

# Preclinical Sciences in the World Wide Veterinary Medicine Curriculum

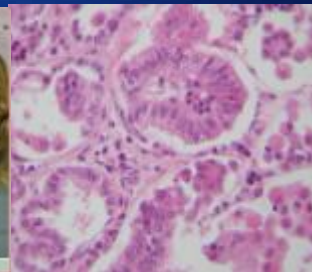
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# DEFINITION

Preclinical sciences are the link, within the veterinary curriculum, between the basic sciences that describe the morphology and physiology of the animals and the biology of the disease agents, and the clinical sciences, where the final integration of knowledge, skills, aptitudes and attitudes takes place.

# COURSES OR MODULES

- < General and systemic pathology
- < Clinical pathology
- < Imaging courses (radiology, ultrasound and others)
- < Pharmacology
- < Surgery (basic principles)
- < Bacterial, mycotic, viral, parasitic and toxic diseases
- < Epidemiology
- < Theriogenology
- < Diagnostic methodology



# ACTIVITY 1: CLINICAL DIAGNOSIS TO DETECT THE HEALTH / DISEASE STATE OF THE ANIMALS.



- \* CO1: Performs the anamnesis and elaborates the clinical history to verify the condition of the animals (Courses involved: diagnostic methodology).
- \* CO2: Performs the necessary holding and immobilization of different animal species to verify their health / disease status (Courses involved: diagnostic methodology and pharmacology).

★ CO3: Gathers and evaluates the vital signs and behavior of the animals to determine their condition (Courses involved: diagnostic methodology).



★ CO4: Identifies the pathologies present in patients during the physical examination (Courses involved: diagnostic methodology, pathology, toxicology, infectious and parasitic diseases).

- \* CO5: Elaborates a presumptive diagnosis of the health / disease status of the animals, based on the information obtained from the clinical history and the physical examination (Courses involved: diagnostic methodology, pathology)
- \* CO6: Performs differential diagnosis in animals considering the environment, host and possible agents (Courses involved: diagnostic methodology, infectious and parasitic diseases, toxicology, pathology and epidemiology).

- \* CO7: Performs necropsies according to a standard protocol and properly collects and preserves tissues and fluid samples whose further analyses will allow to complete, verify or modify the diagnosis (Courses involved: pathology).
- \* CO8: Identifies the pathologies present in cadavers during the *antemortem* and *postmortem* examination (Courses involved: pathology, toxicology, infectious and parasitic diseases).





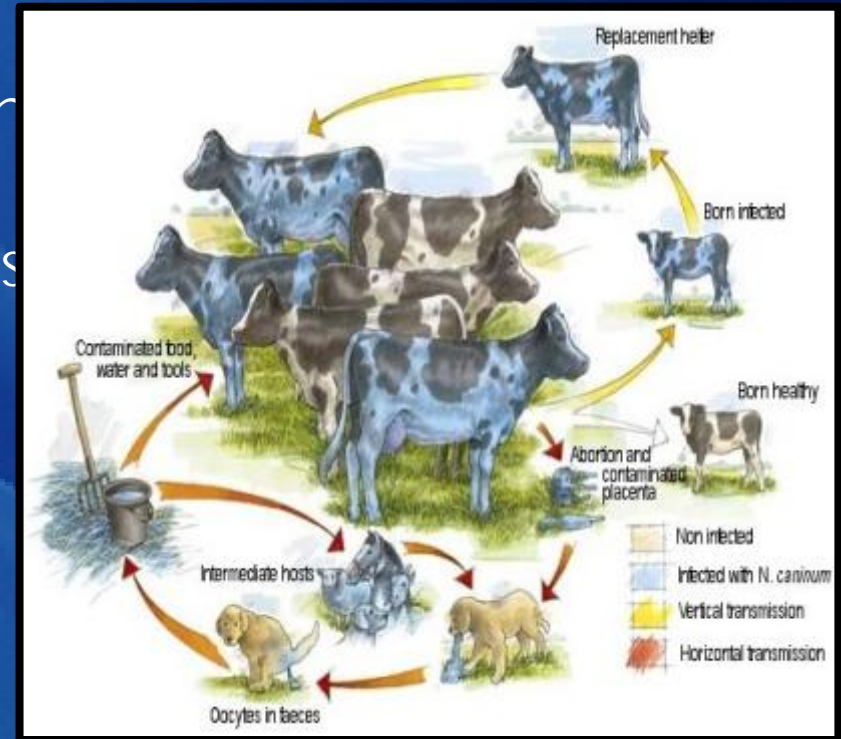
\* CO9: Obtains samples of cells, tissues and corporal fluids from animals to perform and interpret laboratory tests which allow to verify or modify the previous clinical diagnosis (Courses involved: clinical pathology, toxicology, infectious and parasitic diseases, diagnostic methodology).

