

UCD School of Veterinary Medicine

Clinical and Diagnostic Skills to Develop/Refine on CEMS Placements – Framework of Learning Objectives

(VET 30260 Module)

The lists detailed on the following pages are not exhaustive, but do give guidance as to when it is most appropriate to begin to practice and develop particular techniques and skills. Separate lists have been detailed for individual species, where appropriate. Many of them will also be learned as part of the taught course within UCD. In addition, several aspects of animal handling will have been covered in the pre-clinical years. However, students are advised to avail of all opportunities to develop and refine their skills further; placement providers also have access to this list and all efforts should be made to undertake the tasks listed.

EMS List of techniques and procedures - Horses

Be competent in:

1. Handling. this means correct holding of horses, use of halter and bridle, walking and trotting, basic physical restraint methods (neck or lip twitch; lifted leg).
2. Be able to remove a horse's shoe and trim a hoof
3. Use of hoof testers
4. Placement of stable bandage
5. Oral administration of medicines
6. Knowledge of breeds, types and basic knowledge of horse industry
7. Knowledge of colours and markings used for identification
8. Full clinical examination and aware of what is normal. Specifically:
 - approximating age by dentition
 - thoracic auscultation (identification of heart sounds, percussion of thorax), assessment of arrhythmias and murmurs
 - pulse rate measurement
 - abdominal auscultation (what is normal for each quadrant)
 - detection and grading of lameness
 - examination of skin
 - examination of external genitalia
 - location of surface anatomical landmarks (skull, spine, pelvis and especially limbs) and sites of fore and hind limb synovial structures
 - location of superficial lymph nodes
 - correct recording of clinical findings
9. Taking a history
10. Knowledge of radiation safety procedures as applied in equine radiography
11. Ability to process and evaluate equine radiographs of skull and distal limbs
12. Be aware of the indications for equine radiography and ultrasonography
13. Performing a neurological examination of a horse.
14. Venipuncture, intravenous catheter placement and intravenous administration.
15. Intramuscular injection (sites, technique)
16. Assessment of fluid therapy requirements
17. Assessment of upper respiratory tract anatomy as seen on endoscopy
18. Rectal pregnancy diagnosis (age of pregnancy?)
19. Passing nasogastric tube
20. Correct management of wounds, including suture placement
21. Examination and rasping of teeth, including use of Hausmann gag
22. Obtaining pharyngeal, endometrial (CEM) and faecal swabs
23. Ocular examination, including use of ophthalmoscope and fundic inspection
24. Application of half-limb and full-limb (Robert-Jones) bandages
25. Chemical euthanasia of a horse
26. Able to perform simple diagnostic tests:
 - take, process and interpret skin scraping
 - take, process and know how to interpret faecal sample for parasites
 - take blood samples into appropriate containers for routine haematology and biochemistry, and know how to interpret results
 - able to process blood to obtain haematocrit and total protein values, and know how to interpret abnormalities
 - catheterise urinary tract of mare and gelding and able to evaluate urinalysis results
 - perform blood smear and interpret differential blood count.

27. Knowledge of normal equine behaviour
28. Able to sedate a horse (which drugs to use, dosage)

EMS list - Horses (II)

Have experience of, know the indication(s) for, and be able to evaluate:

1. Nerve blocks as used to anaesthetise lower limbs (below carpus and tarsus)
2. Arthrocentesis of distal interphalangeal, metacarpophalangeal and carpal joints
3. Obtaining radiographs of distal limbs and skull.
4. Ultrasonography of equine limbs
5. Passing endoscope into upper respiratory tract; performing tracheal lavage or BAL
6. Rectal assessment of urinary tract, caudal large colon, spleen, left kidney
7. Taking a skin biopsy
8. Humane euthanasia of a horse using a gun or chemical method
9. Emergency tracheostomy - indications and technique
10. Neonatal care procedures
11. Performing a pre-purchase examination.
12. Auriculopalpebral nerve block
13. Equine castration: techniques and complications
14. Bladder catheterisation
15. Caslick's procedure
16. Abdominocentesis
17. Arterial sampling
18. Lunging
19. Correct communication of clinical findings to clients and colleagues
20. Routine dental care (tooth rasping)
21. Wolf tooth removal
22. Oral glucose tolerance or D-xylose absorption test
23. ECG
24. Advanced diagnostic imaging techniques such as scintigraphy (bone scanning) and echocardiography
25. Gross *post mortem* examination
26. Uterine irrigation

