NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE
Department of Physiology and Pharmacology

" APPROVED "
Dean of the Faculty of Veterinary Medicine
prof. Mykola TSVILIKHOVSKY
"____" _____ 2024

"APPROVED"
at the meeting of the Department of
Physiology and Pharmacology
Minutes № 1, of «1th» July 2024
Head of Department
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"REVIEWED"
Guarantor of the AP "Veterinary Medicine"
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CURRICULUM OF FROM EDUCATIONAL PRACTICE OF ACADEMIC DISCIPLINE

«Veterinary pharmacology»

The amount of practice is 30 hours

Field of knowledge Veterinary

Specialty 211 – «Veterinary Medicine»

Academic programme «Veterinary Medicine»

Faculty of Veterinary Medicine

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Kyiv – 2024

Introduction

Educational practice in the discipline "Veterinary pharmacology" involves consolidating theoretical knowledge and practical skills regarding the material on the study of medicinal products for veterinary medicine taught according to the approved discipline program, which is necessary for a specialist in veterinary medicine for practical activities according to the qualification characteristics.

The educational practice program contains the purpose, tasks and plan, methodological instructions for completing tasks and additional material necessary for students to prepare a report on educational practice.

Purpose of practice

The purpose of practice is to combine the theoretical knowledge obtained during lectures and laboratory sessions with practical experience in the organization of providing various veterinary medicinal products, their pharmaceutical and industrial production, storage and sale.

Practice tasks

The theoretical and practical material presented to students in lectures and laboratory classes on the discipline covers the appropriate amount of knowledge, skills and practical skills necessary for the work of a veterinary medicine doctor.

Students familiarize themselves with the activities of enterprises producing veterinary drugs in accordance with the requirements of good manufacturing practice, learn the rules for licensing pharmacy activities, study the rules for storing drugs in pharmacies, the rules for the use of antimicrobial drugs and veterinary immunobiological agents for veterinary medicine. In addition, they should study medicinal plants and herbal medicines used in veterinary medicine.

Acquisition of competencies:

Integral competence (IC):

The ability to solve complex tasks and problems in the field of veterinary medicine, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements.

General competencies (GC):

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 2. Ability to apply knowledge in practical situations.

GC 4. Ability to communicate in the state language both orally and in writing.

GC 8. Ability to learn and master modern knowledge.

Professional (special) competencies (PC):

PC 11. Ability to apply knowledge of biosafety, bioethics and animal welfare in professional activities.

PC 16. The ability to protect the environment from pollution by livestock waste, as well as materials and means of veterinary use.

PC 17. Ability to carry out marketing and management of veterinary products and services in veterinary medicine.

PC 19. Ability to carry out educational activities among industry workers and the population.

PC 20. The ability to organize, implement and control the flow of documents during professional activities.

Expected learning outcomes (ELO):

ELO 11. Summarize and analyze information on the effectiveness of the work of veterinary specialists of various subordinates.

ELO 15. Know the rules of storage of various pharmaceuticals and biological preparations, ways of their enteral or parenteral use, understand the mechanism of their action, interaction and complex action on the animal body.

ELO 16. Know the principles and methods of marketing and management of veterinary products and services in veterinary medicine.

ELO 19. To carry out educational activities among industry workers and the population.

Bases of practice

Educational practice in the discipline "Veterinary pharmacology" is conducted on the basis of the educational laboratory of pharmacology and toxicology of the Department of Vertebrate Physiology and Pharmacology, educational and scientific laboratories of preclinical studies and clinical studies of medicinal products, as well as on the basis of scientific and production institutions: LLC "Brovapharma" (city Brovary), PrJSC VNP "Ukrzoovetprompostach", DNAI of biotechnology and strains of microorganisms.

Organization of practice

The organization and conduct of educational practice in the discipline "Veterinary pharmacology" is carried out in accordance with the order of the rector of the university. The order for practice is formed at the request of the head of the Department of Vertebrate Physiology and Pharmacology, coordinated with the dean of the Faculty of Veterinary Medicine and the educational part of the National University of Bioresources and Nature Management of Ukraine.