\* CO10: Performs and evaluates basic imaging techniques (radiology and ultrasound) which allow to verify or modify the previous diagnosis (Courses involved: imaging courses).





\* CO11: Integrates a definitive diagnosis of the case based on the analysis of all the information gathered (Courses involved: diagnostic methodology, clinical pathology, toxicology, infectious and parasitic diseases, pathology, imaging courses and epidemiology).



\* CO12: Determines, based on the diagnosis of the case, possible epidemiological consequences and steps to be taken (Courses involved: diagnostic methodology, infectious and parasitic diseases and epidemiology).

## ACTIVITY 2: PROVIDES MEDICAL OR SURGICAL TREATMENT BASED ON A PREVIOUS DIAGNOSIS



- \* CO1: Selects the appropriate medical or surgical treatment for the animals based on a previous diagnosis (Courses involved: pharmacology and surgery).
- \* CO2: Prescribes and administers drugs, chemical or biological products for the treatment of the diagnosed pathologies on different animal species (Courses involved: pharmacology, toxicology, infectious and parasitic diseases).

\* CO3: Follows the proper protocols for the right handling of drugs, chemical and biological products, from their production to their final administration to animals and disposal of residues (Courses involved: pharmacology, toxicology, infectious and parasitic diseases and epidemiology).



\* CO4: Prescribes drugs, chemical and biological products in the food animal production systems which preserve animal, public and environmental health (Courses involved: pharmacology, toxicology, infectious and parasitic diseases and epidemiology).

- \* CO5: Specifies the length of administration and the correct withdraw of drugs and chemical products in animals to be used for human consumption (Courses involved: pharmacology, infectious and parasitic diseases and epidemiology).
- \* CO6: Explains to the client the proper use of the drugs prescribed as well as the possible consequences for misuse (Courses involved: pharmacology, infectious and parasitic diseases and epidemiology).



\* CO7: Selects the appropriate surgical procedure for the animal, based and the previous diagnosis of the problem (Courses involved: surgery).



\* CO8: Provides the appropriate anaesthetic procedure for the animal, according to the technique to be used, animal species and condition of the patient (Courses involved: pharmacology and surgery).

\* CO9: Performs the appropriate presurgical, transurgical and postsurgical procedures in the animal according to the predetermined surgical procedure (Courses involved: surgery).

## ACTIVITY 3: PERFORMS EPIDEMIOLOGICAL PROCEDURES FOR THE PREVENTION, CONTROL AND ERADICATION OF ANIMAL DISEASES.



\* CO1: Explains to animal owners the necessary measures to accomplish the prevention and control of zoonotic diseases (Courses involved: infectious and parasitic diseases pharmacology and epidemiology)



\* CO2: Designs programs for the prevention, control and eradication of diseases of the different animal populations according to local and international legislations (Courses involved: infectious and parasitic diseases, pathology, and epidemiology).

\* CO3: Supervises the application and operation of biosecurity measures in animal production units, slaughter houses, packing and rendering facilities (Courses involved: infectious and parasitic diseases, epidemiology).

\* CO4: Performs the diagnosis of the most important infectious, zoonotic and exotic diseases in domestic animals and wildlife (Courses involved: diagnostic methodology, infectious and parasitic diseases and pathology).