EMS List of techniques and procedures – Cattle

Be competent in:

1. Handling. This means correct holding of cattle of all ages, use of halter, basic techniques of physical restraint, able to lift foot in crush
2. Oral and intra-mammary administration of medicines
3. Knowledge of breeds, types and basic knowledge of cattle industry
4. Full clinical examination. Specifically:
 - thoracic auscultation (identification of heart sounds, percussion of thorax), assessment of arrhythmias and murmurs
 - pulse rate measurement
 - abdominal auscultation, in particular assessment of ruminal movements
 - detection of lameness
 - examination of skin
 - examination of external genitalia
 - location of surface anatomical landmarks (limbs, skull, pelvis)
 - location of superficial lymph nodes
 - correct recording of clinical findings
5. Taking a history
6. Be aware of the indications and limitations of diagnostic imaging techniques in cattle
7. Performing a neurological examination in cattle
8. Venipuncture, intravenous catheter placement and intravenous administration.
9. Intramuscular injection (sites, technique): nasogastric intubation
10. Assessment of fluid therapy requirements
11. Rectal pregnancy diagnosis (age of pregnancy?)
12. Correct management of wounds, including suture placement
13. Ocular examination, including use of ophthalmoscope and fundic inspection
14. Procedures to deal with an abortion
15. Able to perform simple diagnostic tests:
 - take, process and interpret skin scraping
 - take, process and know how to interpret faecal sample for parasites
 - take blood samples into appropriate containers for routine haematology and biochemistry, and know how to interpret results
 - able to process blood to obtain haematocrit and total protein values, and know how to interpret abnormalities
 - catheterise urinary tract of cow or heifer and able to evaluate urinalysis results
 - perform blood smear and interpret differential blood count.
16. Knowledge of normal bovine behaviour
17. Dehorning and disbudding, including appropriate use of local anaesthesia
18. Able to safely sedate cattle for minor surgical procedures (know drugs and dosages)
19. Be familiar with normal calvings
20. Routine foot paring
21. Milk examination - microbial, progesterone, California test
22. Vaginal examination
23. Condition scoring

EMS list - Cattle (II)

Have experience of, know the indication(s) for, and be able to evaluate:

1. Rectal assessment of reproductive and urinary tracts, spleen, left kidney, rumen.
2. Placement of permanent rumen fistula and rumen trochar
3. Taking a skin biopsy
4. Humane euthanasia using chemical method
5. Emergency tracheostomy - indications and technique
6. Fluid therapy in calves and adult cattle - methods of administration
7. Bovine castration: techniques and complications
8. Bull ringing
9. Bovine dystocia - how to recognise common mal-presentations, and how to intervene safely
10. Bovine caesarian sections - indications, technique
11. Application of foot block
12. Teat surgery
13. Analysis of herd records to improve fertility
14. TB and brucellosis testing
15. Correct communication of clinical findings to clients and colleagues
16. ECG
17. Gross *post mortem* examination
18. Collection and analysis of rumenal fluid
19. Therapeutic options
20. Blood transfusion
21. Abdominocentesis
22. Evaluation of reproductive tract using ultrasound
23. Diet evaluation
24. Uterine irrigation
25. Application of ½ limb splint or cast
26. Casualty slaughter certification
27. Investigation procedures and management of herd health problems, including lameness, mastitis, respiratory disease, diarrhoea, ill thrift

EMS List of techniques and procedures – PIGS

Develop competence in:

Handling and restraint techniques
Condition scoring
Blood sampling pigs <15kgs
Blood sampling pigs >15kgs
Teeth clipping/grinding
Temperature assessment and measurement of vital signs
Injection techniques and sites
Humane destruction of sows and other pigs

Have experience and knowledge of:

General methods of housing and husbandry in the pig industry
Methods of conducting a herd advisory visit
Temperature comfort zones and ventilation requirements
Assessment of pig welfare
Current legislation pertaining to disease control/transport/swill feeding and carcass disposal
Principles of disease control in intensive systems
Standard method of post mortem examination and collection of samples for laboratory examination
Pregnancy diagnosis techniques including ultrasound
Pig A.I. – principles, equipment and stud techniques
Common diseases of pigs – clinical, slaughterhouse and laboratory recognition
Computerised recording systems and analysis of records to identify poor performance and infertility problems
In-feed/water medication – choice of antibiotic/ obligations under Animal Remedies Act/ writing a prescription and Veterinary Written Directive
Disinfectant types and applications/rodent and fly control

