



## SOP 6.14 Blood Collection - Horses

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### Purpose

- (1) The objective of this standard operating procedure is to provide guidance to the Charles Sturt University staff on:
  - a. the process of collecting blood via venepuncture, and
  - b. to collect, by venepuncture, blood samples suitable for laboratory analysis

### Scope

- (2) This procedure applies to any person who is involved in AEC approved projects involving the collection of blood from horses.
- (3) All researchers and teaching staff using animals for scientific purposes must be competent. For definition of competency refer to Charles Sturt University's Policy on 'Animal Care Competency Training and Assessment'.

### Details of procedure

#### Safety and Risk considerations

- (4) Some animals resent blood collection. Signs of distress include lifting head, tensing neck and moving away from operator. The impact of this can be minimized by inserting the needle through the skin once and then redirecting until venepuncture is achieved. Distress can also be minimized using appropriate restraints such as an equine crush. Risk of injury can be minimised by ensuring that personnel involved are adequately trained in handling and restraint of horses.

#### Equipment

- (5) A variety of collection devices may be used including Vacutainer®\* tubes, bleeding tubes, intravenous catheters, syringe, and needle. Generally, needle gauges used range from 21 to 18G and syringe volumes between 2mL to 60mL. Depending on the technique adopted, which may vary between horses and practitioners, local anaesthetic and associated small bore (23-25 gauge) needles may be required. Gloves, antiseptic solution, and sharps containers will also be required.
- (6) With some horse's restraint devices may be required, such as a nose twitch or an equine crush.
- (7) Ear twitching is NOT permitted under any circumstances during teaching or research activities.

#### Procedure

- (8) Operators (including the handler) should ensure they have adequate personal protective equipment to protect themselves, including boots and disposable gloves and the required equipment for the procedure before commencing.



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- (9) The horse should be restrained appropriately. The choice of restraint will be based on an assessment of the behaviour of the individual horse. For jugular bleeding the animal may require minimal restraint (e.g., halter and lead rope) or may need to be restrained in an equine crush. Restraint should ensure quick, easy, and safe collection of the sample causing minimal distress.
- (10) Clip the venipuncture site if necessary to allow visualisation and improve removal of debris.
- (11) Raise the jugular vein by moderate pressure in the jugular groove, 5-10cm below the site of venipuncture. In most horses the jugular will be visible and/or palpable upon engorgement.
- (12) The site for blood collection is the cranial (top) 2/3rds of the neck on either the right or left side of the horse. In most instances the left side will be the default as most horses are habituated to procedures being initiated from this side.
- (13) The site selected should be cleaned with a swab soaked in 70% alcohol solution. Swabbing should be performed until the swab no longer shows evidence of gross contamination ('dirty') and the site allowed to air dry.
- (14) The needle is uncapped and passed through the skin and into the vein bevel upwards with a firm smooth motion directed at an angle of approximately 20 degrees to the plane of the skin surface. It may be directed craniodorsally (towards the head of the horse) or caudoventrally (towards the chest of the horse).
- (15) The syringe is attached to the needle and the required amount of blood withdrawn. If a Vacutainer®\* tube is used, then the vials will be pushed onto the distal part of the double-sided needle and allowed to fill. Several sample tubes may be filled by this method.
- (16) The needle is then withdrawn. Pressure is applied to the venepuncture site with a clean gauze swab for a minimum of 30 seconds to help prevent the formation of a haematoma.
- (17) Needles and catheters should be disposed into sharps containers.
- (18) Operators should wear gloves and change or disinfect them between animals to prevent the transmission of blood-borne diseases. Equipment such as needle holders used with Vacutainer®\* tubes should also be cleaned between animals.

### Drugs, chemicals, or biological agents

- (19) 70% alcohol or other suitable antiseptic to clean the skin surface prior to venepuncture.
- (20) Local anaesthetic if required to place a catheter.

### Impact of procedure on wellbeing of animals

- (18) Laceration or damage to the jugular vein can result in a haematoma formation. No other impact on wellbeing is seen unless excessive volumes of blood are lost. More than 10% of blood volume should not be permitted (i.e., no more than 4-5 L for a 500kg horse).
- (19) Nose twitches can lead to unwanted behaviours. Misuse and/or prolonged use of twitches can lead to physical damage, head shyness, and negative behavioural outcomes both in the short and long-term.

### Animal care

- (20) Observe animals for signs of distress.



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### **Pain relief**

(21) Not required

### **Reuse and repeated use**

(22) Procedures should only be repeated two times per animal for demonstration in a timetabled teaching slot. For research purposes, venepuncture and sampling may occur routinely twice daily. Some protocols may require serial sampling over a relatively short period (e.g., exercise physiology studies, hormonal assays) which is better served using indwelling catheters.

### **Qualifications, experience or training necessary to perform this procedure**

#### **All operators**

(23) Competence in handling, restraint and understanding of, and appropriate response to, equine behaviour is essential.

#### **Demonstrator**

(24) Should be familiar with the correct techniques and the anatomy of horses before attempting this procedure.

#### **Students**

(25) Procedures should be clearly demonstrated before students attempt them. Students should be aware of the requirements for sterile technique.

### **Record requirements**

(26) None required.

### **Associated documentation (including pictures if available)**

(27) None required.

### **Glossary**

(28) None required.

### **References and relevant links**

(29) \*Vacutainer® is a registered trademark of Becton, Dickinson and Company.