



## Duty of care

*Equine veterinary surgeon Liam Kearns MVB MRCVS, of the Three Counties Equine Hospital, Gloucestershire, examines the role of a duty vet at equine competitions.*

A day on duty at the local hunter trial, horse show or point-to-point meeting can be an enjoyable day out – a chance to meet clients and see their horses in action. However, on accepting such a role – whether on a paid basis or not – the veterinary surgeon immediately assumes a professional responsibility for the welfare of horses competing.

### GOOD PREPARATION

When preparing for a day on duty, it is good to 'hope for the best but expect the worst' and be equipped and ready to handle it. A useful first step would be to find out what other veterinary surgeons are on duty and if a senior veterinary surgeon has been appointed.

For major competitions, a rehearsal day is a sensible option. On this occasion, veterinary surgeons, ambulance and casualty recovery vehicle drivers, grounds people and the clerk of the course should meet and discuss possible scenarios and responses. Questions that may be asked include: 'What should happen when a horse collapses on a walkway heading towards the unsaddling enclosure?', 'Are screens immediately available and who is responsible for erecting them?', 'Is there good vehicular access to all areas and do all personnel know where slip rails are for crossing the course?', 'In order to deal with heat stress, are adequate containers of water deployed around the course, and if these are used, can they be refilled rapidly?', 'Can gates can be promptly closed if a horse should run loose on course or in the lorry park?' Prior to competition day, a referral facility for injured horses should be elected and contact details and directions for the clinic should be made available. It is also imperative that veterinary surgeons, ground staff and competition organisers can contact each other using an appropriate

method of communications e.g., by two-way radio. Using the public address system to call for a veterinary surgeon should be avoided.

### EQUIPMENT

Generally, on-duty veterinary surgeons prefer to keep a low profile, but it is important that the competition organiser and members of the public can see that, when an incident has occurred, the vet is rapidly in position. An orange flag on the vet's vehicle and a distinctive jacket or armband will help in this regard. Members of the public and the organisers feel that, once the vet has arrived at the scene, the situation is under control and the horse will be well cared for. An experienced horse handler should accompany the veterinary surgeon, so that the horse can be restrained if separated from its rider. With this in mind, a head collar and long lead rein should be carried as part of essential equipment. Screens should also be available: they may be used to give the veterinary surgeon and medical team a chance to examine and treat injured horses and riders in a reasonably private environment. It is helpful to educate race-goers that the use of screens is not always a prelude to euthanasia of the horse.

Other necessary equipment and medicines that should be available at the course are outlined in **Table 1**. The vet should also carry a small satchel of equipment when away from the vehicle. This will mean he/she is prepared to deal with emergencies in the parade ring or pedestrian areas. This bag should include syringes, needles, NSAIDs, corticosteroids etc., as well as preloaded syringes: one with a sedative and one with a euthanasia agent. A small number of dressings to put a temporary pressure bandage on a distal limb with an arterial bleed should also

be included. In this article, we will now look at common injuries and incidents the vet may face at an equine competition.

**Table 1: Essential equipment and medicines for on-call vets at equine competitions**

**\*These products are not licensed in this country as animal medicines and would be subject to the Cascade System rules.**

Equipment	Medicines
Robert Jones Dressings, including: multiple rolls cotton wool; 15 cm conforming bandages; rolls of elastic adhesive tape	Romifidine/detomidine
	Butorphanol
	Flunixin
Wooden splints (45 mm x 20 mm, padded top and bottom, 35-40 cm long and 140-150 cm long)	Phenylbutazone
	Dexamethasone
Plastic guttering and saw	Buscopan*
Rolls of duct tape	Prilocaine/mepivacaine*
Sterile wound dressings	Gentamycin/crystapen/tetracyclines
Sterile saline	Vetivex 5 L (x 8)
Dilute chlorhexidine	Pre-loaded syringe somulose
Sterile gloves	Pre-loaded syringe detomidine/ butorphanol
i/v fluid admin. equipment	

## CONDITIONS REQUIRING SURGERY

It is advisable for one member of the veterinary team to be in a position to carry out general anaesthesia, although this will rarely be used. A single bolus of ketamine at 2.2 mg/kg i/v will give 15 minutes of surgical anaesthesia. Continuous infusion total intravenous anaesthesia can be used safely without intubation for approximately 40 minutes. A 14-gauge catheter is fitted and, for a 450 kg Thoroughbred, a premed of 15 mg detomidine is followed by 1 g ketamine bolus.

An anaesthesia recipe, which includes 500 ml of 10% GGE (Guaphenesin) with 10 mg detomidine and 1,000 mg ketamine, is useful. This can be infused at 1-1.5 ml/kg/hour (200-300 drops/minute). The ingredients for such 'triple drip' anaesthesia should be available but not mixed until immediately prior to use.

