



## **Core Competencies for New Veterinary School Graduates in Equine Practice**

### **Introduction**

Veterinarians in equine practice perform a wide variety of tasks with widely varying frequency. The following skills are identified as “core competencies” for new graduates. Educators and employers are encouraged to use this information when determining the training necessary for new graduates to achieve career success.

The AAEP recognizes that some educational programs will not afford all graduates the opportunity to perform some procedures. Students should use this list as a tool to seek opportunities to gain experience in these areas. Similarly, some post-graduate programs are designed to give very in-depth experiences in a particular area. As such, some post-graduate programs may not afford experiences in each area.

These lists are to provide general guidance when evaluating new graduate or post-internship skill sets and are not meant to be an inclusive evaluation for all situations.

The AAEP’s identification of core competencies is based on the following published article resulting from a survey of equine practitioners:

*“Frequency of activities and procedures performed in private equine practice and proficiency expected of new veterinary school graduates”*, Perspectives in Professional Education, JAVMA, Vol 232, No. 1, January 1, 2008, John A. E. Hubbell, DVM, MS, DACVA; William J.A. Saville, DVM, Ph.D., DACVIM; Rustin M. Moore, DVM, Ph.D., DACVS.

### **Skills a new equine veterinary graduate should be able to perform:**

#### **Medical Knowledge**

- ☐ Take a complete medical history
- ☐ Estimate weight
- ☐ Interpret a hemogram (CBC)
- ☐ Interpret a serum biochemical profile
- ☐ Identify the risk factors associated with metabolic syndrome and be able to discuss a complete management plan
- ☐ Develop a vaccination strategy for different ages, locations and exposure risks
- ☐ Recognize and treat systemic and localized pain
- ☐ Estimate degree of dehydration and develop an appropriate treatment plan
- ☐ Analyze the basic components of a ration and make general recommendations based on the patient’s caloric needs
- ☐ Understand/be able to find information on drug withdrawal periods for performance horses and have knowledge of their implications on treatment options

- ☐ Develop a plan to medically manage a superficial or deep corneal ulcer, stromal abscess, or foreign body
- ☐ Recognize when surgical intervention is necessary for a corneal infection or injury
- ☐ Recognize and develop a treatment plan to manage Equine Recurrent Uveitis
- ☐ Discuss testing for genetic diseases and coat colors
  - ☐ Indications, risk factors, avoidance practices

### **Examination**

- ☐ Perform a physical examination on a foal and an adult horse
- ☐ Auscult and interpret respiratory sounds of foals and adults
- ☐ Auscult and interpret heart sounds
- ☐ Auscult and interpret gastrointestinal sounds
- ☐ Perform a neonatal examination
- ☐ Perform a post-foaling examination

### **Techniques**

- ☐ Administer medication PO (paste)
- ☐ Administer an IM injection
- ☐ Perform jugular venipuncture
- ☐ Administer an IV injection
- ☐ Administer an SC injection (medication and fluids)
- ☐ Use an HCT tube and tabletop centrifuge to determine PCV
- ☐ Use a refractometer to determine total plasma protein concentration
- ☐ Use a portable machine to determine glucose and lactate concentrations in fresh blood
- ☐ Recognize overt lipids in a venous blood sample
- ☐ Place and secure a catheter in the jugular vein
- ☐ Pass a nasogastric tube
- ☐ Administer liquid medication with a nasogastric tube
- ☐ Perform fluorescein staining of the cornea
- ☐ Perform and interpret a test for measuring IgG concentration in foals
- ☐ Perform an enema
- ☐ Perform a skin scraping
- ☐ Aspirate a mass
- ☐ Flush a nasolacrimal duct
- ☐ Perform a fecal flotation
- ☐ Prepare and read a Gram stained slide
- ☐ Perform an auriculopalpebral nerve block
- ☐ Perform a complete ophthalmic examination with direct or indirect ophthalmology
- ☐ Obtain measurements of IOP

