Scone Equine Hospital
Dedicated expert care

STUD PROTOCOLS

SCONE EQUINE GROUP
Veterinary Excellence

CONTACTS

Scone Equine Hospital

106 Liverpool Street
Scone, NSW 2337

ICU, Clovelly

T +61 2 6545 1433
E icu@sconeequine.com.au

Laboratory

T +61 2 6545 1039
E lab@sconeequine.com.au

Administration

T +61 2 6545 1333
E info@sconeequine.com.au

Accounts

E accounts@sconeequine.com.au

Pharmacy

E pharmacy@sconeequine.com.au

Surgery

E surgery@sconeequine.com.au

Radiology

E radiology@sconeequine.com.au

1 ACCOUNTS

1.1 Equine Ownership

Please provide the following to the Accounts Department

- Ownership details for current horses on farm at the start of the season, and any new arrivals throughout the year.
- When horses' details change, whether it be ownership changes or location, please provide these details to the accounts department as soon as possible.

If you have any further enquiries, please contact the Accounts Department

T +61 2 6545 1333
E accounts@sconeequine.com.au

1.2 MARE CONTRACT

Scone Equine Hospital | *Dedicated Expert Care*

MARE REPRODUCTIVE CONTRACT ("CONTRACT") 2021

BETWEEN **SCONE EQUINE HOSPITAL PTY LTD** ("SEH") of 106 Liverpool Street, SCONE NSW 2337

AND ..... **of** ..... ("the Mare Owner")

The Mare Owner: Every owner, lessee, syndicate, corporation, trust, other person or manager of any of them and where there is more than one person these terms and conditions will bind all such owners jointly and each of them severally.

In the event that this agreement is executed by an agent or Manager on behalf of the Mare Owner, or a representative or principle on behalf of the Owner if the Owner is an organisation, the undersigned agent, representative or principle hereby unconditionally guarantees the full and prompt payment of the Fees as well as the full and prompt performance by the Owner of any and all other obligations hereunder. The undersigned agent warrants its authority and full disclosure to the Mare Owner (and each of them) of the terms of this contract. The foregoing guarantee and warranty shall remain in effect regardless of whether the agent, representative, or principal retains his or her status as such following the execution of this agreement.

MARE AND OWNER - ADDITIONAL DETAILS: Stud upon which Mare agisted/resident: .....

Mare Name: ..... ("The Mare") Billing Details: .....

WHEREAS SEH has agreed to supply veterinary services to the Mare owned by the Mare Owner **upon the following ter[illegible]**

1. TERM and CHARGES

1.1 The contract will be valid from the 1st August 2021 until 31st December 2021 or until the mare is 45 days pregna[illegible] in the 2021 stud season.

1.2 Mares starting reproductive veterinary work in August and September must have had a properly exa[illegible]nt[illegible] and [illegible]ved by SEH and the fee paid by 8th October 2021.

1.3 If clause 1.2 is not complied with SEH reserves the right and the Mare Owner consents to SEH a[illegible]ving a[illegible]min[illegible]ration fee of $50.00 for each month that reproductive work has been provided.

1.4 Once this Contract is executed by the Mare Owner it is binding and the full fee for [illegible]ces as set [illegible]use 1.6 is payable (even if the Mare achieves a positive pregnancy on the first cycle or first cover).

1.5 The Mare Owners agree to pay all other accounts for all other services undertake[illegible] (including any excluded veterinary work) within 30 days after end of month invoicing.

1.6 The fee for the services for the Term of this Mare Reproductive Contra[illegible]all be $1,[illegible]cluding GST.

1.7 The Mare Owner acknowledges that the attached SEG Terms [illegible]nd[illegible]s gov[illegible] this Contract and the provision of other Services.

2. SERVICES TO BE SUPPLIED BY SEH

2.1 In consideration for the payment in clause 1 SEH shal[illegible]rin[illegible]m und[illegible]ke the reproductive veterinary work referred to in the attached Schedule.

2.2 The Mare Owner irrevocably appoints and authoris[illegible]ma[illegible] of the Farm where the Mare is resident or agisted to direct and authorise SEH to undertake without limitation any and all veterinary tre[illegible]nt [illegible]ect [illegible]e Mare and its progeny. If this veterinary treatment falls outside the scope of this Mare Reproductive Contract, but in the opinion o[illegible]n[illegible]ner is necessary, SEH will carry out this veterinary treatment at the owner's expense. The owner acknowledges it will be liable for the[illegible]addition[illegible]ry[illegible]sts.

3. MARE OWNER ACKNOWLEDGE[illegible]

The Mare Owner acknowledges th[illegible]

3.1 Follicle and pregnancy te[illegible]g involv[illegible] examinations of mares
These procedures [illegible]ant in t[illegible]productive management of mares but they carry a small risk of inadvertent serious injury including death to the mare.

3.2 Approximatel[illegible]% o[illegible]cies[illegible]ult in twins and that these are routinely managed by early identification and reduction to a single pregnancy. This procedure[illegible]dally suc[illegible]cies[illegible] occasionally can result in the loss of both embryos.

3.3 SEH is [illegible]y a[illegible]spec[illegible]lly authorised and instructed by the Mare Owner to undertake reduction to a single pregnancy.

3.4 The Mar[illegible]r acc[illegible]pt[illegible]e risks in the procedures and the work the subject of this agreement and will abide by clause 11 of the SEG Terms and Conditions.

4. THE MAR[illegible]

4.1 The Mare O[illegible] hereby warrants, covenants and agrees with SEH: -

5. That the Mare Owner is the registered Stud Book Owner of the Mare with full power and authority to enter into each of the provisions of this agreement.

6. The Mare Owner has disclosed all relevant veterinary and breeding history of the Mare, that such information is true and correct, and that all relevant matters have been disclosed to SEH which are relevant to the reproductive and treatment history of the Mare.

6.1 The Mare Owner shall be solely responsible for all insurance arrangements for the Mare or its progeny.

6.2 The Mare Owner confirms that attendance upon delivery of the Mare by SEH it is free from disease or infection and is in healthy breeding condition and that all vaccinations are up to date.

Dated this **day of** **2021**

Signed by and on behalf of the Mare Owner in the presence of:		Signed by and on behalf of SCONE EQUINE HOSPITAL by its authorised representative:	
Signature of Witness	Name of Witness		Print Name of SEH authorised representative

SCONE EQUINE GROUP Veterinary Excellence
Scone Equine Group | PO Box 280 Scone NSW 2337 | info@sconeequinegroup.com.au
T +61 2 6545 1333 | www.sconeequinegroup.com.au | Scone Equine Group Pty Ltd | ABN 53158931303

CONTRACT SCHEDULE

Inclusions

- Routine reproduction consultations/ palpations
- Routine post foaling flushes
- Routine supplies for examinations (gloves/cotton wool/lubricant)
- Rectal and vaginal examinations
- Reproduction ultrasound examinations
- Caslick operations and repairs
- Intrauterine infusion / irrigation / flush (Neomypen / Penicillin/Gentamycin/Ceftiofur)
- PG/Oxytocin
- Chorulon
- Collection and Laboratory processing of all reproductive swabs
- Emailing of reproductive swab results
- Pregnancy Certificates
- Deslorelin Injection
- Travelling

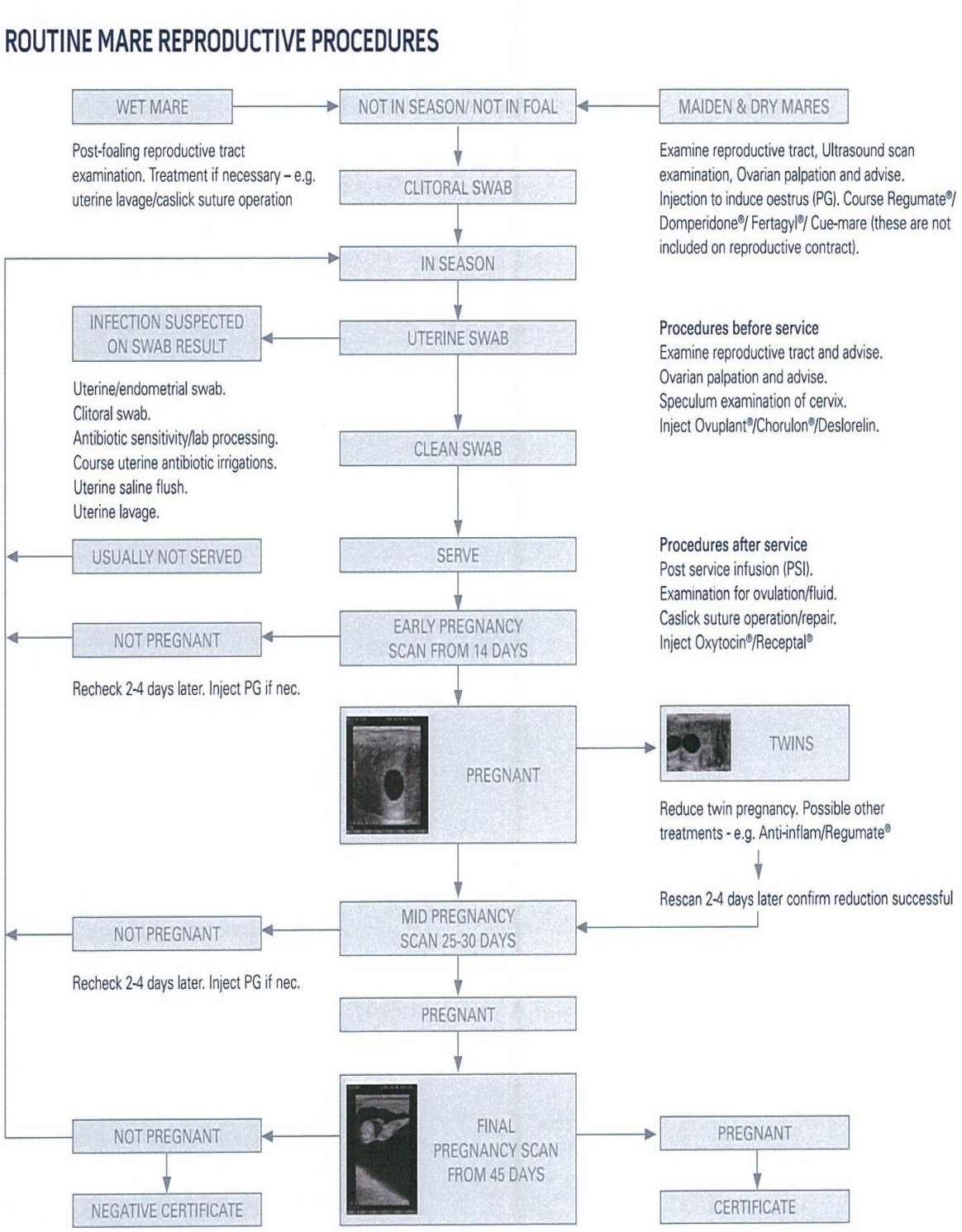
Exclusions

- Laboratory services (excluding repro[illegible] swabs)
- Ovuplant
- Regumate/Altrenogest/Cu[illegible]
- Fertagyl
- Receptal
- Settle
- Prednisolone/Dexa[illegible]asone
- Othe[illegible] apart from Neomycin/Procaine Penicillin/Gentamicin/Ceftiofur
- [illegible]ylyste[illegible]
- [illegible]ation and drenching
- D[illegible] of foals
- Removal of retained placenta
- Illnesses or injuries which require medical or surgical treatment
- Radiology
- Igg tests or kits
- Taking of blood
- Sedation

Please return this agreement to:	Richelle Betteridge at SCONE EQUINE HOSPITAL 106 Liverpool Street, SCONE NSW 2337 PH: 02 6545 1333 E: richelle.betteridge@sconeequine.com.au

SCONE EQUINE GROUP
Veterinary Excellence

1.3 Routine Procedures Diagram



1.4 Reproductive Definitions

GLOSSARY OF TERMS	DEFINITION
OVARIAN PALPATION-NO FOLLICLES OVARIAN PALPATION-FOL. DEVELOPMENT OVARIAN PALPATION-ADVISE SERVE EXAMINE FOR OVULATION ULTRASOUND SCAN-EARLY, MID, RECHECK SCANS	Refers to manual palpation per rectum (a rectal examination) of all internal reproductive organs, giving an assessment of developments of the ovaries and uterus (follicle testing). An ultrasound scan is used routinely during most rectal examinations to allow visualisation of the reproductive organs throughout the reproductive cycle of the mare. This allows assessment of follicle maturation to predict the ideal time to mate the mare with the stallion. It also allows diagnosis and monitoring of the stages of pregnancy, detection of embryonic death, presence of twins, and detection of uterine abnormalities eg. endometrial cysts, tumours. These procedures are important in the reproductive management of the mare but they carry a small risk of inadvertent serious injury including death to the mare.
CASLICK OPERATION: REPAIR CASLICK EXTENSIVE PERINEAL REPAIR	A surgical procedure involving suturing the lips of the vulva to prevent air entering the vagina. A condition which often predisposes to uterine infection and is a major cause of infertility in mares.
ENDOMETRIAL SWAB:	A swab is inserted through the vagina and cervix into the uterus to detect and identify uterine infection so that appropriate treatment can be advised.
CLITORAL SWAB:	Stud screening test of the mare for detection of possible venereal disease and protection of the stallion.
UTERINE IRRIGATION:	Appropriate therapeutic treatments are infused into the uterus if a mare has a positive swab (infection) or her resistance to normal contamination that occurs at natural service is low. Treatments can be given before service, at service or for up to 4 days after service.
HORMONES:	Commonly used reproductive drugs include: Prostaglandin (PG) - which can act to short cycle a mare into season. Biorelease deslorelin, Chorulon (LH), or Ovuplant – are used to stimulate a mare to ovulate close to the time of service. Altrenogest (injectable or oral) - used to supplement Progesterone, the hormone of pregnancy. Oxytocin is used to stimulate endometrial contraction post foaling and to expel fluid in case of infection.

