 <p>THE UNIVERSITY OF QUEENSLAND AUSTRALIA CREATE CHANGE</p>	<p>UQ Animal Ethics Committee - Standard Operating Procedure  <b>EQU_005 Injections - Subcutaneous (SC) in Horses</b>  Institutional author: <b>Research Ethics and Integrity</b>  AEC Reviewed &amp; Approved: 20/04/2022</p>	<p>Version #3</p>
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## EQU\_005 Injections - Subcutaneous (SC) in Horses

### I. OBJECTIVE

To describe standards for administration of injectable solutions to horses via the subcutaneous (SC) route.

### II. COMMENTS / RECOMMENDATIONS

- Relative to animal ethics applications, when using this SOP, the following must be described in the individual ethics application: relevant details of the substances to be administered including justification for administration, dose, volume, frequency, and expected impacts; expected duration and frequency of animal use, and any variation to this SOP.
- Consideration must be made to ensure this route is necessary and most appropriate (e.g. less invasive routes, such as oral administration via routine feeding, is not more appropriate)
- Consideration must be made to ensure the injection solution is as innocuous as possible (e.g. the solution must be sterile, the pH should be relatively neutral and tonicity relatively isotonic)
- SC injection in horses should be considered a quick and minimally invasive procedure. Restraint techniques (e.g. a twitch) may be required. If a horse cannot be appropriately restrained (non-chemically) for this procedure the horse should not be used for scientific purposes without specific justification
- Preferably this procedure is performed with two operators present
- When using animals for scientific purposes all personnel must be competent in the procedures they perform or be under the direct supervision of a person who is competent to perform the procedure

### III. EQUIPMENT

- Relevant Personal Protective Equipment (PPE) - PPE is site specific and may include overalls, boots (preferably steel cap), disposable gloves, hat, sunscreen.
- Appropriate animal restraint equipment – The nature of the restraint used is site, procedure, and animal specific. As a minimum this should include a halter and lead rope, but may include additional equipment such as horse stocks, rearing bits, sideline, hobbles etc.
- 18 – 22G needle
- 1 – 5mL syringe, containing the solution to be injected
- Cotton gauze
- Sharp's container

Optional:


- Skin preparation material (fur clippers, gauge swabs, skin disinfectant)

### IV. PREPARATION

1. Ensure AEC approvals cover all procedures, personnel, and animal details for the planned work
2. If working with students, teachers must ensure that students have had the opportunity to discuss the ethical and social issues, and legal responsibilities, involved in the care and use of animals for scientific purposes, at a level appropriate to their learning ability and comprehension. This must occur before the use of animals commences.
3. Ensure good hygiene practices. This includes washing hands before and between horses of different epidemiological origins.

Conditions:

- Investigators named in an animal ethics application, relative to this SOP, must be competent to implement the SOP
- Any variation to this SOP must be described in the relevant animal ethics application
- If this SOP has not been reviewed and approved by a UQ AEC within the last three years it is no longer valid and cannot be used in animal ethics applications until reapproved (see "AEC Reviewed/Approved" date in this document's header).

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## V. PROCEDURE

1. The person performing the injection (the operator) ensures all required equipment is prepared and appropriate for use (e.g. substance to be injected is not expired, needle gauges are appropriate sizes etc).
2. Restrain the horse as appropriate for the procedure. If two people are present, the horse handler, holding the lead rope, should always stand on the same side of the horse as the operator.  
*Note: fractious horses, or horses sensitive to injections, may require additional forms of humane restraint such as a nose twitch, manual skin or ear twitch, a rearing bit, or sideline.*
3. Prepare the skin at the site of injection, if required.  
*Generally specific skin preparation is not required unless the fur is visibly dirty (e.g. muddy). Skin preparation may include clipping of the fur, followed by cleaning of the skin with a disinfectant.*
4. Pinch a section of loose skin and create a tent (usually this is on the side of the neck).  
*Pinching the skin helps to distract the horse from the sensation of the needle as well as creating a larger target for the needle to inject into.*
5. Gently guide the needle into the fold of the skin “tent”. Attach the needle to the syringe, if not already attached.
6. Release the skin and aspirate with the syringe to ensure correct position within the subcutaneous space. If within a vein, blood will flash into the syringe – remove the needle and repeat steps 3-6 as appropriate.
7. Inject the substance at a slow and steady rate, creating a bleb under the skin.
8. Remove needle and syringe from skin and place the needle into the sharp’s container at the earliest appropriate time.
9. If discharge is observed at the injection site apply gentle pressure with the gauze.
10. Observe animals for any signs of adverse reactions to the injection (e.g. acute swelling at the site or injection or otherwise, hives, increased respiratory rate, depression, or agitation). If unexpected adverse reactions occur immediately seek veterinary advice, and follow the appropriate institutional procedures (see the [animal ethics webpage](#) for guidance).

## VI. BIBLIOGRAPHY

1. Costa, LRR. & Paradis, MR. (2018). *Manual of clinical procedures in the horse*. John Wiley and Sons, Inc. Wiley Online Library, <https://onlinelibrary-wiley-com.ezproxy.library.uq.edu.au/doi/pdf/10.1002/9781118939956>
2. Hepburn, R. (2012) Equine textbook for general practitioners Veterinary Record 170, 545.

Version #	Reviewing AEC (note: all other relevant AECs ratify the approval)	AEC Review Date	Approval To Date
3	PCA	20/04/2022	20/04/2025

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