### **Reproduction**

- ☐ Place a tail wrap on a mare
- ☐ Perform rectal palpation for mid- and late-stage pregnancy
- ☐ Examine the cervix with a vaginal speculum
- ☐ Obtain a uterine sample for culture
- ☐ Know the basic indications and technique for performing a Caslick's procedure

- ☐ Discuss the basic techniques of breeding a mare with CSS, and frozen semen
  - ☐ Know the basics of a mare's reproductive cycle
  - ☐ Develop and discuss a breeding plan with an owner
- ☐ Discuss the process of collection of semen for the purpose of developing a plan to breed a client's mare
- ☐ Discuss the aspects of an unsuccessful breeding cycle
  - ☐ Mare factors
  - ☐ Stallion factors
  - ☐ Handling/management factors

### **Anesthesia**

- ☐ Sedate an adult horse
- ☐ Perform a line block for local anesthesia
- ☐ Sedate a foal
- ☐ Monitor the depth of anesthesia
- ☐ Develop an anesthesia plan for both long and short procedures requiring general anesthesia
- ☐ Develop a sedation plan for long-term standing procedures

### **Husbandry Techniques**

- ☐ Apply a lip twitch
- ☐ Approach, capture, and attach a halter and lead
- ☐ Elevate and examine a hind limb
- ☐ Elevate and examine a forelimb
- ☐ Perform proper animal restraint
- ☐ Tie a quick-release knot
- ☐ Restrain a foal
- ☐ Apply a tail tie

### **Surgery**

- ☐ Apply a wound dressing
- ☐ Apply a bandage to a limb
- ☐ Apply a bandage to a foot
- ☐ Remove sutures and staples from a healed surgical wound
- ☐ Clean and debride a wound
- ☐ Suture proficiently
- ☐ Perform surgery; properly gown and glove and aseptically prepare a patient for surgery
- ☐ Perform hemostasis; isolate, clamp, and use hand and instrument ties to ligate a bleeding vessel
- ☐ Demonstrate proper postoperative patient care, including wound evaluation
- ☐ Properly prepare and sterilize a surgical pack
- ☐ Know the basic principles of wound management and appropriate use of drains for a soft tissue lesion
- ☐ Identify, diagnose with radiographs, and create an appropriate treatment plan for a sinus infection
- ☐ Determine the need for and interpret radiographs of the neck
- ☐ Discuss and understand the basic technique for performing and interpreting a myelogram

### **Client Education and Regulatory**

- ☐ Complete a health certificate
- ☐ Explain gastrointestinal parasite identification, treatment, and prevention
- ☐ Write clear Discharge Instructions in lay terminology
- ☐ Explain medical conditions to a client clearly and concisely in an understandable manner
- ☐ Explain proper healthy animal nutrition to client
- ☐ Recognize the risk factors of age-related issues in older horses and discuss preventative geriatric monitoring

### **Business of Veterinary Medicine**

- ☐ Maintain complete and concise medical records
- ☐ Effectively communicate over the telephone
- ☐ Recognize major breeds, colors and performance disciplines by appearance
- ☐ Manage time and resources appropriately to meet the needs of a busy schedule while covering unanticipated aspects of the scheduling
- ☐ Demonstrate a willingness to work cooperatively as a member of a mixed team of professionals and lay coworkers
- ☐ Communicate effectively (oral and written) with referral veterinarians and referring veterinarians

### **Dentistry**

- ☐ Know the dental formula and eruption schedule and how to determine approximate age from the dentition
- ☐ Understand the anatomy and physiology of the teeth and oral cavity and associated structures
- ☐ Perform and document a complete oral and dental examination
- ☐ Recognize common dental and oral pathology
- ☐ Perform dentistry procedures to manage sharp enamel points and occlusal abnormalities
- ☐ Understand the management of persistent or mal-erupted deciduous teeth
- ☐ Discuss the indications and locations of local and regional nerve blocks associated with dentistry