1.5 Client Loyalty

SEH offers a Client Loyalty Program and covers the following services Mare Reproductive Contracts, Survey and Sales Radiography and over-the- counter Pharmacy Sales. Please contact the relevant service department or your primary vet for more information.

We acknowledge that Scone Equine Hospital exists because of the support of its stud clients. This program was put in place to assist our clients in the management of their veterinary costs and their clients' costs. The above discount levels are interlinked and are only available to those studs **who utilise SEH for all of their Equine Veterinary Services,** including Reproduction, Field Work, Surgery, Medicine and Intensive Care, Radiography, Pharmacy and Laboratory.

Please discuss this program with your clients and advise them accordingly. We trust that this initiative will assist you in maintaining your client base and developing your business.

Please feel free to contact myself or the SEH Director who consults with your farm if you have any questions regarding this program.

We look forward to a successful future with you.

Yours Faithfully
SCONE EQUINE HOSPITAL

Cameron Collins
Managing Director

2 SURGERY

2.1 Equine Admission Procedure

Scone Equine Hospital requires a signed EQUINE PROCEDURE/INTENSIVE CARE CONSENT & REFERRAL FORM prior to any admission (Surgical or ICU, Clovelly). This should include entire ownership details as well as horse details including brands, microchip number and any relevant history pertaining to the admission / surgery. Any knowledge of temperament issues must be noted as well as vaccination history. It is imperative that the consent is completed at the time the horse is booked in, as this will ensure there are no delays in surgery and aid staff in completing all necessary paperwork.

Please ensure that care is taken when filling out the consent form, to avoid delays in treatment associated with inadequate information.

This can be vital in the case of an emergency.

Please ensure all relevant information, including the signed consent form, is emailed to the hospital at the time of booking.

- Consent form with all relevant details
- Relevant patient history
- Current medication details
- Contact numbers

Surgical Admissions

The admission/consent form can be downloaded from the Scone Equine Hospital website, to be filled out signed.

www.sconeequinehospital.com.au

All surgical consent forms need to be emailed to the below:

E surgery@sconeequine.com.au

2.2 Sending Patients to Surgery

Transport

Transport of patients to ICU Clovelly or home after surgery will be undertaken by the transport that brought the patient to the hospital. We will always contact you to arrange alternate transport options before sending the horse home. SEH will use a transport of their choice that can move the horse in a safe and timely fashion.

Admission

If transporting your horse to the clinic, upon arrival, please see the horse handler or one of the surgical nurses to ensure all relevant details have been obtained, consent has been signed and the horse is placed in the correct yard. If they are unavailable, please report to reception in the front office.

Discharge

Please note that a member of staff has to remain on the premises until all patients have been discharged from Scone Equine Hospital. This includes all after hours procedures as it is Scone Equine Hospital's policy that all patients are discharged by a member of staff.

If picking up your horse from the clinic, upon arrival, please see the horse handler or one of the surgical nurses. If they are unavailable, please report to reception in the front office.

You will be required to sign out your horse prior to collecting it from the yard. A member of staff will then assist you to load your horse. Please do not load your horse without first seeing a member of staff. This policy ensures all due care is taken with clinic patients.

Clean Patient

All patients requiring elective surgery must be clean and free from dirt and mud. This helps decrease the risk of contamination of the surgical site. If a horse is presented dirty it will require washing and surgery will be delayed causing inconvenience to you and the Scone Equine Hospital. There may also be an additional charge to clean the horse.

Elective Surgeries

If the horse has a cold or nasal discharge, please refrain from sending them to surgery, unless you have had consultation with your regular veterinarian advising the horse is suitable. In most situations horses with respiratory disease will need to be treated prior to surgery to prevent postoperative complications.

Gear

It is preferable that the patient does not come in with their own gear, (weanlings excepted) eg. halters, leads, rugs etc., as these have the potential to be lost. Due to the volume of the patients we see, we prefer to use SEH gear.

However, if a horse is suspected of having an infectious disease it will be necessary to provide the horse with its own gear, as it will be in isolation.

Where it is necessary for a horse to have its own gear everything will be labelled with stickers and every effort will be made to ensure it remains with the patient.

For the safety of staff, handlers and horses, we ask that all horses over the age of three months are sent to Scone Equine Hospital wearing a head collar and catching rope.

History

Prior to patients having surgery we require a complete history, including date of Tetanus vaccination, presenting problem and any referral information including x-rays, current diet and current medication. Please remember to include any medications administered immediately prior to surgery.

This information helps to ensure the best possible care for your horse.

Infectious Diseases

These diseases that concern us are:

- Ringworm
- Strangles
- Diarrhoea
- Cryptosporidium
- Salmonella

It is our policy to perform surgery on these cases at the end of the day unless it is an emergency procedure. If you are aware that the patient has an infectious disease you must inform Surgical Admissions at the time it is booked in for surgery. All of these cases will require their own halters and lead ropes to be sent in with them.

Upon arrival at the hospital please see the horse handler or one of the surgical nurses as these animals will need to be placed into a designated isolation yard. DO NOT put them into a yard without first seeing someone. A cleaning fee will be charged for all of these cases regardless of whether they are an emergency or elective procedure.

If you do not inform SEH that your animal has an infectious disease a higher fee may be charged to cover cleaning due to all the necessary steps that need to be followed to ensure eradication.

Overnight Accommodation

Due to Council regulations patients are not encouraged to stay at the clinic overnight. However, if the need arises, provision can be made for animals travelling long distances. All overnight patients are required to spend the night at ICU, Clovelly. They will then be transported to the clinic the following morning at owners/studs expense.

Sale Horse

If you do not want your horse clipped at the surgery or catheter sites please note this at the time of booking and ensure to highlight on the consent form.

Shoe Removal

We recommend that horses undergoing general anaesthesia are not shod. This reduces the risk of injury during recovery.

As such, please ensure all horses admitted for surgery have their shoes removed, unless therapeutic shoes are necessary. Any horse requiring shoe removal may be charged a fee.

Body Temperature

Please ensure that a rectal temperature is recorded for each animal prior to leaving the stud or owners premises. This allows us to ascertain if an elevated temperature upon arrival is due to stress from travel or a more serious issue. If the temperature is higher than 39 Degrees Celsius please contact the clinic prior to departure.

Please keep in mind that some routine procedures will not be performed if the horse has an elevated temperature.

2.3 Recommendations for Feeding Prior to Surgery

Patients undergoing any elective surgery are to be fasted for a period of 12 hours prior to surgery. They are allowed water.

Any horse currently in hard work must be taken off grain for at least two weeks prior to any scheduled surgical procedure.

It is not necessary to fast foals before surgery. They need their nutrition and therefore do not need to be isolated from the mare to prevent them from feeding. This will only cause stress.

Feeding Mares Prior to Ovary Removal

It is important there is a period of feed restriction prior to surgery to allow the procedure to be performed and to reduce the risk of complications. A slow withdrawal of feed reduces the risks of post-surgery complication. Following are the protocols we ask you perform. Unfortunately, surgery will be delayed if these protocols are not adopted.

Feeding schedule starting 2 days prior to surgery

E.g. if surgery is to be performed on Thursday then protocol as follows:

Tuesday evening: bring into stable, give normal feed, NO hay.
Wednesday morning: normal feed, NO hay. Move to Clovelly - ICU.

If there is any confusion or reason the above instructions cannot be followed implicitly please contact your attending surgeon.

2.4 Feeding Mares Prior to Recto Vaginal Fistula Surgery

For RVF and 3rd Degree Laceration Repair, it is critical to ensure debulking of digesta and maintenance of soft faeces. Failure to do this can lead to straining to pass formed faeces and risks breakdown of any surgical repair. The time taken to soften the faeces is variable but in most cases takes up to a week.

Faecal production should be soft "cow pat" consistency.

Turn out to irrigated lush grass paddock to maintain soft faeces.
Or, alternatively, the following regume can be used to ensure soft faeces.

Box yard confinement on sand or dirt to prevent ingestion of bedding (muzzle if necessary). Feed laxative diet only to ensure soft faecal production for at least 10-14 days.

Our recommended diet below should be fed x 4 daily.

Three yellow mitavite dippers of chaff
One yellow mitavite dipper of sweet feed
600mls of liquid paraffin (can be adjusted to 700mls if necessary)
250mls of molasses

NO access to grass or straw.

Laxative drenching by veterinarian may also be require.

2.5 Feeding Mares Prior to Laparoscopy

General Information

Laparoscopy will be performed standing at ICU Clovelly unless other arrangements have been made. It is vitally important the volume of gut contents, by appropriate feed restriction, is reduced prior to surgery to allow visualisation and to reduce the risk of surgical complications.

If your mare is scheduled for laparoscopy to clear blocked oviducts, please schedule surgery four days after ovulation.

Please ensure your horse is clean and well groomed before sending to ICU, Clovelly. Arrange for the horse to arrive at ICU, two days prior to procedure. In most situations your horse will be returned home one – two days following surgery.

For horse remaining on stud, please follow the guideline below when preparing and scheduling your horse for laparoscopy.

Feeding Procedure

Two days prior to surgery:

- Send to ICU, Clovelly
- AM – Bring horse into stable
- PM – half normal feed, no hay

One day prior to surgery:

- AM – Half normal feed no hay
- PM – NO FEED NO HAY

Day of surgery:

- NO FEED NO HAY

Following surgery:

- RVF feed – 6.00pm and 12.00pm

Day after surgery:

- AM – Normal feed No Hay
- PM – Normal Feed Normal Hay

2.6 PG (Blocked Oviduct) Laparoscopy Feeding Protocol

NB:These mares do not need the same level of dietary restriction as laparoscopic ovary removal or uteropexy. The surgery should be done 4 days after a confirmed Ovulation (ie. Positive Ovulation on Saturday then Wednesday Surgery)

The mares should be brought into a stable two nights prior to the day of surgery and be given a normal feed but no hay. (ie If Wednesday surgery then into a stable on Monday night)

A small feed but no hay can be given on the next morning (ie Tuesday morning for Wednesday surgery)

The mare should then be moved to the SEH and starved until surgery.

2.7 Rig Laparoscopy Protocol

General Information

Laparoscopy will be performed standing at Clovelly unless other arrangements have been made.
It is vitally important the volume of gut contents, by appropriate feed restriction, is reduced prior to surgery to allow visualisation and the reduce the risk of surgical complications.

Please ensure your horse is clean and well groomed before sending to Clovelly. In most situations, your horse will be returned home 1-2 days after surgery.

Please follow the guidelines below when preparing and scheduling your horse for laparoscopy.

Feeding Procedure:

2 days prior to surgery: unless other arrangements have been made.

- Put in box/stable
- Normal feed PM but NO HAY

1 day prior to surgery:

- No Feed
- Transported to Clovelly

2.8 Equine Procedure/Intensive Care Consent & Referral Form

Scone Equine Hospital | *Dedicated expert care*

CONSENT FOR VETERINARY TREATMENT

Please fill in required fields as marked * After filling in form email to: info@sconeequine.com.au

ADMISSION DETAILS

DATE:

OWNER

* NAME:

* ADDRESS:

* PHONE (W):

* MOBILE:

* EMAIL:

* INSURANCE:

* STUD/STABLE:

* PREFERRED COMMUNICATION METHOD:

* TETANUS VACC: ☐ YES ☐ NO DATE:

* HENDRA VACC: ☐ YES ☐ NO DATE:

HORSE

* NAME:

SIRE:

DAM:

* DOB / YEAR: * SEX:

COLOUR : * BRANDS:

* MICROCHIP

EXAM REQUESTED BY:

* PROCEDURE REQUESTED:

ESTIMATED PROCEDURE COST: $

ESTIMATED POST-OP / ICU COST: $

HISTORY / PREVIOUS DIAGNOSTICS / REASON FOR REFERRAL

MEDICATION: DAY OF ADMISSION

DRUG	DOSE	DOSE FREQUENCY

CONSENT DETAILS

I/We give consent for the above-described horse to have the above procedure undertaken by Scone Equine Hospital.

I/We authorise Scone Equine Hospital to administer veterinary treatment, nursing care and all diagnostic tests associated in the care of the horse, as deemed necessary by the attending veterinarian.

I/We acknowledge that no surgical, medical or anaesthetic treatment is without risk to the horse. I/We acknowledge Scone Equine Hospital has provided information regarding these risks on its website **www.sconeequinehospital.com.au/risk** and that I/We understand the risks and have discussed any concerns with the veterinarian treating the horse.

I/We acknowledge and accept the SEG Terms & Conditions which are provided on its website **www.sconeequinehospital.com.au/terms-and-conditions**

I/We accept the estimated cost given for treatment and agree to pay all charges incurred on discharge of the horse.

I/We acknowledge complications may develop because of the procedure/s or the condition of the horse which may incur additional fees. As owner I agree to pay all charges incurred on discharge of the horse. Or, in case of dispute, I as agent agree to pay these costs.

I/We understand that de-identified veterinary data, obtained while the horse is under veterinary care may be used for future scientific publications.

I/We understand that treatment of the horse may involve the use of drugs that are not specifically registered for horses. I/We accept that the veterinarian has the legal authority to prescribe drugs for off-label use **(https://www.dpi.nsw.gov.au/agriculture/chemicals/animal-chemicals/stock-medicine)** and consent to their use for the horse, as deemed appropriate by the veterinarian treating the horse.