EMS List of techniques and procedures – SHEEP

Year 3

Develop competence in:

Handling
Condition scoring
Routine foot paring
Lambing normal animals
Ageing / examination of teeth
Tailing and castration
Routine clinical examination
Oral dosing
Stomach tubing lambs

Have experience / knowledge of:

Sheep industry
Vaccinations / parasite control programmes
Management of mating

Year 4

Develop competence in:

Injections s/c, i/m, i/v, i/p (lambs)
Blood sampling
Paring lame feet
Local, regional and epidural anaesthesia
Nasogastric intubation

Have experience / knowledge of:

Pregnancy diagnosis - ultrasound
Management of dystocia
Ringworm
Treatment of vaginal / uterine prolapse
Caesarian section
Vasectomy
Therapeutic options
Flock health monitoring
Investigation of clinical problems – abortion, ill thrift, neonatal mortality

EMS List of techniques and procedures - DOG/CAT

Develop experience in the use of:

a) Techniques

General

- handling and restraint
- measurement, recording of vital signs
- oral administration of drugs
- administration of enemas
- injections – s/c, i/m, i/v
- placement of i/v catheter
- setting up/supervision of intravenous fluid administration
- urinary catheterisation
- cystocentesis
- obtaining blood samples
- obtaining skin scrapings
- obtaining faecal samples
- expressing anal sacs
- nail clipping
- vaccination
- administration of parasiticides
- nutrition for various life-stages
- oestrus control
- euthanasia

Surgical

- sterile preparation of patient/surgeon
- tooth scaling, polishing and removal
- management of wounds
- bandaging – foot, limb, head, tail
- management of dystocia
- preoperative and postoperative management
- skin suturing
- neutering males/females
- minor eye surgery
- removal of dew claws
- limb fracture/splint application
- exploratory laparotomy
- aural resection
- limb fracture – internal fixation

Anaesthesia

- sedation/tranquillisation
- pain relief
- local anaesthesia
- general anaesthesia – inhalational and injectable
- intubation
- monitoring depth of anaesthesia
- emergency resuscitation

Diagnostic imaging

- radiography of bony/soft tissue

radiation protection and safety
processing procedures and faults

(b) professional diagnostic skills and procedures

use of ophthalmoscope
use of stethoscope
use of auroscope
abdominal palpation
rectal examination
vaginal examination
identification of cardiac murmurs and arrhythmias
use of therapeutic options
examination and diagnosis
safe radiological techniques
radiological interpretation
safe anaesthesia

Placements should also provide opportunities for investigation of cases with the following clinical signs:

coughing	diarrhoea	vomiting	jaundice	tenesmus
polydipsia/uria	anaemia	incontinence	dyspnoea	weight loss
pruritus	alopecia	collapse	lethargy	lameness
nasal discharge	ocular discharge	ascites	pyrexia	seizures

EMS List of techniques and procedures - Exotics

General:

Compilation of an adequate and comprehensive clinical history
Clinical Pathology
Special considerations of the special requirements of medication of exotic species
Husbandry including installation and maintenance of vivaria

Rabbits:

Anatomy and physiology of the digestive tract
Handling, clinical examination and sexing
Anaesthesia
Minor dental attention
Administration of medicine
Neutering

Avian:

Comparative anatomy and physiology especially of the respiratory system
Endoscopy
Handling, clinical examination and sexing of the three major groups: psittacines, raptors, passerines

Reptiles:

General clinical examination, sexing and husbandry
Obtaining samples for clinic-pathological examination (blood, bronchial washes, faeces)
Radiography
Anaesthesia
Husbandry (very important)
Vivarium (aquaria for aquatic species) construction and maintenance
Endoscopy

Wildlife:

Natural history
Stress and hospitalisation
Handling, clinical examination and administration of medicine
Clinical pathology with special reference to pre-release assessment

Poultry:

(a) Industry

Detailed lab investigation of losses in intensive poultry units
How to conduct a site visit and disease investigation
The ins and outs of medication and feedstuffs
Legislation involving the industry

(b) Back Yard Poultry

Handling, clinical examination, investigation and medication of the sick bird
Husbandry and the importance of predation
Clinical pathology
Legislation as it applies to the sale of eggs and meat

Training Objectives - Meat Hygiene

It is not the intention that ALL students should complete ALL the objectives outlined on this list. The function of the training objectives is to give direction to the student and the Veterinary Inspector to ensure that as much as possible is gained from the limited time available. Training objectives attained should be recorded in the check list provided.