Educational practice is conducted face-to-face, but if necessary, it can be conducted with the help of electronic resources, if necessary, with the use of online chat.

Students of each group, under the guidance of a teacher, perform tasks that are part of the training plan for specialists in the "Veterinary Medicine" specialty for 5 working days.

For a student who partially or fully failed to complete the internship program for good reasons, the deadline for its implementation may be postponed to another period in accordance with the regulations in force at the University, which regulate the organization of the educational process.

A student who has not completed the practical training program in whole or in part without valid reasons may be granted the right to repeat practical training at another time according to the dean's decision.

Content of practice

Table 1

Approximate thematic plan

Topic name	Number of hours		
	Total	All of them	
		classroom work	independent work
Topic 1. Familiarization with the structure and activity of the pharmaceutical enterprise	6	6	
Topic 2. Acquaintance with the peculiarities of pharmacy activity in Ukraine. Analysis of catalogs of veterinary online pharmacies	6	6	
Topic 3. Study of the rules of storage and transportation of veterinary drugs, substances, ready feeds, feed additives and other means of veterinary medicine	6	6	
Topic 4. Study of requirements for the circulation and use of veterinary drugs; rules for the use of antimicrobial veterinary medicinal products in veterinary medicine	6	6	
Topic 5. Preparation and protection of a herbarium of medicinal plants and a diary of educational practice	6	6	
Total	**30**	**30**	

Individual tasks

1. Analyze the information presented on the pharmaceutical company's website, paying attention to general information about the company and the range of pharmaceutical products it offers.

2. Search and analyze the current regulatory documents that regulate the activities of the pharmaceutical enterprise.

3. To analyze the information presented on the website of the veterinary pharmacy, paying attention to general information about the pharmacy and the range of pharmaceutical products presented in it.

4. Search the Internet and analyze the current regulatory documents that regulate the activity of a veterinary pharmacy in Ukraine.

5. Familiarize yourself with regulatory documents:

- Rules for transportation and storage of veterinary drugs, substances, ready feeds, feed additives and veterinary medicine in veterinary pharmacies, their structural units, bases, warehouses, etc.;

- including Amendments to this document (clause 13).

6. Requirements for arrangement of premises intended for storage of veterinary products.

7. General requirements for the organization of storage of veterinary goods, including finished medicinal forms.

8. Features of storage of veterinary products that require protection from light. What are these drugs?

9. Features of storage of veterinary products that require protection from moisture. What are these drugs?

10. Features of storage of veterinary products that require protection from weathering (evaporation). What are these drugs?

11. Peculiarities of storage of veterinary products, which require protection from high and low temperatures. What are these drugs?

12. Features of storage of veterinary drugs, substances which require protection against the effects of gases contained in the environment. What are these drugs?

13. Features of storage of odorous and colored veterinary drugs. What are these drugs?

14. Features of storage of medicinal plant raw materials.

15. Features of storage of caustic substances. What are these drugs?

16. Peculiarities of storage of veterinary products taking into account their expiration dates.

17. Peculiarities of storage of disinfectants, rodenticides and insecticides.

18. Features of storage of flammable (flammable) and explosive substances.

19. Conduct an analysis of the Law of Ukraine on Veterinary Medicine, in particular articles 54-70, Section X. Make a brief synopsis, conclusions for each article, prepare for the interview.

20. To conduct an analysis of the PROCEDURE for submitting a report by veterinary medicine specialists who use antimicrobial veterinary medicinal products for the treatment of animals, on the volumes of antimicrobial veterinary medicinal products used by them and the PROCEDURE for the use of antimicrobial veterinary medicinal products in veterinary medicine.

21. Make a herbarium, and for distance learning – an electronic herbarium (Word, PowerPoint) with the following approximate structure:

- title page/slide with information about who performed the work;
- a photo of a medicinal plant (20–30);
- the name of the plant (in Ukrainian and Latin);
- the family to which the plant belongs;
- pharmacological action (briefly, a list of types of action); it is possible to specify due to which substances contained in the plant, it manifests itself;
- official preparations, which include this plant.