### **Lameness**

- ☐ Obtain a history for a horse presented for a lameness/performance issue
- ☐ Demonstrate proficient use of hoof testers
- ☐ Locate and treat a subsolar abscess, with guidance if needed
- ☐ Perform a musculoskeletal exam of a horse presented for lameness issues
- ☐ Perform a lameness examination and determine degree of lameness and be able to identify the affected limb
- ☐ Discuss a diagnostic plan for a horse presented for lameness
- ☐ Perform basic lower limb diagnostic nerve blocks
- ☐ Discuss the indications and locations of advanced diagnostic nerve blocks
- ☐ Identify angular limb/flexural deformities in foals and discuss options for correction

## **Skills an equine veterinary graduate should be able to perform post-internship or one-year post-graduation:**

### **Medical knowledge**

- ☐ Establish a prognosis
- ☐ Formulate individual and herd health and wellness programs
- ☐ Recognize and treat laminitis
- ☐ Formulate a plan for diagnosis and treat pneumonia in foals and adults
- ☐ Interpret an abdominocentesis
- ☐ Interpret results of an arterial or venous blood gas sample
- ☐ Develop a problem list with differential diagnoses, develop a diagnostic plan, and develop a treatment plan
- ☐ Formulate a plan to evaluate and care for a patient with colic
- ☐ Recognize and affirm that a horse with colic will likely need surgical intervention
- ☐ Identify and manage a case of acute colitis
- ☐ Identify and manage an acute abdomen
  - ☐ Diagnostic basics
  - ☐ Treatment basics
- ☐ Develop a diagnostic and treatment plan for dermatologic issues
  - ☐ Itchy skin, hair loss, masses
- ☐ Identify and manage a foal with neonatal maladjustment syndrome
- ☐ Recognize and grade heart murmurs
- ☐ Recognize and develop diagnostic/treatment plans for muscular abnormalities

### **Examinations**

- ☐ Assess lameness and perform a soundness examination
- ☐ Perform a neurological examination
- ☐ Perform a breeding soundness examination on a mare
- ☐ Perform a pre-purchase examination
- ☐ Examine the upper airway with an endoscope
- ☐ Assess lameness and perform a soundness (lameness) examination

### **Reproduction**

- ☐ Determine the estrus status of a mare
- ☐ Pharmacologically manage a mare's reproductive cycle
- ☐ Perform ultrasound diagnosis of a 16-day pregnancy
- ☐ Perform rectal palpation for a 25-30 day, 45-day and a mid-term pregnancy
- ☐ Devise and implement treatment plan for a uterine infection
- ☐ Treat retained placenta
- ☐ Obtain an endometrial biopsy sample and perform cytologic examination
- ☐ Diagnose and correct a simple dystocia
- ☐ Inseminate a mare with cooled shipped semen
- ☐ Have knowledge of the technique of managing a mare being bred with frozen semen
- ☐ Perform a Caslick's procedure
- ☐ Have knowledge of the technique of collecting semen from a stallion with an AV, semen analysis, semen handling, transportation and storage options

## **Anesthesia**

- ☐ Perform local anesthetic blockade of the upper eyelid
  - ☐ Blocking for motor and/or sensation
- ☐ Complete a pain assessment with a scoring system and clinical observation
- ☐ Perform local anesthesia of the carpus, tarsus, and distal portion of the limb
- ☐ Perform arthrocentesis and local anesthesia of the carpus
- ☐ Perform arthrocentesis and local anesthesia of the fetlock
- ☐ Perform endotracheal intubation
- ☐ Perform arthrocentesis and local anesthesia of the distal interphalangeal joint
- ☐ Anesthetize a healthy patient for 60 minutes
- ☐ Perform arthrocentesis and local anesthesia of the pastern
- ☐ Properly place leads and record and interpret an ECG
- ☐ Perform arthrocentesis and local anesthesia of the stifle
- ☐ Anesthetize a healthy patient for a short period (20 minutes)
- ☐ Perform local anesthesia of the foot
- ☐ Perform local anesthesia of the fetlock and distal portion of the limb