1. Understand the responsibilities of the Veterinary Inspector for animal welfare.
2. Observe the inspection of animals on arrival, at unloading and in the lairage.
3. Observe ante-mortem procedures in the abattoir.
4. Understand and observe the use of farm production records in ante-mortem inspection.
5. Observe and discuss the casualty slaughter procedures.
6. Observe humane slaughter and the proper use of stunning equipment.
7. Recognise deviation from acceptable slaughter procedures.
8. Understand and observe correct sticking technique.
9. Observe and understand good operational hygiene for the depilation of pigs, skinning of cattle and sheep, scalding and plucking of poultry.
10. Observe the evisceration procedures.
11. Handle a knife safely.
12. Observe and carry out hygienic knife technique, multiple knife technique, and hygienic use of scabbard and steel.
13. Carry out on line inspection procedures under supervision.
14. Locate, identify, and discuss the significance of abnormalities in the main carcass lymph nodes.
15. Age and sex carcasses.
16. Observe the pathology, and conditions of public health significance, commonly found and understand the judgements made and the action taken.
17. Understand the potential value of post-mortem data, on both individual animal and herd/flock basis, passed back to the livestock producer and the veterinary practitioner.
18. Investigate any processing of animal by-products taking place on site casings, tripe, etc.
19. Observe the procedures involved in the hygienic handling of offal.
20. Observe or participate in the taking of samples for residue testing.
21. Observe the correct use of carcass chills.
22. Understand the procedures involved in the hygienic cutting of meat.
23. Understand the procedures which must be followed in the hygienic wrapping and packaging of meat.
24. Observe and understand the responsibilities of the meat inspection team in loading.
25. Understand the use of certification for the movement of fresh meat, and the responsibility of the Veterinary Inspector for certification.
26. Understand the importance of hygienic structure and layout within the meat premises, with particular emphasis on flow-lines and separation of clean from dirty.
27. Understand and observe the methods deployed by the meat inspection team in the identification and prioritisation of hygiene deficiencies in the plant.
28. Understand the techniques used to resolve the various priorities of hygiene failure.
29. Identify the potential hazards to public health in the commercial process being carried out, and the associated Control Points.
30. Understand and observe the routine cleaning and sanitation of the premises, with reference being made to the cleaning schedule.
31. Understand the physical and microbiological methods used to assess the effectiveness of cleaning the premises.
32. Understand the role of the Veterinary Inspector in vermin control/exclusion.
33. Understand the role of the Veterinary Inspector in water sampling/testing, and the appropriate action to be taken if a sample should fail.
34. Understand the procedures in place for the control of condemned material, specified bovine offal, pet food etc.

35. Observe the waste disposal plant of the abattoir.

The above procedures need to be checked/corrected or added to by the responsible personnel in each plant.

Clinical EMS Meat Hygiene Protocol

TRAINING OBJECTIVES - CHECK LIST

ACTIVITY	CATTLE	SHEEP	PIGS	POULTRY	OTHERS
1. UNDERSTAND ANIMAL WELFARE ROLE					
2. TRANSPORT OF ANIMALS & POULTRY					
3. & 4. ANTE-MORTEM & USE OF PRODUCTION RECORDS					
5. CASUALTY SLAUGHTER					
6. & 7. HUMANE SLAUGHTER					
8. STICKING TECHNIQUES					
9. OPERATIONAL HYGIENE					
10. EVISCERATION					
11. KNIFE SAFETY					
12. HYGIENIC KNIFE SAFETY					
13. ON-LINE INSPECTION					
14. CARCASE LYMPH NODES				XXXXXXXX	
15. AGE & SEX					
16. POST-MORTEM JUDGEMENTS					
17. POST-MORTEM DATA					
18. BY-PRODUCTS					
19. OFFAL					
20. RESIDUE SAMPLING					
21. CARCASE CHILLS					
22. HYGIENIC CUTTING					
23. HYGIENIC WRAPPING & PACKAGING					
24. LOADING					
25. CERTIFICATION					
26. HYGIENIC STRUCTURE & LAYOUT					
27. & 28 IDENTIFICATION & PRIORITISATION OF HYGIENE DEFICIENCIES					
29. IDENTIFY HAZARDS AND CONTROL POINTS					
30. CLEANING					
31. ASSESSMENT OF CLEANING					
32. VERMIN CONTROL					
33. WATER					
34. CONTROL OF CONDEMNED MATERIAL					
35. CONTROL OF ABATTOIR WASTE					