* Signed: (OWNER / AUTHORISED AGENT) * DATE

VERBAL CONSENT / AUTHORISATION ON BEHALF OF

SIGNED (OWNER / AUTHORISED AGENT)

*** NOTE: NO SURGICAL PROCEDURES WILL TAKE PLACE WITHOUT A CONSENT SIGNATURE**

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T +61 2 6545 1433
icu@sconeequine.com.au
ABN 69 138 546 596

SEH Denman
26 Ogilvie Street Denman NSW 2328
PO Box 41 Denman NSW 2328
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denman@sconeequine.com.au

SCONE EQUINE GROUP
Veterinary Excellence

2.9 Euthanasia Consent Form

Scone Equine Hospital | *Dedicated expert care*

CONSENT TO PERFORM EUTHANASIA

Please fill in required fields as marked *
After filling in form email to:
melissa.atfield@sconeequine.com.au

I _____ of _____

Being the owner/agent of the below named animal and a person over the age of eighteen years, hereby authorise Scone Equine Hospital and registered Veterinarian _____ to perform euthanasia the animal described below.

HORSE

* HORSE NAME OR DAM'S NAME AND HORSE'S YEAR OF BIRTH: _____

* BRANDS: _____

* BREED: _____

* COLOUR: _____

* AGE / DOB: _____

* MICROCHIP: _____

In consideration of the said Veterinary Surgeon providing the requisite treatment and arranging disposal of the body, I hereby agree to pay the prescribed fees, and further agree to indemnify him, his servants or agents, from loss or liability which they may incur as a result of any inaccuracy whether intended or otherwise in this my declaration.

*** NOTE: NO EUTHANASIA PROCEDURES WILL TAKE PLACE WITHOUT A CONSENT SIGNATURE**

* SIGNED _____ * DATE _____

* WITNESS _____

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denman@sconeequine.com.au

SCONE EQUINE GROUP
Veterinary Excellence

3 RADIOLOGY

3.1 General Information

Scone Equine Hospital has mobile x-ray vans equipped with digital x-ray machines. High quality digital images are available for viewing within seconds of the x-ray being taken on these systems. We prefer using these systems rather than separate digital plates.

On return to the clinic the images are downloaded into our veterinary viewing software to enable more detailed examination. They can then be read by an equine surgeon who can provide a report on their findings.

3.2 Radiology Bookings

Survey x-rays (32 images)

Weanlings are usually x-rayed in July or August of each year. It is recommended that weanlings are x-rayed to allow sufficient time for any necessary treatment or surgery to be completed and to ensure the horse has recovered fully before being sent to sale. Some farms may also like to complete their survey x-rays before the stud season becomes too busy.

Sales x-rays (36 images)

Sales x-raying can commence 42 days prior to the first day of the sale. They must be completed at least 10 days prior to the sale to ensure they reach the sales repository by the required date. This also allows time for the reports to be written and the stud to discuss the findings with the reporting surgeon.

Please contact the Radiology Department as soon as possible if you have horses that need x-raying for sales or survey to ensure that the day/time that best suits you is available.

T +61 2 6545 1333

E radiology@sconeequine.com.au

NOTE: We require ownership details of all horses before x-raying.

Day of x-raying

Please ensure that all horses being x-rayed are together within the same area. To ensure the best possible images the preferred area for x-raying should be undercover, with a good power source, have a flat sealed dry surface and good ventilation.

All areas of the horse that need x-raying should be clean, free from mud and dry, as dirt and water shows up on the x-rays and ruins the image. All horses should have their hooves picked out and hoof walls brushed free of dirt.

3.3 Radiology Safety

- Stud staff members assisting the radiology team will need to wear the protective equipment provided, as instructed by team members.
- No other stud staff is to be in the immediate area while x-raying is in progress (minimum of four metres).
- Stud staff members assisting Radiology team must be a MINIMUM OF 18 YEARS.
- Stud staff members who are pregnant cannot assist the radiology team.
- If you have any safety questions or concerns please bring it to our radiology team's attention or contact the Radiology Department.

3.4 Radiology

If you have an enquiry or would like to make a booking or would like to know any pricing of our radiology services, please contact the Radiology Department

T +61 2 6545 1333

E radiology@sconequine.com.au

3.5 Radiology Consent to Distribute Images

Before sending any radiographs to parties outside of SEH it is a legal requirement to gain consent from the owner of the animal at the time the radiographs were taken and the SEH veterinarian who took the radiographs.

There is a form titled **"Consent to Distribute Radiographs"** available from the Radiology Department or the SEH website for this purpose. The form is included below. An email from the owner stating the animal's full details and giving consent is also acceptable.

There may be a charge for this service depending on the time since the radiographs were taken, who is requesting them and how many radiographs need to be sent.

Contact the Radiology Department for clarification:

T +61 2 6545 1333

E radiology@sconeequine.com.au

Scone Equine Hospital | *Dedicated expert care*

IMAGE DISTRIBUTION FORM

After filling in form email to:
imaging@sconeequine.com.au

I_____of_____

Being the owner/agent of the below named animal, hereby authorise Scone Equine Hospital to copy/electronically distribute images taken on (Date): ____/____/____of the described animal below:

Name/Breeding:_____

Breed:_____

Brands NS:_____OS:_____

Colour:_____Age/DOB:_____Sex:_____

These images are to be sent to:

Name:_____

Address:_____

_____

_____

Email:_____

I understand that there may be a fee charged for this service and hereby agree to pay the prescribed fee.

Print name:_____

Signed:_____Date: ____/____/____

Scone Equine Hospital
106 Liverpool Street Scone NSW 2337
PO Box 280 Scone NSW 2337
T +61 2 6545 1333
info@sconeequine.com.au
www.sconeequinehospital.com.au

SEH Intensive Care Unit | Clovelly
St Aubins Street Scone NSW 2337
PO Box 280 Scone NSW 2337
T +61 2 6545 1433
icu@sconeequine.com.au
ABN 69 138 546 505

SEH Denman
26 Ogilvie Street Denman NSW 2328
PO Box 41 Denman NSW 2328
T +61 2 6547 2222
denman@sconeequine.com.au

SCONE EQUINE GROUP
Veterinary Excellence

4 PHARMACY

4.1 General Information

Drug Order and Pickup Advice

Please email pharmacy@sconeequine.com.au to order from pharmacy. Please include a time you would like your order ready for pickup from pharmacy. Email or phone orders can usually be collected within an hour if this is clearly requested on the order. If your order requires urgent attention it is advised to please phone ahead to ensure it will be ready.

Any items not immediately in stock and on backorder are generally available the next working day. Pharmacy will notify the stud with an estimated time of delivery as soon as is practical after receiving the order to ensure there are minimal delays.

Please note that ordering of compounded medicine orders can take 3 days to arrive to Scone Equine Hospital pharmacy. The order must be placed by your Veterinarian with appropriately supplied and completed prescription details.

It is compulsory that the person picking up any orders must supply a name and signature at the time of pick up. This is to verify that the order has been delivered and is not used for any billing purposes.

Returns

For insurance reasons, all prescription animal remedies, (S4 drugs, eg. antibiotics, sedatives etc.) are sold on a 'no return for credit' basis.

Returns may be considered for some items however special order items and products that require refrigeration will not be accepted.

Please note that goods can only be returned within seven days of purchase and with the Pharmacy Supervisor's approval. Goods must be unopened and in the original packaging with a copy of the relevant invoice / delivery docket.

Please call the Pharmacy if you require further information.

Sharps Return

Sharps returned to the Pharmacy for disposal will only be accepted in approved and sealed sharps containers.

PLEASE NOTE: Our orders are placed daily at 1.00pm. To ensure we have the stock available please have your orders to us before 1.00pm.

If you have an enquiry please contact the Pharmacy Department

T +61 2 6545 1333

E pharmacy@sconeequine.com.au

4.2 Equine Vaccine Recommendations

FOAL VACCINATIONS First foal vaccination is advisable from 12 weeks		
From 3 months	Equivac 2 in 1 (Tetanus/Strangles) Duvaxyn EHV (Herpes) – if high risk	BROWN SYRINGE plus
2 weeks later	Equivac Strangles	PINK SYRINGE
From 4 months	Equivac 2 in 1 (Tetanus/Strangles) Salmonella Duvaxyn EHV (Herpes) Equivac HEV (Hendra virus)	BROWN SYRINGE plus
5 months	Duvaxyn EHV (Herpes) Equivac HEV (Hendra virus) Salmonella	(4-6 weeks after the 1st) (3-6 weeks after the 1st) (4 weeks later)

***Tetanus** vaccination provides excellent immunity to disease.

***Strangles, Salmonella and Herpes** vaccination will help prevent disease, and reduce the duration and severity of the disease. They do not provide total protection, and vaccinated horses may still develop the disease.

*Hendra virus vaccine provides excellent immunity to disease.

4.3 Mare Vaccination

Fully Vaccinated Mare

- Tetanus/Strangles: Previously vaccinated pregnant mares require a single Equivac 2 in 1 booster at least 4 weeks prior to foaling.
- Salmonella: Previously vaccinated pregnant mares require a single Salmonella booster at least 4 weeks prior to foaling.
- Equine Herpes Virus: Pregnant mares should be vaccinated with Duvaxyn EHV at 5th, 7th, and 9th month of pregnancy.
- Equine Rotavirus: Pregnant mares should be vaccinated with Duvaxyn R at least 4 weeks before foaling due date.
- Equine Hendra virus: Pregnant mares should be vaccinated with Equivac HeV at least 4 weeks prior to foaling.

Uncertain Vaccination History Mare

- Tetanus/Strangles: Previously unvaccinated pregnant mares require Equivac 2 in1 BROWN SYRINGE, repeated after 4-6 weeks, the 2nd vaccination at least 4 weeks prior to foaling.
- Salmonella: Previously unvaccinated pregnant mares require a Salmonella vaccination, repeated after 4-6 weeks, the 2nd vaccination at least 4 weeks prior to foaling.
- Equine Herpes Virus: Pregnant mares should be vaccinated with Duvaxyn EHV at the 5th, 7th, and 9th month of pregnancy.
- Equine Rotavirus: Pregnant mares should be vaccinated with Duvaxyn R at the 8th, 9th and 10th month of pregnancy, if Rotavirus disease is considered high risk.
- Equine Hendra virus: Previously unvaccinated mares require 2 initial vaccinations 3 to 6 weeks apart and then a booster at 6 months.

Booster Vaccinations

- Tetanus/Strangles: (Equivac 2 in 1 BROWN SYRINGE): annual boosters
- Salmonella and Herpes (Duvaxyn EHV): every 6 months to provide maximum immunity. This is particularly important in foals and weanlings.
- Hendra virus (Equivac HeV): at 6 months then annually.

In Case of Injury

Fully Vaccinated Horse

If you know that the horse has had full vaccination for Tetanus just give a booster Equivac T (YELLOW SYRINGE).

Uncertain Vaccination History

If unsure of the horse's vaccination history give Equivac T (YELLOW SYRINGE) and also Equivac TAT (GREEN SYRINGE). Give a second Equivac T (YELLOW SYRINGE) 4-6 weeks after injury.

PLEASE NOTE:

Stallions should be vaccinated well before stud season. **Performance Horses** should be vaccinated during a spell, not during training. **ALL VACCINATIONS** should be given by deep injection into the muscle **EXCEPT EQUIVAC TAT ANTITOXIN** (GREEN SYRINGE), which is given under the skin.

4.4 Equine Herpes Virus Vaccination

DUVAXYN EHV1, 4 Vaccination in Horses Against Equine Herpes Virus

Equine Rhinopneumonitis (the 'common cold') seen as nasal discharge, coughing, sneezing swollen head and neck glands, fever and in appetence remains prevalent throughout horse populations in Australia.

Outbreaks continue to occur every year in the majority of foals / weanlings, to a lesser extent in yearlings, and in racehorses. A mostly non-fatal disease, the debilitating effects can lead to serious respiratory problems, for delays in yearling preparation, reduced performance and costly time-off in racing stables. A recent survey confirmed respiratory disease was the major cause of racehorses being withdrawn from work.

The causative virus spreads rapidly by direct or aerosol contact in groups of susceptible horses, by infected carriers, and can be reactivated when under stress. The more commonly seen respiratory disease in younger horses is seen sporadically as abortions in mares with catastrophic foal losses.

This vaccine gives a significant advance in controlling Equine Respiratory Infections caused by Equine Herpes Viruses – EHV1, 4 and in reducing the severity and spread of this highly infectious viral disease. Being an inactivated adjuvant vaccine, it is safe when given to all healthy and non-stressed horses over the age of 3 months. As with vaccines 2 doses 4 - 6 weeks apart are essential for primary stimulation of immunity, followed by booster vaccinations every 6 months.

A transient rise in temperature and/or swelling at sites of injection may occur in some horses so it is advised not to vaccinate racehorse during a racing programme.