(An approximate list of plants recommended for making a herbarium, information on pharmacological action and the main dosage forms of medicinal raw materials are attached).

Guidelines

Topic 1. Familiarization with the structure and activity of a pharmaceutical enterprise using the example of PrJSC "VNP Ukrzoovetprompostach" and/or LLC "Brovapharma". Observation of the manufacturing process, packaging of soft, solid and liquid medicinal forms. Acquaintance with the main technological processes of industrial production of veterinary drugs. Ensuring the quality of drugs and requirements for their production in accordance with the principles of good manufacturing practice.

Material support: websites of pharmaceutical companies; normative documents regulating the activity of a pharmaceutical enterprise; catalogs of veterinary drugs.

Time - 6 hours.

Control: written report.

Topic 2. Acquaintance with the peculiarities of pharmacy activity in Ukraine. Analysis of catalogs of veterinary online pharmacies. Acquaintance with the peculiarities of pharmacy activity in veterinary medicine, the procedure for drawing

up reporting documentation and providing veterinary pharmacies with medicinal products. Acquaintance with the equipment and operation of the veterinary pharmacy using the example of the PJSC "VNP Ukrzoovetprompostach" pharmacy, as well as with the novelties of the drug market used in the practice of veterinary medicine.

Material support: websites of veterinary pharmacies; regulatory documents regulating the activity of a veterinary pharmacy; Internet resources.

Time - 6 hours.

Control: written report.

Topic 3. Study of the rules of storage and transportation of veterinary drugs, substances, ready feeds, feed additives and other means of veterinary medicine. Consolidation of knowledge regarding the rules of storage of pharmacological agents in veterinary pharmacies, pharmacy bases and warehouses, structural subdivisions of the pharmaceutical enterprise.

Material support: normative documents.

Time - 6 hours.

Control: interview, written report.

Topic 4. Study of the requirements for the circulation, transportation and use of veterinary immunobiological agents, as well as the rules for the use of antimicrobial veterinary medicinal products in veterinary medicine in accordance with the requirements of current legislation; peculiarities of drawing up a report on the use of antimicrobial veterinary medicinal products and their prescription release.

Material support: normative and legal documents, Internet resources.

Time - 6 hours.

Control: written report, consultation.

Topic 5. Preparation and protection of a herbarium of medicinal plants and a diary of educational practice. Mastering the technology of harvesting medicinal plants and procurement of various types of raw materials. Drying and processing of medicinal raw materials. General instructions for harvesting some types of medicinal plant raw materials, the technique of harvesting medicinal plants and their herbarium.

Material support: catalogs, atlas of medicinal and poisonous plants; Internet resources.

Time - 6 hours.

Control: report, interview, protection of herbarium and diary.

Approximate thematic plan of excursions (field classes)

Name of the topic	Base of classes	Number of hours
Familiarization with the structure and activity of the pharmaceutical enterprise.	"Brovafarma" (Brovary)	6
Acquaintance with the peculiarities of pharmacy activity in Ukraine.	"Ukrzoovetprompostach"	6
Study of requirements for the circulation and use of veterinary drugs (VIZ groups); rules for the use of antimicrobial veterinary medicinal products in veterinary medicine.	DNA and biotechnology and strains of microorganisms	6
Thematic excursion "Medicinal plants of Holosievo" (if necessary)	The territory of the Faculty of Veterinary Medicine and the Exhibition Center	6

Material-technical and educational-methodical support of students' practice

Material and technical support: Internet resources; normative documents regulating the activity of a pharmaceutical enterprise; regulatory documents regulating the storage and transportation of veterinary drugs, substances, ready-made feeds, feed additives and other means of veterinary medicine; catalogs of veterinary drugs; electronic addresses of pharmaceutical enterprises and veterinary pharmacies.

Educational and methodological support: Guideline for educational practice for the students of degree "Bachelor" of taught cours "Veterinary Pharmacology (V. B. Duhnytsky, I. M. Derkach, 2017).