## WOUND MANAGEMENT

Most wounds at competition will be contaminated, and it is important that these are not sutured rapidly without thorough cleansing and investigation for involvement of deeper structures. Particular care should be taken with wounds on the posterior fetlock or pastern that may involve synovial structures. If the wound involves the tendon sheath, synovial fluid may have escaped and inflation of the sheath from a distant site may not be easily achieved in a field situation. In these cases, thorough cleansing should be carried out and sterile dressings should be applied and the horse referred to a hospital environment. Low-pressure lavage using a 19-gauge needle and syringe will significantly reduce bacterial load. A small garden sprayer will double

the flushing pressure. If a chlorhexidine solution is used, it should be well diluted (40:1). If it's possible that a wound involves a synovial structure, antibiotics with ceftiofur (2 mg/kg bwt i.e., 1 for average Thoroughbred) or penicillin (crystalline penicillin 10 mg/kg bwt) and gentamycin (6.6 mg/kg) should be administered prior to referral. Sterile gloves should be used for digital exploration of any wounds and final lavage with sterile saline will help with wound healing. If the area around the wound is to be clipped, application of sterile gel to the wound will reduce the influx of hair and debris and make proper wound cleaning afterwards more achievable. Debridement of the wound is vital and it can take considerable time removing grass and any other foreign material. To facilitate proper wound management, restraint with detomidine at 0.01 mg/kg or romifidine at 0.05 mg/kg and butorphanol at 0.02 mg/kg is recommended. Sedation of excited horses directly after being pulled up may require higher dose rates. Care should also be taken if using a twitch on a horse immediately post-exercise, as response can be variable. After closure of the wound, if this is achieved, support, protection and immobilisation will have a major effect on primary healing. This is best achieved in three layers. The first should be a sterile non-stick dressing followed by a secondary layer of padding and a tertiary layer of sealing/conforming bandage. If a horse is sedated at an event, the owners should be advised that when the horse is fit to travel, it should not have access to a hay net to avoid inducing a choke situation. A veterinary treatment form should accompany all treated horses and, for serious injuries, telephone contact should be made with the owner's home vet.

## MUSCULOSKELETAL INJURY

Tendon injuries – both lacerations and sprains – are encountered frequently in national hunt and point-to-point racing. At this level of exertion, the tendon is operating very close to its tolerance limits and is prone to injury. It is important to limit the damage at onset of injury to ensure the best possible outcome. Initial assessment of the horse may show only mild/moderate lameness on pulling up, but as the horse walks away, a more severe lameness may become apparent. In many cases, it is best to load the horse onto an ambulance quickly and take it back to the stabling area for a more thorough examination. A correctly fitted Robert Jones bandage will provide support, compression and substantial pain relief. This bandage works by applying multiple layers of air-filled cotton wool, which spread the pressure evenly over the tendon injury. A half-limb Robert Jones will require at least three rolls of cotton wool and six conforming bandages with two to three rolls of an elastic adhesive tape over the top. The first layer should be 2-3 cm thick and additional layers added to create a uniform cylinder. Lateral splints or plastic guttering, which is padded at the top and bottom, can be included. Ideally, the splint applied should immobilise the joints proximal and distal to the fracture. Some veterinary surgeons will use commercial splints such

as a 'Monkey' splint (Kruise, Sherburn in Elmet, UK). But some horses find these awkward when walking and may show some evidence of extra stress. Care should be taken when applying hind limb support as many horses initially hyperflex and panic on feeling the restriction.

If the suspensory apparatus is involved, splinting the limb by aligning the dorsal cortices of the cannon and phalanges provides best support. This splint is best applied with an assistant supporting the limb under the forearm and application of a wedge under the heel to assist with alignment. A dorsal gutter splint will be used over the Robert Jones bandage. Phenylbutazone at a rate of 4.4 mg/kg should provide adequate analgesia for travel. A low loading vehicle will be required for transporting a horse after splinting. If possible, the horse should be travelled facing backwards in a lorry so that the major load is then taken on the hind limbs.

In cases where a fracture has occurred, severe lameness will be present almost immediately. Signs of shock including sweating and trembling, and severe hyperventilation can be a guide to the severity of the injury. Immediately post-competition, it is often impossible to diagnose a fracture definitively and, therefore, provision of adequate splinting and removal of the horse to a safe area is the best option. If the injury is clearly untreatable, the horse should be euthanased as soon as possible. The following fractures are included in this category:

1. Compound comminuted fracture with severe tissue damage.
2. Complete fractures of the femur.
3. Complete fractures of the humerus.
4. Complete fractures of the tibia.

### HEAT STRESS/EXHAUSTION

The conversion of chemical energy to mechanical energy is a relatively inefficient process in the horse. Approximately 70% of the energy produced is released as heat. This makes racehorses and other sports horses susceptible to heat stress and exhaustion. It is not uncommon for a number of cases of heat stress to occur at the same race meeting. Certain factors may predispose to the condition including high ambient temperature, high humidity and still conditions. Larger horses have a smaller surface area proportion to mass, which increases the risk.