SUGGESTED VACCINATION SCHEDULE	
Foals	1st Dose 5 months old 2nd Dose at 6 months old (4-6 weeks interval) (if considerable high risk of exposure, give dose early at 3 months of age).
Yearlings and Racehorses	1st Dose at any time 2nd Dose 4 - 6 weeks later
All Stock	Booster vaccination every 6 months
For Control of Abortions Initial vaccination for unvaccinated mares	Two doses at 4 - 6 week intervals
Routine vaccination for pregnant mares	5th, 7th, 9th, month of pregnancy (e.g. February, April, June)

4.5 Deworming Protocol

The Worms

There are many species of worms that can affect our horses. These species include:

- Ascarids (large roundworms)
- Stomach worms - Pinworms
- Tapeworms - Small strongyles (red worms)
- Large strongyles (blood worms)
- Neck threadworms
- Bots (a fly larvae living in the stomach)

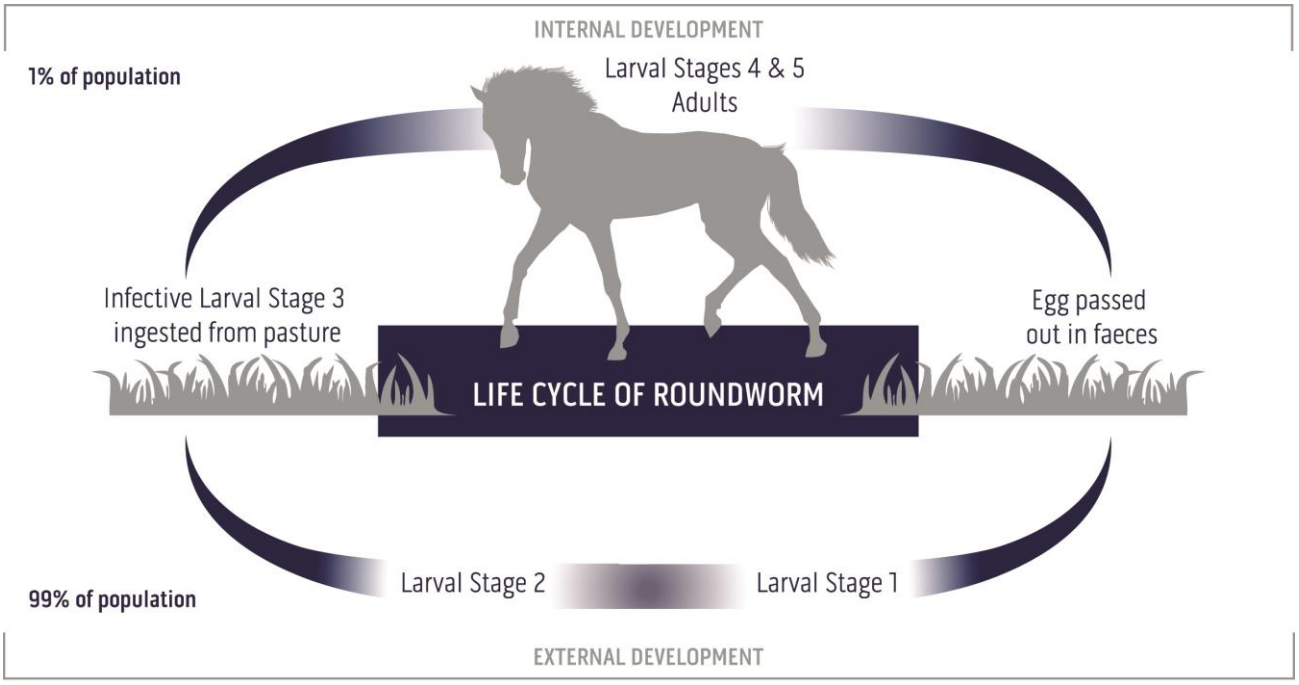
Small strongyles cause problems because part of their life cycle involves a dormant period 'going to sleep' in the gut lining. Regular treatment will decrease the risk of disease caused by these worms

Tapeworms have been shown in recent times to be responsible for many types of colic. A regular deworming program using products effective against tapeworms is essential to decrease this risk.

Large strongyles if left untreated can cause serious disease and colic as they migrate through the blood vessels that supply the intestine.

Their Lifecycle

99% of equine parasites live on the pasture and horses are exposed to them everyday. These parasites in the environment may be at different stages of their lifecycle, as may the ones inside your horse.



EVERY DEWORMING PROGRAM MUST INVOLVE ENVIRONMENTAL CONTROL IN ORDER TO BE EFFECTIVE.

Aspects of Control

To ensure adequate worm control and to minimise the diseases caused by worms an integrated control strategy needs to be employed. Removal of manure from pastures, transfer of horses to clean pasture after worming, (dose and move), faecal egg counts and appropriate rotation of deworming preparations should slow the development of resistance and keep horses healthy.

Pasture Control

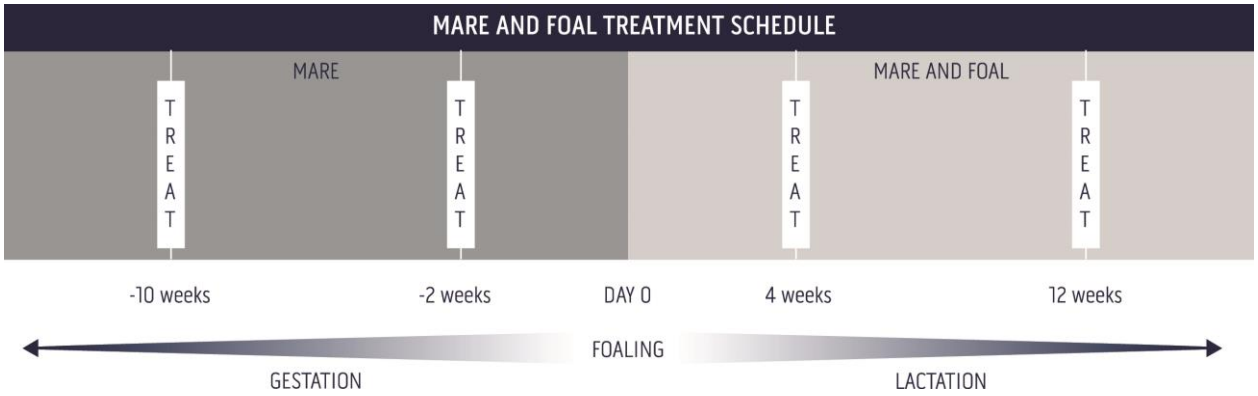
Manure should be removed from pasture at least twice weekly. Spelling of paddocks for several months during summer or alternating with sheep/cattle can reduce larval numbers on the ground. Harrowing is beneficial in the hot dry months as the larvae dry out and die but it can be disadvantageous if done during cool and wetter times of the year, as the larvae do not dry out and are merely spread to all corners of the pasture.

A maximum stocking density of one horse per acre must be adhered to at all times to help maintain pasture contamination levels within tolerable levels. Feeding horses from troughs or up off the ground will decrease the number of larvae they ingest.

By adopting a dose and move strategy where horses are moved to 'clean' or 'safer' pastures after worming you can increase the effectiveness of your deworming strategy. Horses placed on these 'clean' pastures have a lower challenge from infective larvae and therefore have a slower build up of worms.

Foal and Mare Specifics

A pregnant mare and her foal represent a different challenge to your worming program. Because foals lack specific immunity to worms and are faced with a dose challenge from the mother it is recommended to treat the mare two weeks prior to expected foaling date and both mother and foal at four weeks of age. Routine worming of mother and foal should then occur every eight weeks
till weaning.



5 LABORATORY

5.1 General Information

Laboratory Hours

The Laboratory's premises are located at HVERC, Randwick Way, Scone, New South Wales. The opening hours for the laboratory are as following:

	SALES SEASON	STUD SEASON 16th August -3rd December
Monday – Friday	9am – 5pm	8am – 6.00pm
Saturday	9am – 12 noon (Dec/Jan) 10am – 12 noon (Feb-July)	8am – 1.00pm
Sunday	Closed	8am – 11.00am

Samples for processing need to be submitted within the hours listed above with the exception of mare swab results where the lab will be open for phone enquiries from 6.00am during the Stud Season. All samples received outside these hours and phone enquiries requiring staff to return to the lab to search for results will incur an after hour's fee.

For the public holiday in October opening hours will operate as a normal weekday and samples received between 8.00am and 6.00pm will not incur the after hour's fee.

Denman Courier

During the Stud Season, a courier will pick up samples from SEH Denman commencing Monday 16th August. Pickup will be 1.45pm Monday to Friday.

On Saturday a courier will pick up at 10.45am. There is no courier service on Sunday.

Foetal Post Mortems

During business hours please contact the lab, if a foetal post mortem is going to be submitted. After hours or on weekends please call the SEH after-hours phone number. Foetal post mortem samples must be delivered to the autopsy unit located at the HVERC Randwick Way, Scone.

All bodies delivered must be double bagged, sealed and have an identification tag attached (which includes the animals name, the stud and LSD). They are placed into the bins located at the roller door at the rear of the autopsy unit. During business hours please notify the lab staff when a foetus has been dropped off so it can be refrigerated until the post mortem is performed.

Consent forms for post mortems must be filled out and emailed to the Lab. Forms are available from the SEH website.

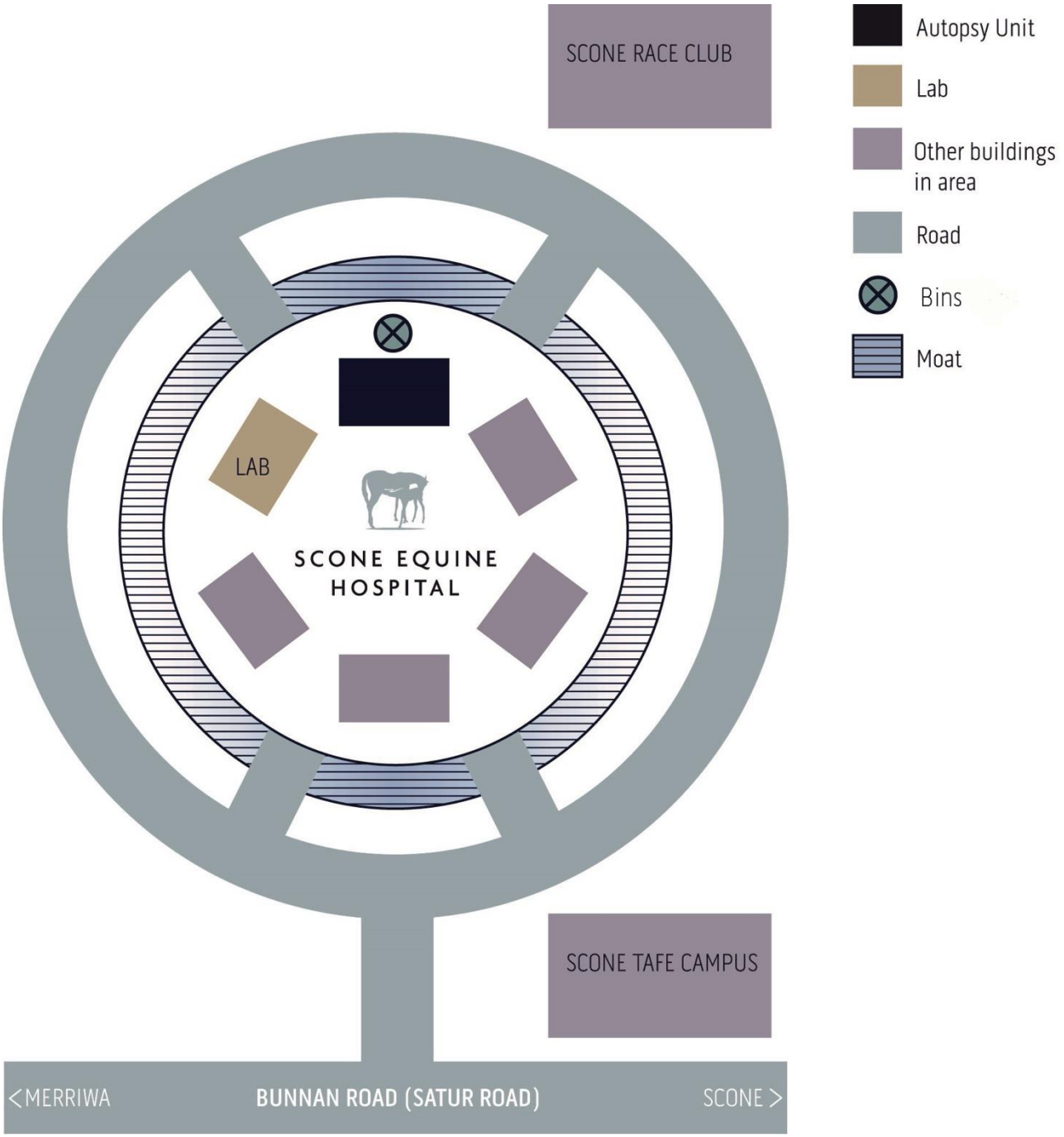
Laboratory

Direct No. +61 2 6545 1039

E lab@sconeequine.com.au

5.2 Map of Scone Equine Hospital Laboratory

Prior to delivery of any bodies to the Autopsy Unit please contact Scone Equine Hospital Reception to ensure a veterinarian is available to perform the examination. All bodies delivered to this unit should be double-bagged, sealed and an identification tag attached (which includes name and stud) and placed in the green solo bins located at the roller door of the Autopsy Unit.



5.3 Tubes used for Blood Samples

TUBES	USED FOR	OTHER INFORMATION
EDTA	Routine Haematology (WBC, RBC, platelets, fibrinogen, W/D/F etc.) Fluids requiring a cell count or cytology (CSF, abdominal, joint etc.) ACTH (Note: please contact lab about collecting samples for ACTH)	Ensure tube adequately filled and thoroughly mixed.
Serum Tube	Biochemistry Progesterone/Oestradiol SAA Other: Troponin, EHV1 serology	As above.
Fluoride oxalate	Glucose	As above.
Trisodium citrate	Coagulation – Prothrombin Time (PT) Activated Partial Thromboplastin Time (APTT)	MUST BE FILLED TO THE CORRECT VOLUME and thoroughly mixed
Lithium Heparin	Suitable for avian and reptilian samples Misc testing (copper, zinc, selenium)	USE FOR URGENT BIOCHEMISTRY.
SST Gel and clot activator	Suitable for routine biochemistry Other tests (T4, prog, digoxin)	Generally, not used at SEH but would be suitable if available.