The certified electronic training course «Veterinary pharmacology» (https://elearn.nubip.edu.ua/course/view.php?id=2710);

Requirements for writing a report

Each student fills in a diary of educational practice (or its electronic version in the case of practice in a distance format), which must contain information about the student's performance of all sections of the practice program and be designed in

accordance with the requirements.

The diary and herbarium of medicinal plants, which students protect on the last day of practice, is a general form of student reporting for educational practice. The head of educational practice takes into account conscientiousness in the performance of tasks, mastery of the basics of herbalization of plants, as well as knowledge of the pharmacological action of medicinal plants presented in the herbarium and official preparations from them, which are used in practice.

Forms and methods of control

- written report;
- interview;
- protection of herbarium of medicinal plants;
- defense of the practice diary.

In the remote form of practice (if necessary, depending on the security situation), written reports on each topic and the electronic herbarium are sent to the Electronic training course, and the interview and defense are conducted in video conference mode.

Recommended sources of information

1. Veterinary pharmacology / Dukhnicky V., Derkach I., Vosnuk T. – K., 2019.

2. Fundamentals of prescription writing / I.M. Derkach – Kyiv : Comprint, 2022. 128 p.

3. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 2. Drugs affecting the central nervous system) / [I. M. Derkach, V.B. Duhnytsky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.

4. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 3. Drugs affecting the peripheral nervous system / [I. M. Derkach, V.B. Duhnytsky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.

5. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 4. Drugs regulating the functions of organs and system / [I. M. Derkach, V.B. Duhnytsky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.

6. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 5. Antimicrobial and antiparasitic drugs / [I. M. Derkach, V.B. Duhnytsky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.

7. Fundamentals of prescription writing “Guideline for practical training in “Veterinary pharmacology” course for students of Faculty of Veterinary Medicine / V.B. Duhnytsky, I. M. Derkach, V. D. Ischenko, et al. // К.: Видавничий центр «Компринт». – 2017. – С. 45.

8. Guidance for educational practice for the students of degree "Bachelor" taught cours "Veterinary Pharmacology" / V. B. Duhnytsky, I. M. Derkach // К.: Видавничий центр «Компринт». – 2017. – С. 38.

9. Ветеринарна фармакологія: підручник / Хмельницький Г.О., Духницький В.Б. – К., 2017. – 571 с.

10. Аптечний практикум (навчальний посібник для лабораторних занять з дисципліни «Ветеринарна фармакологія» для студентів ОС «Бакалавр» та «Магістр» / В.Б. Духницький, І.М. Деркач – К.: ЦП Компринт, 2017, 162 с.

11. Сучасна фармакологічна термінологія у ветеринарній медицині/ В.Б. Духницький, І.М. Деркач – К.: ЦП Компринт, 2017, 202 с.

12. Довідник з ветеринарної фармакології / В.Б. Духницький, І.М. Деркач, В.Д. Іщенко, О.К. Гальчинська – Київ : ЦП «Компринт», 2019. – 232 с.

13. Державна фармакопея України. Перше видання. – Х.: РЕРІГ, 2002. Ветеринарні препарати / О.І. Канюка, І.І. Харів, В.М. Гунчак, Д.Ф. Гуфрій. – Львів, 2006. – 641 с.

14. Comparative and Veterinary Pharmacology / Cunningham F., Elliott J., Lees P. // Springer Heidelberg Dordrecht London New York, 2010. – 351 p.

15. Handbook of Veterinary Pharmacology / Walter H. Hsu // Wiley-Blackwell, 2008. – 564 p.

16. Pharmacology / Franklin A. Ahrens // Williams&Wilkins, 1996. – 313 p.

17. Handbook of comparative veterinary pharmacokinetics and residues of rescities and environmental contaminants *[Електронний ресурс] // Veterinary books – Режим доступу до ресурсу:* https://books.google.com.ua/books?id=nNbXUFMiD4AC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=fals

18. Pharmacology and therapeutics for dentistyhttps *[Електронний ресурс] // Veterinary books – Режим доступу до ресурсу: https:*/books.google.com.ua/books?id=utVOHYuhxioC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false