- \* CO5: Informs the local veterinary authority about zoonotic, exotic and other diseases of compulsory report according to the procedure established (Courses involved: infectious and parasitic diseases and epidemiology).
- \* CO6: Selects the appropriate epidemiological method to be used with the suspicion of a zoonotic, exotic or compulsory report diseases in domestic animals (Courses involved: infectious and parasitic diseases, pathology and epidemiology).
- \* CO7: Determines the prevalence or incidence, morbidity and mortality of infectious diseases in the animal populations under his care (Courses involved: epidemiology)



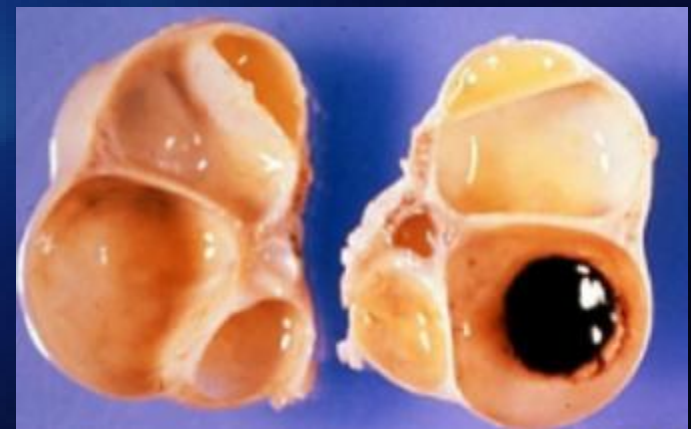
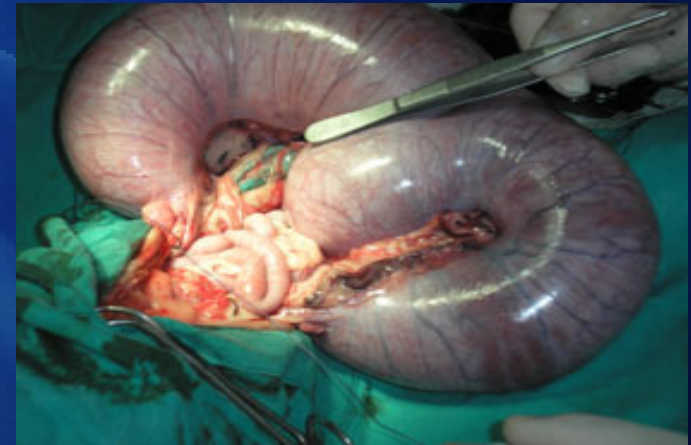


# ACTIVITY 4: CARE OF ANIMAL WELFARE

- \* CO1: Determines the sanitary measures which allow the improvement of welfare of animals used by man (Courses involved: infectious and parasitic diseases, pathology and epidemiology).
- \* CO2: Performs necessary euthanasia considering species and use, to avoid animal suffering (Courses involved: pharmacology).
- \* CO3: Selects the contention and sedation methods for the appropriate management of animals (Courses involved: pharmacology).

# ACTIVITY 5: IMPROVEMENT OF THE REPRODUCTIVE CAPACITY OF ANIMALS.

- \* CO1: Identifies the different alterations of the normal reproductive physiology in animals (Courses involved: agents of disease, pathology, theriogenology and epidemiology).
- \* CO2: Controls the estrus cycle for the reproductive management of animals (Courses involved: theriogenology and pharmacology).



- \* CO3: Prescribes drugs for the treatment of reproductive pathologies in the different animal species, avoiding public health hazards (Courses involved: theriogenology and pharmacology).
- \* CO4: Performs surgical or chemical sterilization procedures for the to control of animal reproduction (Courses involved: theriogenology, pharmacology and surgery).



# CONCLUSIONS

- \* Preclinical sciences provide relevant theoretical and practical knowledge and abilities to the future veterinarian, therefore they are an important part of the veterinary curriculum.
- \* Colleges of veterinary medicine must provide excellent lecturers and physical facilities to teach these courses.



