivirals and antifungals and list what common veterinary drugs fall into each category.
2. List the common veterinary drugs used to address problems of the nervous system, respiratory system, cardiovascular system, gastrointestinal system, endocrine system and orthopedic system.
3. List the common veterinary drugs used as anti-inflammatory agents (non-steroidal and steroidal), chemotherapeutic agents, and nutraceuticals.
4. Explain what is meant by the terms "indication" and "contraindication" and list the indications and contraindications for the major veterinary drugs.
5. Describe the adverse effects that can occur following medication administration and recognize which adverse effects are considered mild or expected, which require medical attention, and which should be treated as an emergency.
6. Explain the basic mechanism of action of the common veterinary drugs and describe how the mechanism of action may create adverse effects or result in contraindications.

Methods of Evaluation:

1. Quizzes
2. Unit lecture examinations
3. Comprehensive final examination
4. Student presentations
5. Research papers
6. Article reviews
7. Homework assignments

Course Content Outline:

1. Terminology used in veterinary pharmacology
2. Filling prescriptions, labeling, and packaging dispensed drugs correctly, and appropriate methods of drug disposal.
3. Basic principles of pharmacology
   a. Therapeutic range
   b. Routes of administration
   c. Factors influencing drug absorption
   d. Drug distribution
   e. Factors influencing drug elimination
4. Antimicrobials
   a. Penicillins
   b. Cephalosporins
   c. Aminoglycosides
   d. Quinolones
   e. Tetracyclines

   f. Chloramphenicol
   g. Lincosamides
   h. Macrolides
   i. Sulfonamides
   j. Metronidazole
   k. Rifampin
5. Antifungals
6. Non-anesthetic/non-analgetic drugs affecting the nervous system: anticonvulsants
7. Drugs affecting the respiratory system
   a. Antitussives
   b. Mucolytics and expectorants
   c. Bronchodilators
8. Drugs affecting the cardiovascular system
   a. Antiarrhythmic drugs
   b. Beta blockers
   c. Calcium channel blockers
   d. Positive inotropes
   e. Vasodilators
   f. Diuretics
9. Drugs affecting the gastrointestinal tract
   a. Emetics
   b. Antiemetics
   c. Antidiarrheal agents
   d. Laxatives and stool softeners
   e. Ruminatorics
   f. Enzymes
10. Drugs affecting the endocrine system
   a. Oral and injectable hypoglycemics
   b. Thyroid medications
   c. Adrenal medications
11. Anti-inflammatories
   a. Corticosteroids
   b. Nonsteroidal anti-inflammatory drugs
12. Chemotherapeutic agents
   a. Pharmacology
   b. Administration
   c. Toxicity
   d. Safe handling
13. Other miscellaneous drugs
   a. Nutraceuticals
   b. Vitamins/minerals
   c. Bisphosphonates
   d. Kinase inhibitors
   e. Immune modulators
14. Drugs with abuse potential
   a. Regulation
   b. Storage
15. Handling drugs appropriately in order to avoid unnecessary personal exposure
   a. Exposure potential
   b. Storage to prevent unnecessary exposure

Resources

Bassert, Joanna, and Thomas, John A. *McCurnin's Clinical Textbook for Veterinary Technicians*. 10th ed. St. Louis, MO: Elsevier, 2022. 2022.

Bill, Robert L. *Clinical Pharmacology and Therapeutics for Veterinary Technicians.* 4th ed. St. Louis, MO: Elsevier, 2016.

Boothe, Dawn Merton. *Small Animal Clinical Pharmacology and Therapeutics.* 2nd ed. St. Louis, MO: Elsevier Saunders, 2012.

Kahn, Laura H. *One Health and the Politics of Antimicrobial Resistance.* 1st ed. Baltimore, MD: Johns Hopkins University Press, 2016.

Plumb, Donald C. *Plumb's Veterinary Drug Handbook*. 9th ed. Ames, IA: Wiley-Blackwell, 2018.

Resources Other

FDA Guidance on Veterinary Feed Directives (Antibiotic use in Livestock species)
https://www.fda.gov/animal-veterinary/development-approval-process/veterinary-feed-directive-vfd (Accessed 12/7/2020)

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