To be used as a guide only. If you are unsure please contact lab.

6 ICU, CLOVELLY

6.1 General Information

ICU, Clovelly provides a 24 hour/7days a week service. You are welcome to phone and enquire as to the progress of your horse any time, however please note that office hours are from 9.00am to 5.00pm. The Veterinarians should complete their 'rounds' in the morning by 10.30am by which time they will have assessed and examined your horse. After this time, they are able to give you an up to date progress report, however this may be after midday if the caseload is high. If you have had an overnight emergency admission, please call in the morning for an update.

Please be aware that nurses can only provide a general, nursing point of view report over the phone.

For all account enquiries, please contact the Accounts Department at Scone Equine Hospital.

Discharge instructions will be emailed to the stud when the horse departs ICU, Clovelly, should you require drugs for ongoing treatment we will send them with the horse.

ICU Visitation Times

To enable the appropriate clinician to be available when you visit, please phone ahead to book a time.

All visitors are to sign in at the front office, and must abide by WH&S laws for appropriate footwear.

ICU, Clovelly

T +61 2 6545 1433

E icu@sconeequine.com.au

6.2 ICU Nursing Care Bands

Intensive Care / High Risk Patients.

Adult

Continuous i/v fluids, Lignocaine, and/or Parenteral nutrition.
Treatments every 4 hours.
Regular monitoring throughout the day.
Welfare and grooming needs.

B Band

Intensive Care / High Risk Patients.

Foal

Standing in a cage on continuous fluids and possibly oxygen.
Total parenteral nutrition infusion.
Fed every 2 hours via nasogastric tube, bottle or nursing from the mare.
Mare is milked out every 2 hours if the foal is not nursing.
Treatments every 4 hours.
Regular monitoring throughout the day.

C Band

Adult or foal that is receiving treatment 3 or 4 times a day.
Regular monitoring 24 hours a day.
Welfare and grooming needs.

D Band

Foal or adult that is receiving treatments once or twice a day.
Regular monitoring 24 hours/day.
Welfare and grooming needs.

These Fees Cover:

Nurses wages, 24 hour a day availability, office staff and non-chargeable disposable items such as laundry costs, baby powder, wipes, latex gloves, paraffin oil, scalpels, iodine, methylated spirits, needles, syringes, thermometers, ultrasound gel, distilled water, tape, nappies, urinalysis, and nasogastric/intranasal oxygen tubes. Special feeding/dietary requirements for adults.

A regular monitoring, or intensive care checks (ICU), involves a check of vital signs, ie.; temperature, heart rate, respiratory rate, gut motility, lung sounds, mucous membrane colour, urine and faecal output; as well as demeanour, attitude, appetite, water intake, monitoring of catheter/surgery sites and lameness.

ICU Ongoing Monitoring Bands

A – H09

- Intensive Care / Extremely High Risk
- Continual monitoring.
- Administering necessary treatments
- Veterinary after hours visits to patient.

B – H10

- Moderate risk patients.
- Veterinarian monitoring and treating the patient regularly through the day.
- Veterinary after hours visits to patient.

C – H11

- Moderate to low risk patients.
- Veterinarian monitoring patient regularly through the day.
- Post-operative bandage change and wound inspection

All the above assessments may also include:

- Various procedures such as nasogastric intubations, rectal examinations, setting up intravenous infusions, post-foaling uterine examinations, collection of laboratory samples, removal of catheters and drains, treatment of in-patients
- Daily treatment orders and management of case
- Interpretation of laboratory reports
- Owner, stud and insurance company communication: reports, regular telephone calls
- 24 hour availability for Clovelly in-patients.

Hospitalisation

We have three types of hospitalisation for the patient

H24

- Stabled, this may be on straw or shavings.

H240

- Isolation stabling, this carries a higher charge to cover the cost of disposable overalls, gloves, booties and masks, and for the disinfection of the box.

H23

- Sand yard or grass yard.

Hospitalisation charges cover the cost of the bedding, feed, tips fees, disinfectants and cleaning aids and the stable staff wages. After each patient is discharged, boxes are completely emptied, steam cleaned and disinfected.

6.3 Examination of the Newborn Foal

Normal Foal Behaviour

Before anyone can appreciate the abnormal foal, one must be aware of what is normal.
Critically ill neonates are often weak, depressed, recumbent and unable to suckle.

- **Immediately** after birth the heart rate should be around 60 bpm (range 40-80).
- This increases over the first several hours of life to around 120 bpm, and **stabilises** to between 80 and 100 bpm during week 1. The heart rate should increase with any activity and decrease shortly after the activity stops.
- Respiratory rate is usually rapid for the first 60 minutes of life, up to 80 breathes/minute, but should decline to steady rate of 30 - 40 breaths/minute thereafter.
- Progressive increases or decreases in either heart or respiratory rate outside normal variations should be a warning sign of an impending problem.
- A normal foal should be able to **right** itself within **2-3 minutes**. And maintain sternal recumbency.
- **Standing within 60 minutes.** It should be considered abnormal if the foal takes longer than 2 hours from birth to standing.
- **Suckle reflex** should be present **by 30 minutes** after birth
- Should be nursing from the mare **within 2 hours**. If the foal has not nursed by 4 hours it should be considered abnormal.
- Frisky play may occur as early as 2 hours and galloping by 6-7 hours of age.
- Thoracic trauma occurs commonly during the birthing process i.e. Broken ribs. Diagnosis is by observation of chest wall symmetry and palpation; however, the fractures can often go undetected.
- Oral, conjunctival and vaginal mucous membranes should be moist and pink and have a capillary refill time between 1 and 2 seconds. Membranes that are yellow (jaundiced), purple (cyanotic), bright red, white, have ulcerations or petechia (red spots) are abnormal and are indicative of an abnormal foal.
- The time to first urination, the frequency, quantity and effort of urination need to be evaluated. The usual time to first urination is less than 18 hours.
- The passive range of motion of the joints, softness of the ears, the hair coat and muscle development should be assessed for evaluation of dysmaturity and prematurity.
- All four limbs should be carefully examined for angular limb deformities, contracture, laxity or other malformations.
- Eyes should be clear with no discharge. Monitor for entropion (rolling in of eyelid).
- Umbilicus should stop bleeding on its own after birth. If bleeding persists hold off the umbilicus or tie off with suture material. Once bleeding has stopped dip in dilute iodine (2.5% concentration).

6.4 Examination of the Mare and Placenta

Gestational length

Try and determine the gestational length and if possible relate this to previous foals from the mare. Mares that foal "early" or "late" will tend to be similar in subsequent years. It is also important to remember that the normal gestational length, generally accepted to be 335 to 342 days, can vary widely. Normal appearing foals have been born to mares that have had gestational periods as short as 305 days and as long as 400 days.

Examination of the Placenta

Physical examination of the placenta is recommended as long as appropriate PPE such as gloves and possibly P2 face mask are used. Is there any evidence of placentitis? Has ALL the placenta been passed? Check to ensure both horns are present and entire and weigh the placenta. A normal placenta is equal to approximately 10% of the foal's body weight (5 kg with a 50 kg foal). A very heavy placenta may be oedematous or infected whereas a very light placenta may be incomplete. If the placenta is available, please send the placenta with the newborn foal for a veterinarian to evaluate.

Evaluate the mammary glands for evidence of inadequate milk production, decreased consumption by the foal or signs of mastitis. The quality of the colostrum should be measured if present.

- Colostrum can be assessed subjectively by evaluating its appearance and more objectively, by using a Brix sugar refractometer.
- Good quality colostrum reads > 23% with the Brix sugar refractometer
- The use of sugar (Brix) or alcohol refractometers allows a more precise, more repeatable and easier assessment of IgG concentrations in equine colostrum compared to the colostrometer. Good quality colostrum reads ≥ 16° when measured with the alcohol refractometer and ≥ 23% with the sugar (Brix) refractometer

7 Biosecurity

7.1 Abortion Protocol

- Stop what you are doing (ie Do not finish the feed run or checking other horses)
- ASSUME ALL ABORTIONS ARE POTENTIALLY EQUINE HERPES VIRUS (EHV), or HAVE A RISK OF EXPOSURE TO ZOONOTIC (infection of people) INFECTIVE MATERIAL until proven otherwise. Remember that Equine Herpes Virus is an extremely contagious virus and is easily spread by people, foetal membranes and fluids. Get one other person to help. Either call in by radio or go for help, avoiding other mare paddocks.
- Notify management.
- Get the second person to bring an abortion kit and a vehicle that is not used near pregnant mares.
- Leave the vehicle outside the paddock.
- Put on gloves, overalls, face mask (P2) and boot covers.
- Keep the mares in the paddock away from the aborted foetus.
- Work out which mare aborted and catch her.
- Check that the placenta is out and is complete.
- Put the foetus and placenta into black plastic bags and tie them with cable ties.
- Attach tag with following details: Stud, Mares Name and Last Service Date.
- Spread lime where the foetus and placenta were lying.
- Carry the bagged foetus and placenta to the vehicle. Be careful not to tear holes in the bags.
- Take the mare to an isolation yard. Do not move her anywhere where she will contact other pregnant mares. Remember that any yard the mare goes to will be contaminated for six weeks.
- OR isolate the mare in the paddock and move her companions to an isolation area without contacting other pregnant mares.
- If pregnant mares in neighbouring paddocks have to be moved, then keep hold of the aborted mare until this is done to stop her contacting these horses.
- If the mare needs Equine attention for post-foaling complications, then contact a vet after the mare is in isolation.
- Get a non-horse person to take the foetus and placenta to the research centre; don't give it to the vet.
- Please ensure that you notify SEH Reception direct on +61 2 6545 1333 that a foetus will be delivered.

After Isolating the Affected Horses

- Put the gloves, face mask and boot covers in a black plastic bag and tie it. Put the overalls, headstall and lead in the plastic bin and leave them at the yard.
- At an area of the stud away from horses, (eg. the workshop / isolation area) wash and disinfect any vehicles that entered the paddock or were used to transport the foetus or placenta. Wash and disinfect hands, arms and boots thoroughly.
- Go home and shower, change clothes and scrub boots before touching any other horses.
- Don't take any vehicles into the isolation paddocks.
- If you need to treat the mare or enter the isolation paddocks, wear overalls, gloves and boot covers and disinfect hands, arms and boots after each time.

Important Points

- Assume all abortions are EHV, or potential exposure to zoonotic infectious material until proven otherwise.
- Make sure everyone knows where the abortion kits are kept.
- Once you have been in contact with a mare that has aborted or with the foetus, or placenta, do not go near other horses until you have disinfected yourself.
- Have a plan for your stud with regard to where aborting mares and in-contact mares will be isolated.

7.2 Equine Post Mortem Form

Scone Equine Hospital | *Dedicated expert care*

POST MORTEM REQUEST FORM

Please fill in required fields as marked *
After filling in form email to: Scone Reception: melissa.atfield@sconeequine.com.au

* Date_____ * Time_____

* Horses Name / Sire and Dam _____

* Stud/Owner _____

* Post Mortem Request by _____

* Insurance Company _____

* Hendra Immunity Certificate Current - YES / NO *Microchip Number_____

* Are there specific biosecurity concerns with the case? - YES / NO If yes, please identify:_____

_____

* Specific Sampling Requests: _____

NOTE: If a Hendra Exclusion test is carried out, **NO** autopsy can be performed until negative results are returned.

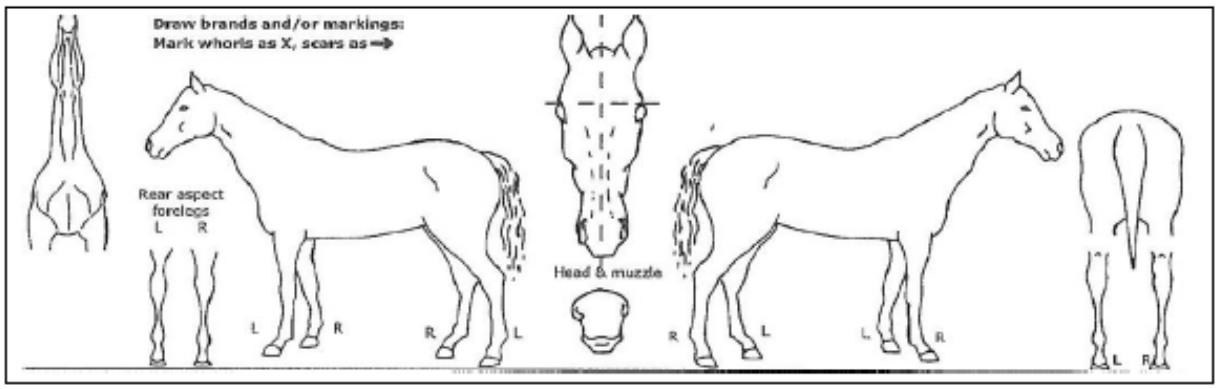
HISTORY _____

_____

_____

_____

_____



Case clinician requesting post mortem: Signature: _____

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PO Box 280 Scone NSW 2337
T +61 2 6545 1333
info@sconeequine.com.au
www.sconeequinehospital.com.au

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icu@sconeequine.com.au
ABN 69 138 546 595

SEH Denman
26 Ogilvie Street Denman NSW 2328
PO Box 41 Denman NSW 2328
T +61 2 6547 2222
denman@sconeequine.com.au

SCONE EQUINE GROUP
Veterinary Excellence

7.3 SEG Hendra Virus Policy

Scone Equine Group (Scone Equine Hospital, Tamworth Equine Veterinary Centre, The Equine Podiatry and Lameness Centre, and Avenel Equine Hospital) has a zero tolerance and a WHS legal requirement to prevent any member of our staff or public to be unduly exposed to any horse with an identified risk of HeV infection. Scone Equine Group has committed to have protocols in place to ensure that as far as is possible, no member of staff or the public is exposed to Hendra virus. This applies both within the confines of the veterinary clinics and on client's properties. Our equine veterinary clinics have operated in this way since the emergence of HeV but with a recent confirmed case in the Hunter Valley, there is an elevated degree of vigilance to this uncommon but potentially fatal equine and human disease.