The condition can take several minutes to develop after pulling up (just enough time for the horse to have got back into the unsaddling enclosure). Signs to look out for include uncontrollable wobbling, lurching forward, tossing of the head and stringhalt-type action.

It is imperative that adequate access to water containers is available at the pulling up area and on walkways returning to the unsaddling area.

Large volumes of cold water will be required to cool the horse with periods of walking the horse to improve evaporation. Intravenous administration of flunixin at 1.1 mg/kg is believed to assist in reduction of clinical signs in affected horses. Although it is recommended that an oxygen cylinder be carried, it will rarely be used.

### THE RECUMBENT HORSE

Dealing with a recumbent horse can be highly stressful but it is important for the veterinary surgeon to be calm and decisive. The most common cause of recumbency in a racehorse following a fall, especially towards the end of a race, is that the horse is winded. Usually the horse will remain still with strong laboured breathing. The pulse will be strong and regular. The vet should not feel pressured into encouraging the horse to rise (allow up to 15 minutes for initial recovery). The saddle should be removed and longer lead ropes applied to the bridle so that if the horse staggers on rising it can be still restrained. Screens should be erected allowing adequate space in case the horse lunges forward on getting to its feet. On hot days even more space may be needed around the horse. If no evidence of injury has been found in the horse, rolling him into sternal recumbency and supporting him there for a few moments may be all that is required for him to rise. Watching the horse's first attempt to rise is most important. At this time, evidence of musculoskeletal injury or neurological injury may become apparent. If the horse has failed to rise after 10 to 15 minutes, he should be turned over and this may provide the stimulus to encourage him to rise.

During the time that the horse is recumbent, a thorough clinical examination should be carried out starting from the head. It is best to examine and work from the dorsal aspect of the horse to avoid injury if the horse starts to thrash. On examination of the head, the vet is looking for any evidence of haemorrhage from the ears or nostrils, abnormal dilation of the pupils and any signs of crepitus over the skull.

The neck should be palpated to look for any sign of pain or swelling and, as far as possible, the limbs should also be palpated. Predilection sites for spinal injury include the mid-back, caudal cervical vertebrae and skull/atlas/axis. Although examination of tail and anal tone should be carried out, it is most important to remember that adrenaline has a dramatic effect on the equine nervous system, and a routine neurological examination may be meaningless because profound sympathetic tone will override normal reflex activity. Although there are reported cases of horses with spinal shock recovering after two to three hours recumbency, if a horse has made no attempt to rise after 30 minutes (including having been rolled), shows a 'dog sitting' posture indicating paralysis of the hind limbs or starts to show uncontrollable struggling or pain, euthanasia should be carried out. In cases of cardiovascular collapse, the horse usually pulls up, staggers and collapses. In most of these cases, death occurs rapidly, usually following rupture of an internal artery.

### EUTHANASIA

If the horse is very severely injured, and there is no doubt that it should be destroyed, euthanasia should be carried out immediately. If time allows, consent from an owner or trainer should be sought and/or if possible, a second

opinion from another colleague at the event. Immediate euthanasia is indicated where there are compound fractures with severe soft tissue injury, fractures of the femur, tibia or humerus and non-weight bearing fractures of the shoulder. Other conditions include bilateral rupture of the superficial digital flexor tendons or complete breakdown of the suspensory apparatus. Communication with the clerk of the course or organiser is vital at this time and it may be more prudent to use a mobile phone in high profile situations. The method of euthanasia used should be the one with which the vet is most comfortable.

Somulose (Arnolds/Dechra, UK) is the most commonly used lethal injection. An intravenous catheter should be fitted and the drug injected over 15 seconds. The slow rate of injection aims to prevent premature cardiac arrest before the barbiturate hits the brain. Note that many vets will pre-medicate with romifidine/detomidine prior to the injection of somulose. Ocular reflexes may persist for several minutes and attendant personnel should be informed of this to prevent distress.

The use of the free bullet pistol should be carried out with extreme care. Indeed, it may not be safe to use this form of euthanasia at a racecourse or other event where there are many people present. Sedation prior to euthanasia is recommended to reduce the risk of sudden head movement. Proper bullet placement is most important. The horse's brain is situated very high in the skull. The intersection of lines drawn between the lateral canthi of the eyes and the middle of the base of the ears provides the best location. This is usually one inch below the base of the forelock in a Thoroughbred horse. If a horse is sedated and the head is dropped, it is important to angle bullet placement accordingly. After the horse has collapsed, cardiac activity may continue for 10 to

15 minutes. Manipulation of fractured limbs should be avoided in the first few minutes due to persistent withdrawal responses. Even with the use of screens in public areas, it is preferable not to winch the horse onto a recovery vehicle. Where possible, roll the horse onto a drag mat. At this point it is important to ascertain if a post mortem is required, especially if the horse is covered by mortality insurance. Positive identification of the horse should also be carried out by scanning for a microchip.

#### REFERENCE

BEVA manual: Guide to the management of emergencies at equine competitions. SJ Dyson (ed). British Equine

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