## **Client Education and Regulatory**

- ☐ Communicate a prognosis and anticipated cost of treatment
- ☐ Manage client expectations with counseling about possible and expected outcomes
- ☐ Perform a basic ration analysis and be able to discuss recommendations to optimize nutrition
- ☐ Identify appropriate reporting agencies for a foreign animal disease
  - ☐ Have basic knowledge for which common diseases require reporting
- ☐ Compassionately communicate when the situation dictates that euthanasia is an option
- ☐ Evaluate and discuss an appropriate biosecurity plan for a farm/facility with regards to an infectious disease outbreak
- ☐ Have a basic familiarity with the issues involved in a response plan in the event of a natural disaster involving a single facility or community

## **Business of Veterinary Medicine**

- ☐ Develop accurate estimates and charge appropriately for work performed
- ☐ Understand the basic elements involved in managing the financial aspects of a practice
  - ☐ Inventory management
  - ☐ Basic Profit/Loss document understanding
- ☐ Have a working knowledge of and be able to identify needed equipment to perform a scheduled farm call
- ☐ Manage a team of lay coworkers effectively

## **Techniques**

- ☐ Perform an abdominocentesis
- ☐ Use test to predict foaling
- ☐ Perform a transtracheal wash
- ☐ Perform a bronchio-alveolar lavage
- ☐ Perform a facial sinus stick for venous blood
- ☐ Pass a nasogastric tube on an adult and foal
- ☐ Discuss installing a sub-palpebral lavage system

- ☐ Know the basic technique of collecting bone marrow samples for diagnostics and MSCs
- ☐ Know the basic technique for collection and indications for whole blood transfusions
- ☐ Know the basic techniques and indications for fecal transfaunation
- ☐ Know the basic calculations for intravenous fluid administration
- ☐ Know the basic calculations for Total and Parenteral Nutrition Administration

### **Radiology**

- ☐ Perform and interpret ultrasound of tendons, abdomen, thorax and reproductive tract
- ☐ Make and interpret radiographs and ultrasound of the stifle
- ☐ Make and interpret radiographs of the skull and discuss other options for advanced imaging
- ☐ Make and interpret radiographs of the carpus, tarsus, stifle, fetlocks, pasterns and coffin joints
- ☐ Have an understanding of imaging such that specialized views of an area of interest could be discussed and considered when appropriate
- ☐ Take and interpret dental images

### **Surgery**

- ☐ Perform a castration
- ☐ Repair an uncomplicated skin laceration
- ☐ Repair an eyelid laceration
- ☐ Apply a splint
- ☐ Know appropriate use of a tourniquet
  - ☐ Placement and time of use
- ☐ Perform regional perfusion
- ☐ Place drain appropriately for a soft tissue lesion

### **Dentistry**

- ☐ Obtain diagnostic radiographs of the incisors and cheek teeth and associated sinuses
- ☐ Perform extraction of wolf teeth, persistent deciduous and mobile teeth
- ☐ Evaluate and recognize the need for advanced dental diagnostic and oral surgery procedures

### **Lameness**

- ☐ Obtain a history for a horse presented for a lameness/performance issue
- ☐ Demonstrate proficient use of hoof testers
- ☐ Perform a musculoskeletal exam of a horse presented for lameness issues
- ☐ Perform a lameness examination and determine degree of lameness and be able to identify the affected limb
- ☐ Make a diagnostic plan and execute appropriate basic nerve blocks to diagnose a horse presented for lameness
- ☐ Discuss indications and limitations for advanced imaging of a lameness case
- ☐ Develop and implement a treatment plan for angular limb deformities in foals
- ☐ Know the basics of therapeutic joint therapy options
- ☐ Discuss therapeutic shoeing recommendations with the client and farrier

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