Vaccination is the most effective method for prevention of Hendra virus in the horse and it is expected that widespread use of this safe and relatively cost-effective prevention will ensure that we will always be able to provide the required veterinary care of our equine patients and ensure that we are protecting the health and well-being of our staff.

Hendra Virus (HeV)

Hendra virus is a virus carried by flying foxes that inhabit Australia, Papua New Guinea, and surrounding islands. So far, clinical disease due to Hendra virus infection has only been recognised in Australia. Flying foxes appear to be unaffected by the virus. Rarely, Hendra virus spreads from flying foxes to horses, (spillover events) causing severe disease, and may then spread to people or animals in close contact with infected horses. The virus can be deadly to both humans and horses.

Hendra virus was first detected in 1994 in the suburb of Hendra, Brisbane. Since then cases have been reported from Cairns in north Qld down to Kempsey on the NSW Mid North Coast, and in 2019 further south and inland with a case east of Scone. Most cases have occurred east of the Great Dividing Range. Most incidents have occurred between May and August, but some cases have occurred in other months.

Shedding of Hendra virus by flying foxes shows a strong winter seasonality in SE Qld and in NSW but is more year-round in far north Queensland. All four species of flying fox have been shown to carry the Hendra virus however Hendra virus is more frequently detected in the urine of spectacled and black flying foxes. While spectacled flying foxes are not migratory, black flying foxes have been moving south slowly and continued spread south is likely.

The risk of Hendra virus exposure is attributed to proximity of horses to roosting and feeding habitats of flying foxes. The majority of positive cases of HeV have a scenario of horses housed outdoors with access to the under canopy of trees that have been flowering or fruiting and have become attractive to flying foxes or are flying fox roosting trees. Flying foxes are widespread in Australia and are highly mobile. It is common for a colony to relocate nearby or a new colony can move into an area where they had not previously been located. They will follow opportunistic food sources such as flowering events in various species of native tree types. It is thought that due to restriction of habitat and food resources that flying foxes will continue to extend into new areas.

There is no evidence of human-to-human, human-to-horse or bat-to human spread of Hendra virus. Most importantly there have been 7 people who have tested positive and 4 of these people have died because of the Hendra virus infection. (Flying foxes can also carry Australian Bat Lyssa Virus (ABLV) which is a rabies-like virus which can infect humans and horses. Direct contact with bats should be avoided to prevent risk of bites or scratches.)

Hendra virus in horses has an incubation period of 5-16 days after exposure and cases can potentially have a 3 day period of shedding virus before clinical signs develop.

Most cases in horses are fatal but occasionally a horse will survive the acute phase of the infection. Many cases have involved situations in which infection is confirmed from a horse found dead.

The Hendra virus is very fragile. It is easily killed by heat, soap or detergents and by desiccation (drying out). It may survive in the environment from several hours to several days depending on environmental conditions. Survival is longer in cool moist conditions where the pH is close to neutral.

Clinical Signs in Horses

Hendra virus can cause a wide range of symptoms in horses; these are not specific and may vary. Hendra virus should be considered in any unvaccinated sick horse (that has potentially been exposed to the virus) where the cause of illness is unknown, particularly where there is rapid onset and deterioration associated with respiratory and/or neurological signs, or if an unvaccinated horse dies unexpectedly or is found dead.

The following signs have been associated with many Hendra virus cases:

rapid onset of illness,
increased body temperature (fever),
increased heart rate,
discomfort/weight shifting between legs that may mimic colic,
depression,
rolling and sweating with absent gut sounds,
neurological signs may include head tilt, circling, blindness or cartwheeling,
some cases have presented as caught in fence as a result of neurological deficits,
rapid deterioration with either respiratory and/or nervous signs.

Note: Not all of these signs will be found in any one infected horse.

Risk Management in relation to Hendra Virus

Human infection with HeV from horses has occurred when the possibility of HeV infection has not been considered. A risk assessment in regard to HeV must be performed before any horse contact to determine the appropriate level of biosecurity required.

1. Eliminate the hazard through Vaccination

The best method of preventing human infections is to prevent the occurrence of Hendra infected horses and the focus is based around a strategy of vaccination for our horse population to greatly reduce the risk of Hendra virus disease. The commercial vaccine is fully registered for horses and requires administration by a veterinarian. The vaccine is an intramuscular injection of a subunit of the virus so there is no possibility of causing any viral disease. The conditions of use are very specific and require two initial vaccinations given 21-42 days apart followed by a 6 month booster and then a yearly booster after that. Veterinarians need to be formally accredited to administer the vaccine via an approval process via the vaccine company's website. It is required to collect owner and horse identification details at the time of administration and the horse needs to have a microchip inserted at the first vaccine if they don't already have one. Vaccinations are required to entered into the Zoetis online vaccination registry within 48 hours of vaccination to enable an immunity certificate to be produced.

2. Reduce the risk of exposure to HeV infected horses by case selection

It is the policy within our facility or on client farms. Please refer to the next page the following 'phone call questions' guide which is to be followed. Determining and actively verifying Hendra vaccination status is vital in this process and needs to be requested as a matter of routine.

What are the areas of past confirmed cases?

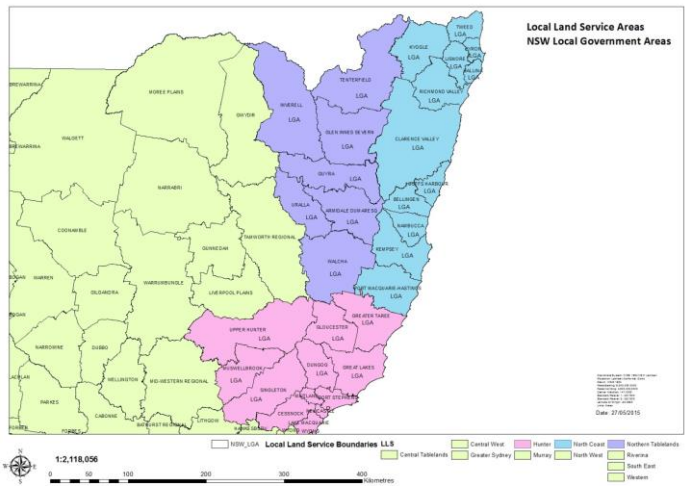
In 2019 there was a confirmed case approximately 25 kms east of Scone in the Upper Hunter area which was the first case in this region and is more inland and south than previously reported. There are known locations of flying fox colonies in the Upper Hunter area and there are numerous plant and tree species that at times attract flying foxes to accumulate in large numbers over a short period of time. Although the occurrence of HeV disease in horses is of a low likelihood, the potential combination of risk factors in the Upper Hunter region determines that horses have the potential to be exposed to HeV even if very recently arrived.

The areas of horse residence that will have added precautions are based on historical case distribution. However, as the 2019 Scone case has shown, Hendra virus could potentially occur wherever there are flying foxes in the same vicinity as horses.

It is SEH policy to take all measures as far as is practical to avoid exposure of our staff to unvaccinated sick horses with clinical signs common to reported HeV cases and potential exposure to flying foxes resident in the SEH practice area in the Upper Hunter, and those that have travelled from Queensland or the North Coast region of coastal New South Wales.

The areas outside of the Upper Hunter consist of all of Queensland, and the DPI Local Lands Service (LLS) region of North Coast. The north coast region encompasses 12 local government authorities (LGA) listed below:

- Port Macquarie- Hastings
- Tweed
- Kyogle
- Byron
- Lismore
- Ballina
- Richmond Valley
- Clarence Valley
- Coffs Harbour
- Bellingen
- Nambucca
- Kempsey



PHONE CALL QUESTIONS BEFORE VETERINARY VISIT OR HOSPITAL ADMISSION/REFERRAL

- What is the main problem with the horse and when did this start?
- Has the horse become ill/sick quickly? How long has the horse been sick?
- What area does the horse usually live?
- Has the horse recently travelled from somewhere else? If so, from where?
- Have you had any other horses sick or die recently?
- Does the horse have a high temperature/fever?
- Is the horse vaccinated for Hendra?

- If **YES to Hendra Vaccination**, ask the following:-

    - Ask for owner details, horse details and history.
    - Ask for microchip number and name so vaccination status can be confirmed on the health4horses.com.au website. (Or owner can provide a certificate.)
    - If verified Hendra immune status is confirmed, horse can be examined and treated with routine biosecurity precautions.

- If **NO to Hendra Vaccination**, ask the following questions for **unvaccinated** horse:-

    - Does the horse live close to trees that have been visited by flying foxes? Has the owner seen flying foxes on the property? Is there known/suspected contact with flying foxes?
    - Has the horse been in QLD or NSW Northern Coast in the last 3 weeks?
    - **If the answer is yes to any of these questions** and the horse is sick with the following signs:-
    - High temperature/Fever and/or increase heart rate
    - Clinical signs such as:
        - Respiratory distress
        - Neurological signs – ataxia, circling, twitching, head tilt, falling
        - Depressed and rapid deterioration

Then the practice guideline is for the owner to speak to the senior veterinarian in the relevant department regarding potential admission to hospital or veterinary visit.

No entry into the hospital until a senior vet contacts the owner. A Hendra exclusion test may be needed before the horse can be treated or allowed entry to the hospital.

SCONE EQUINE GROUP
Veterinary Excellence

3. Biosecurity Risk Management

Determining biosecurity risk is based on history, presenting clinical signs, HeV vaccination status and considering the possibility of Zoonoses such as psittacosis of equine origin, Salmonella, multi-resistant organisms, HeV, ringworm. All staff in contact with horses must uphold hygienic practices such as use of personal protective equipment (PPE) such as gloves and overalls and use hand hygiene after contact with the patient as an absolute minimum.

Deciding which PPE is required is by following the tiered approach of personal protective equipment as outlined in resources at https://www.ava.com.au/library-resources/other-resources/veterinary-personal-biosecurity

The approach is summarised as:

Tier 1: Healthy horse, non-invasive procedure

PPE considered should be gloves, eye/face protection, and gown or overalls.

Tier 2: Healthy horse, invasive procedure or contact with blood and body fluids

PPE considered should be gloves, eye/face protection, gown or overalls, and disposable P2 respirator.

Tier 3: Sick horse

PPE considered should be gloves, eye/face protection, gown or overalls, disposable P2 respirator, and rubber boots or boot covers.

The actual PPE will depend on the level of risk. An unvaccinated sick horse displaying clinical signs similar to those described in Hendra cases being the highest risk. PPE required if HeV is suspected is shown in the AVA 'Suit Up!' video and all staff should be familiar with the content and advice in this video. The link for AVA's Suit-up Video is AVA Suit Up! https://www.ava.com.au/library-resources/other-resources/veterinary-personal-biosecurity/

PPE workshops will be held by the practice for all new staff members promptly after their starting dates.

Risk Management to minimise HeV exposure within facilities

SEH has the policy of avoiding the possibility of a HeV case entering SEH facilities. A risk assessment must be carried out before every contact with a sick horse. Appropriate biosecurity including PPE is to be employed. Scone Equine Hospital actively promotes vaccination to all clients and referring vets as the best way to enable horses being able to be treated within our facilities as is appropriate. All horses coming to SEH facilities need to have their vaccination status checked and verified at booking and before arrival.

Emergency Referrals

All staff need education and ongoing training as to the appropriate procedures and the department supervisors need to take shared responsibility of this process.

Follow the 'phone call questions' format well before the case is due to arrive. If these checks are not carried out over the phone, the horse should not be admitted until this process is carried out. A thorough history will assist in identifying biosecurity risk factors.
Determine horse's identification and microchip number and verify and record the vaccination status which must be recorded on the patients file as a note.
Assess the horse from a distance before examining with appropriate PPE before it can be put in our stable facilities.
If found to be unwell and assessed as a suspect HeV case it will require a HeV exclusion test to be carried out and can only have minimal contact from that point on.
Note: The most appropriate director depending on the department should be informed of the decision for an exclusion test.
Newborn neonates requiring immediate Clovelly ICU care post-delivery are allowed to be referred if the mare has had no significant biosecurity risk prepartum.

Elective procedures in SEH facilities on unvaccinated horses

Any arriving horses will be checked for abnormal clinical signs and TPR'd with appropriate PPE before any treatment or procedure is initiated. If the horse is assessed to be clinically unwell it may be returned to the property of origin immediately with advice to determine the biosecurity risk and if a HeV exclusion test is warranted.
If healthy, proceed with appropriate biosecurity in place as guided by the tiered biosecurity risk management.

Dead Horse

Any case of sudden unexplained death in an unvaccinated horse needs to be investigated before attending. If after discussion there is no observed or obvious history of catastrophic injury, it requires exclusion testing before an autopsy can be performed. DPI client advice information must be explained and delivered to the horse manager verbally and also by sending dpi information sheet by text.
SEH staff members are not to conduct autopsy on these cases that are having exclusion testing, regardless of the horse's mortality insurance status until a negative exclusion result. Please follow the post mortem procedures as outlined further on in this chapter.

What to do if you think an exclusion test is required?

Unvaccinated horses with clinical signs and property history common to reported Hendra cases will require a negative HeV exclusion test and can only have minimal contact with appropriate PPE until a negative test result is gained.
If an exclusion test is being performed it is an acceptance that Hendra virus infection is possible, and that being the case it must be managed appropriately.
If the horse has not disembarked transport or the arrival area at SEH facilities, it is the policy that the biosecurity risks will be better managed if the horse is directly transported either to
a) Scone Equine Hospital quarantine stable adjoining Clovelly or to
b) a quarantine area of the client's own property locally. The exclusion test sampling can be performed from that location, where the horse can be monitored as well while under our care.
If an exclusion test is being performed on farm, minimal contact of that horse is required. The horse's welfare is always a priority which may necessitate euthanasia in some cases.
Horses' awaiting exclusion results cannot have any treatments or procedures such as passing nasogastric tubes, endoscopy, intravenous catheterisation or fluid therapy, obstetrical procedures, surgery, or autopsy. Client instructions must be enforced to the same effect.

7.4 Zoonotic Risk of Chlamydia Associated Abortions Protocol

Psittacosis

Chlamydia psittaci is a bacterium carried by birds. It can cause a respiratory disease in people called Psittacosis and has also been linked to abortion in mares.

Since the 2015 Stud Season, Scone Equine Hospital, the DPI, NSW Health and ESC have been conducting an investigation into the possible role of Chlamydia psittaci in equine abortion/stillbirth/neonatal illness.

This was instigated due to the occurrence of a small cluster of cases of Psittacosis in veterinary students who were involved in treating a sick neonatal foal at a university veterinary school.

This resulted in the DPI testing samples from equine abortions for Chlamydia psittaci.

The bacteria were detected in a small number of equine abortions in NSW last year and have again been detected in equine abortions this year, including some cases in the Hunter.

Because the bacteria have not been tested for prior to last year, it is unclear at this time whether

Chlamydia is the cause of these abortions or is simply an incidental finding.

Due to the increased detection of Chlamydia in aborted equine foetuses in the last two years and the current investigation to determine the role of the bacteria in equine abortions, it is very important that we obtain as much information as possible about all abortions that occur.

We strongly encourage you to submit all aborted foetuses and membranes to the laboratory for routine testing (for Herpes Virus, EAFL, etc.) and to assess whether Chlamydia is a possible factor in the abortion.

As the relevance of these positive Chlamydia results in horses is currently unclear, we do not wish to cause unnecessary concern, however awareness of potential for human illness and the importance of hygiene procedures are obviously important.

Staff on studs and any people who come in contact with aborted material should be advised to undertake careful hygiene procedures when dealing with equine abortions/stillbirths/neonatal illness cases.

This should include wearing gloves and in particular, P2 masks when dealing with these cases. Routine cleaning and disinfection of themselves and equipment is obviously very important. People who have potentially been exposed are advised to seek medical attention if any of the symptoms apply and to advise their doctor of possible exposure to C. psittaci.

To help in further monitoring (and to instigate appropriate treatment if required) if you are showing flu like symptoms we encourage you to visit the SEH laboratory where the appropriate viral swabs have been stored by NSW health and NSW DPI for collection of a throat swab. It is advised to carry out sampling within the first few days of clinical symptoms.

The disease can be treated with antibiotics. Please read the following advice from NSW Health and NSW DPI.

Communicable Diseases Factsheet

Psittacosis

Psittacosis is a disease caused by the bacterium Chlamydia psittaci, carried by birds. Humans most commonly catch the disease from infected birds by inhaling the bacteria from secretions and droppings. Older people generally experience more severe illness. This disease can be treated with antibiotics.

Last updated: 1 July 2012

What is Psittacosis?

Psittacosis is an uncommon disease that is usually transmitted to humans from birds. It is caused by bacteria called *Chlamydia psittaci*.

What are the symptoms?

The time from between human exposure to the bacteria and the development of symptoms varies from about four to 15 days.

People with psittacosis often develop:

- fever
- chills
- headache
- weakness
- muscle aches
- a dry cough
- chest pain
- breathless

In severe cases, pneumonia develops. Rare complications may include encephalitis (inflammation of the brain), or myocarditis (inflammation of the heart muscle).

How is it spread?

Infection usually occurs when a person inhales the bacteria, usually from dried bird droppings from infected birds. People can also become infected by mouth-to-beak contact (kissing) with birds or by handling the feathers or tissues of infected birds. Psittacosis has not been proven to be spread from person to person.

All birds are susceptible to infection, but pet birds (e.g. parrots, parakeets, cockatiels) and poultry (turkeys and ducks) are most frequently involved in passing the infection to humans.

Contact with wild birds and their droppings can cause infection. Outbreaks have been linked to breathing in dust stirred up by lawn mowers.

NSW GOVERNMENT Department of Primary Industries

primefact

Biosecurity advice when handling aborted material from horses

April 2016, Primefact 1465. First edition

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Introduction

Abortions are not infrequent in horses and while not all abortions are caused by infectious agents, differentiating infectious from noninfectious causes by observation only is generally difficult. Biological material from mares who have aborted is often collected for veterinary examination and testing. It is very important to have good biosecurity to prevent the spread of infectious agents to either people or other animals when handling this material.

Infectious causes of abortion

Equine Herpes Virus infection (EHV-1) is the most common cause of infectious abortion in horses throughout the world and has been reported across Australia. While it does not affect people it is highly contagious and can easily be transmitted to other horses on the hands or clothing of people in contact with the horses or material from the horse such as uterine fluids, placentas or foetuses.

There are other less common infectious agents that can also cause abortion in horses and these can also be transmitted to other horses by people or equipment.

Human health risks

Chlamydia psittaci, a bacterium most commonly associated with birds, has recently been detected in aborted material from mares at a number of sites around NSW. This organism can cause serious illness in people. In southern NSW five people who had contact with an infected horse placenta developed serious respiratory illness, possibly psittacosis, with some requiring hospitalisation.

Leptospirosis is also a rare cause of abortion in mares and may cause a serious influenza-like illness in people.

What does an abnormal placenta look like?

A normal horse placenta is shown in Figure 1. The attachment of the horse placenta to the uterus is diffuse, unlike cattle which have button like attachments to the uterus. Placentas can also appear abnormal for non-infectious reasons.

Figure 2 shows an example of a non-infectious abnormality. The placenta shown in Figure 3 is dark coloured and swollen and was positive for *Chlamydia psittaci.* While these are all examples of abnormal placentas, diagnoses were unable to be made from visual appearance in these cases and they required laboratory examination and testing.

Fig 1: normal placenta from a mare.

Photo courtesy of Dr Scott Norman

www.dpi.nsw.gov.au

Figure 2: equine placenta with a large avillous area.

Photo courtesy of Dr Scott Norman

Figure 3: equine placenta positive for Chlamydia

Photo courtesy of Dr Cyril Stephens

Biosecurity when handling aborted materials from mares

It is important to have good hygiene control when handling biological material from aborted mares such as placentas, foetuses and uterine fluids.

This will reduce the risk of human exposure to infectious agents that also affect people and will make the transfer of infection on clothes, hands or objects such as floats, leads and halters to other horses less likely.

To enable veterinary examination of biological material from aborted mares, the material will need to be placed in a *leak-proof bag* and then submitted to a veterinarian for examination and testing.

When preparing or handling this material:

Wash hands with soap and running water for 10 seconds before and after contact.

Always use disposable gloves when handling biological material. Cover cuts and abrasions before gloving.

Wear a properly fitted 'P2' respirator mask (available from pharmacies and hardware or other stores)– simple surgical masks will not protect you. Psittacosis is transmitted by the respiratory route and aerosol droplets are created when tissues are handled and lifted.

Use disposable overalls or a disposable apron and change clothing after handling the tissues.

Double bagging reduces the risk that small punctures will leak contaminated discharges onto the outside of the bag. Always use leak proof bags as woven bags quickly become contaminated.

After bagging is completed and protective equipment removed the face and arms should be washed thoroughly before handling other animals.

Dispose of gloves and other used personal protective equipment safely (i.e. in a sealed bag in normal waste)

Footwear should be sprayed with disinfectant all over including the soles.

Taking these precautions may make tasks take a little longer but they will dramatically reduce the risk of spread of infection to people and animals.

More information

For further information about psittacosis or general information about managing zoonotic risks talk to your private veterinarian or LLS District Veterinarian or visit the NSW DPI website

http://www.dpi.nsw.gov.au/biosecurity/animal/humans/zoonoses

For advice about human health risks, contact your local Public Health Unit on 1300 066 055 or visit:
http://www.health.nsw.gov.au/Infectious/Pages/zoonoses.aspx.

7.5 Foal Resuscitation & Zoonotic Risk of *Chlamydia psittaci*

Due to the zoonotic risk of Chlamydia psittaci mouth to nose resusitation of foals is NO longer recommended. On farm resusitation or ventilation assistance can be achieved safely with the McCulloch Foal Resuscitator device prior to your vets arrival on site. This device is being utilised in Clovelly and is relatively easy to use. Please see instructions and images below (an adaptation for supplemental oxygen is also available). Please contact our Pharmacy team if you would like a device ordered for your farm.

The kits consist of:

Performance-tested Resuscitator

Resuscitator Mask

Aspirator Mask

Supplemental Oxygen adaptor

Oxygen recovery mask

Two oxygen lines

Carrying case

How to use:

The most important items that you must become the most familiar with are the Resuscitator pump and the Resuscitator mask, as in an emergency the most important action is to begin circulating oxygen back in the foal's pulmonary system as quickly as possible. It is still good practice to be familiar with the other items in the kit but these most often will not be used without veterinary instruction.

To assemble the mask and pump:

- connect the simple resuscitator mask to the small clear valve at one end of the pump

- Place the mask securely over the foals nose

- Draw back the outer sleeve on the resus pump, this will draw air into the chamber.

- Push the sleeve down the cylinder to force air into the foal's lungs, remember to use steady pressure ensuring that the lungs are not over inflated.

- Continue this process till a veterinarian arrives, the foal has begun breathing on its own or resuscitation is deemed unsuccessful.

Aspirator

The Aspirator works in the opposite way at the resuscitator, it works on drawing out any fluid, mucus or material that is blocking the airway.

To assemble aspirator:

- Connect the mask with the yellow cup attached to the connection side, to the flat side of the Resus canister. Making sure it is firmly secured.

- Place mask securely over the foals nose

- Draw back on the outer sleeve of the resus canister to draw the obstructive material from the foal's airway, remember to draw back steadily as not damage the airway. Note that the foals head should be lower than its body to assist with drainage.
- Push the canister back to original position to empty the canister of air and repeat if the airway is not yet clear.

Oxygen supplementation

The resuscitator comes with an adapter that can enable the resus canister to be connected to an oxygen tank, which will increase the level of oxygen delivered to the foal during resuscitation, but remember that the most important part of resus is to start respiration as soon as possible, do not withhold commencement of resus to attach the supplement oxygen adapter! It may be possible to have a second person connect the adapter to the gas supply then when the foal is being checked for spontaneous respiration it may be connected.

To connect:

- Remove red protective cap from clear end of adapter

- Connect one end of clear oxygen cord to the adapter and the other end to either the humidifier or directly to a small oxygen tank.
- Firmly attach the adapter to the flat end or the resus canister

- Concentrated oxygen will now be drawn into the canister via the adapter and expelled into the foal's lungs during resuscitation.

Oxygen Recovery

As well as resuscitation and aspiration equipment that is provided in this kit there is also an oxygen recovery mask. This can be used to provide oxygen support to a foal that is breathing but may be is respiratory distress.

Application:

- Place oxygen recovery mask securely of the foals nose
- Remove the red cap from clear adapter on the back of mask
- Connect one end of the oxygen line
- Connect the second end to a humidifier if available or to a small oxygen tank

8 Risk Information

Horses are complex animals and while it is not possible to cover in detail all of the potential complications and risks associated with veterinary treatment, the following sections provide an outline of the major recognised areas of risk.

8.1 Twins

Mares have a twin pregnancy rate of between 3 and 30% depending on the breed of the horse. A commonly accepted rate in Thoroughbred mares in Australia is 10 - 15%.
Mares that are allowed to carry twin pregnancies are likely to suffer complications as a result. They frequently abort twins or if they give birth to live twins the mares are more likely to suffer dystocia (foaling difficulties), retained foetal membranes and decreased live foaling rates in the following season. Twin foals suffer a higher rate of stillbirth, and those born alive are usually smaller, weaker, and more susceptible to infection with and slower to development than singleton foals.
Due to these factors, it is commonly accepted practice to identify twins by ultrasonography and manually ablate one by rectal palpation and manipulation during the mobility phase of the pregnancy (up to 16 days).
This procedure has a high success rate but occasionally can result in the loss of both embryos.
There is some evidence reported in the veterinary scientific literature to indicate that this manual ablation procedure is associated with a lower live foaling rate when performed on older mares compared to the general population of mares; however it is generally accepted that the benefits of the procedure outweigh the potential disadvantages.
SEH veterinarians are aware of the risks of this procedure and act to manage these risks as far as is practically possible.
For a variety of reasons, including asynchronous double ovulations, mobility of the embryonic vesicles, the presence of cysts in the uterus and limitations of the facilities and technology, it is not always possible to detect twins or multiple pregnancies.
SEH veterinarians are aware of the possibility of twin conceptions and they take all reasonable steps to fully examine the reproductive tract of the mare for twins at each examination.
While the risk of twins or multiple pregnancies not being detected is small and is decreased by repeated reproductive examinations, horses have the capacity for variation in their anatomy and physiology.
As a result, it is not possible to give guarantees that a particular mare is not carrying twins.

8.2 Rectal Palpation/Per Rectum Examination

Rectal palpation is an important and commonly performed procedure in equine veterinary practice. It is used primarily in determining the reproductive status of mares combined with ultrasound as part of the reproductive management of mares, but is also used in the diagnosis of other clinical conditions such as colic.
Horses are complex and at times unpredictable animals and due to their temperament and anatomical features, all rectal palpations carry the recognised risk to the horse of a "Rectal Tear".
A Rectal Tear involves damage to one or more tissue layers of the rectal wall, up to and including the full thickness of all tissue layers.
Depending on the extent of the tissue damage, the consequences of a horse suffering a rectal tear can range from minor, to serious illness requiring major surgery, to death.
SEH Veterinarians are aware of the risks and potential consequences of rectal palpation and act to minimise these risks as far as is practically possible.
Occasionally and in spite of all precautions, horses can suffer a rectal tear while undergoing rectal palpation. This most commonly occurs in young horses and in male horses; however it can happen to any horse undergoing the procedure.

In some cases the veterinarian may feel the tear take place during the palpation or may see evidence of blood on the glove at the completion of the procedure; however in other cases a tear may occur without the veterinarian being aware of it.
If the veterinarian is aware that a rectal tear has occurred, they will take immediate steps to diagnose the extent of the tear and to begin treatment of the horse.
If the veterinarian is unaware that a rectal tear has occurred, it may take some time before the horse shows clinical signs which alert the owner, horse staff or veterinarian to the injury and allow diagnosis of the extent of the tear and treatment to begin.

Unfortunately, due to the nature of rectal tears and the severe consequences which result from them, many horses which suffer partial-thickness tears and most horses which suffer full-thickness tears do not survive, in spite of intensive medical and surgical treatment.

8.3 Equine Sedation and Anaesthesia for Surgery Risks

In order to safely perform surgical procedures on horses it is usually necessary to immobilize the horse. This is achieved by a combination of sedation and local anaesthesia or by general anaesthesia.

Sedatives and anaesthetics are powerful drugs which act on a wide range of organ systems including the brain, heart, blood vessels and lungs to achieve their effect. The interactions of sedative and anaesthetic drugs with these organs and the other tissues of the body are complex and occasionally unpredictable. As a consequence, treatment with these drugs requires an assessment of the clinical status of the horse and can lead to unexpected reactions in individual horses.

Before agreeing to sedation and anaesthesia of your horse, it is important that you understand that the use of all sedative and anaesthetic drugs may involve risk to the patient.

Horses are complex animals and while it is not possible to detail all the potential complications associated with sedation and anaesthesia; the following is an outline of the recognised areas of risk.

The risks and complications associated with equine sedation and anaesthesia are closely linked with the risks and complications involved in equine surgery.

This information on Sedation and Anaesthesia Risks should be read in conjunction with the attached information on Surgery Risks.

Risks and Complications Related to Sedation

Sedation involves the administration of drugs, which alter the level of consciousness of the horse and its ability to perceive the effects of surgical and other procedures. Sedation may be necessary to ensure animal welfare, pain relief and safety.

All sedative procedures of horses have the following potential complications: anaphylactic ("allergic") reaction, collapse, excitement, iatrogenic injury.

The consequences of a horse suffering one or more of these conditions can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEH Veterinarians are aware of the risks and potential consequences of sedation and act to manage these risks as far as is practically possible.

Occasionally and in spite of all precautions, horses suffer one or more of these complications when they undergo sedation. This most commonly occurs when the horse is already suffering from disease or injury, is very young, is an older animal or has an "excitable" temperament; however it can also happen to horses which appear fit and healthy and show no signs of compromise prior to anaesthesia.

1. Allergic Reaction: Horses can have an allergic reaction to any medication they receive. The extent of the reaction can range from mild skin wheals to collapse, inability to breathe and death (anaphylaxis).

2. Collapse: Individual horses may be more sensitive than expected to the effects of sedative drugs and may stumble or fall when sedated. This can result in injury to the horse.

3. Excitement: Sedative drugs can occasionally result in an excitement reaction in the horse. These reactions can range from mild muscle trembling to frenzied, uncontrollable activity and severe injury.

4. Iatrogenic Injury: Any procedure involving horses, especially young, unhandled and fractious animals can result in accidental injury to the horse.

Risks and Complications Related to General Anaesthesia

General anaesthesia is relatively high risk procedure in the horse with world-wide studies showing overall approximately 0.9 % peri-operative fatality rate in non-colic horses undergoing anaesthesia. This rate is significantly increased for horses undergoing emergency surgery such as colic.

Due to the effects of the drugs and the size and temperament of the horse, all general anaesthesia procedures are accompanied by General Risks.

Certain procedures and classes of horses are associated with increased levels of anaesthetic risk and potential complications. This information should be read in conjunction with the information related to the risks associated with surgery.

General Anaesthesia Risks

All anaesthesia procedures have the following potential complications: cardiac arrest, tissue damage, bone fractures, iatrogenic injury. These complications can happen at induction of anaesthesia, during anaesthesia or during recovery from anaesthesia.

The consequences of a horse suffering one or more of these conditions can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEH Veterinarians are aware of the risks and potential consequences of anaesthesia and act to manage these risks as far as is practically possible.

Occasionally and in spite of all precautions, horses suffer one or more of these complications when they undergo anaesthesia. This most commonly occurs when the horse is already suffering from disease or injury, is very young, is an older animal or has an "excitable" temperament; however, it can also happen to horses which appear fit and healthy and show no signs of compromise prior to anaesthesia.

1. Cardiac Arrest: Anaesthetic drugs act by depressing the action of the heart and other organs, occasionally horses can be unexpectedly sensitive to the effects of the drugs and may suffer a cardiac arrest. Cardiac resuscitation is extremely difficult in the horse and arrest is usually fatal.

2. Tissue Damage: tissues including skin, muscle, nerve and eyes can be injured during the anaesthetic procedure including during the induction and recovery phases.

3. Myopathy / Neuropathy: these complications can occur usually in large heavy muscled horses and are thought to be associated with muscle or nerve damage associated with pressure and/or lack of blood flow. Areas that are dependant during anaesthesia are usually affected. The consequences of this complication will vary depending on the severity of damage. Rarely, the horse is unable to stand during recovery and this can be fatal.

   In most cases, these complications can be managed using appropriate positioning and padding of the patient during anaesthesia and ensuring blood pressure is supported.

4. Post anaesthetic colic: may occur secondary to reduced gut motility associated with general anaesthetic drugs. This may be mild and transient but can reduce faecal output and can lead to caecal impaction and rupture that is fatal.

5. Bone Fractures: Due to their size and temperament, horses can break bones during an anaesthetic procedure. This most commonly occurs during recovery when a horse attempts to stand while it is uncoordinated and still suffering from the effects of the anaesthetic drugs. Fracture of a long bone/s of the leg of the horse or other major bones usually results in euthanasia.

6. Iatrogenic Injury: Any procedure involving horses, especially young, unhandled and fractious animals can result in accidental injury to the horse.

Specific Anaesthesia Risks

While the general complications are a risk with any anaesthesia, they can be more likely and potentially more serious in certain classes of horses and when certain procedures are performed.

Age

Newborn foals have immature physiological systems which mean they are more susceptible to the adverse effects of the anaesthetic drugs and any illness they may be suffering from.

Horses over the age of 14 years have an increased risk of complications associated with general anaesthesia and are more prone to the risk of long bone fracture in recovery.

Length of Anaesthesia

Horses that are anaesthetised for periods greater than three hours have an increased risk of anaesthetic complications including muscle damage, long bone fracture and death.

Type of Surgery

Horses that are anaesthetised for emergency surgery, especially Caesarean section and colic surgery have a significantly increased risk of anaesthetic complications and death.

Horses that are anaesthetised for the surgical repair of bone fractures have an increased risk of anaesthetic complications and death.

Sick Horses

Horses with underlying illness have less effective organ function and are more susceptible to the adverse effects of the anaesthetic drugs so have an increased risk of anaesthetic complications.

8.4 Equine Surgery Risks

Surgical procedures are frequently necessary in the treatment and management of disease and injury of horses.

Before providing consent for surgery to your horse, it is important that you understand that all surgical procedures involve some risk to the patient.

Horses are complex animals and while it is not possible to detail all the potential complications associated with surgery; the following is an outline of the recognised areas of risk.

The risks and complications associated with equine surgery are closely linked with the risks and complications involved in anaesthesia and sedation.

This information on "Equine Surgery" should be read in conjunction with the attached information on "Equine Sedation and Anaesthesia for Surgery".

Risks and Complications Related to Surgery

Surgical Risks are divided into General Risks, which accompany all surgery and Specific Risks which are related to a particular procedure or class of horse.

General Surgical Risks

All surgical procedures have the following potential complications: haemorrhage, infection, pain, neurological problems and iatrogenic or inadvertent injury. The consequences of a horse suffering one or more of these conditions can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEH Veterinarians are aware of the risks and potential consequences of surgery and act to manage these risks as far as is practically possible.

Occasionally and in spite of all precautions, horses suffer one or more of these general complications when they undergo surgery. This most commonly occurs when the horse is already suffering from disease or injury, is very young or is an older animal; however, it can also happen to horses which appear fit and healthy and show no signs of compromise prior to surgery.

General surgical risks include:

1. Haemorrhage

Surgical procedures can result in bleeding or haemorrhage from the surgical site. This can range from minor bleeding of little consequence to severe haemorrhage that could potentially be life threatening. Circulatory blood volume is maintained during anaesthesia using intravenous fluid therapy and in some surgical cases where increased blood loss may be anticipated, blood transfusion may be performed during surgery. However, in an emergency situation donor blood is usually not available in horses and severe haemorrhage can be fatal.

2. Infection

Bacterial tissue infection can occur following surgical procedures. Risk of infection is significantly increased with tissue trauma, compromised patients, prolonged surgery times, and surgical implants such as orthopaedic plates and screws. Antibiotics are commonly administered prior to and after a surgical procedure to reduce the risk of bacterial infection. Occasionally, and in-spite of all precautions infection can occur that can range from minor wound infection to systemic infection that could lead to other complications eg septic shock, endocarditis, that may require intensive treatment and could potentially be fatal.

3. Pain

All surgical procedures are invasive and will stimulate a pain response in the patient. In order to safely perform surgical procedures on horses a combination of sedation and local anaesthesia or general anaesthesia is necessary. Sedative and anaesthetic drugs provide an analgesic or "painkilling" effect which varies depending on the drugs used. Non-steroidal anti-inflammatory drugs (NSAIDs) such as phenylbutazone are also routinely administered prior to surgery to help reduce any pain response. Controlling pain is very important and significantly reduces the risk of complications during and in recovery from anaesthesia as well as minimizing stress for our equine patients and providing for their welfare.

4. Neurological Problems

Damage to nervous system is a rare complication associated with surgery. Very rarely damage to the brain or spinal cord (central nervous system CNS) may occur associated with spread of blood clots from a surgical site. Damage to the CNS may also occur if there is decreased blood supply ie severe haemorrhage or decreased oxygenation of the blood. Acute blood loss can occasionally cause blindness that may be permanent and irreversible. Additionally, myopathy or neuropathy may occur occasionally as a complication of general anaesthesia. This can rarely result in a horse that is unable to stand in recovery and may lead to death.

5. Iatrogenic / Inadvertent Injury

Accidental injury may occur in any procedure and accidental tissue damage may occur during any surgical procedure. The consequences of this injury will depend on the tissue involved.

Specific Surgical Risks

While the general complications are a risk with all types of surgery, they can be more likely and potentially more serious when certain procedures are performed.

Orthopaedic Surgery (involving surgery of joints and bones)

- Fracture repair

Many fractures can be successfully repaired in the horse and enable return to full work. Surgery ("internal fixation") may be necessary to facilitate fracture repair and the prognosis will vary depending on the bone involved, the type of fracture and other factors such as the size and temperament of the horse.

Complications associated with fracture repair include implant failure, infection, supporting limb laminitis and as surgery time is often prolonged there may be increased complications associated with anaesthesia.

Surgical implants, i.e metal bone plates and bone screws, are necessary in many fracture repairs.
"Implant failure", where the plates and screws bend or come loose, can occur in the recovery phase from anaesthesia or later following surgery. Implant failure is associated with excessive forces from weightbearing and incoordination and results in disruption of the fracture repair. In most cases, this is catastrophic and euthanasia of the horse is necessary.

Risk of infection is also increased in fracture repair because of soft tissue trauma associated with the injury. Infection associated with plates and bone screws may be difficult to control and can lead to delayed or failure of fracture healing. Removal of implants may be necessary in some cases and this will require a second surgery usually under general anaesthesia.

Fractures usually cause severe lameness in the affected leg. Successful surgical repair will usually improve the level of weight bearing on the affected leg however there is often overloading of the contralateral (opposite) leg which can lead to "supporting limb laminitis" or "founder" in the otherwise normal leg. This can be a major complication that can lead to euthanasia. It is most frequently seen in heavy adult horses and in front legs.

Prolonged surgery time may be necessary to achieve satisfactory fixation of complex fractures in horses. Increased anaesthesia time is known to be associated with increased risk of complications in recovery

- Joint Surgery "Arthroscopy"

Arthroscopic surgery involves inserting a camera and instruments into a joint through small skin incisions. This technique allows good visual assessment of the internal structures of the joint with faster recoveries and lower risk because of the small incisions and sterile flushing of the joint.

Arthroscopic surgery is performed under general anaesthesia.

Complications associated with arthroscopic surgery are rare and this technique has become the standard method of joint surgery in horses.

Joint infection following arthroscopic surgery is rare and the incidence has not been reported in horses. In humans, post-operative infection rates following arthroscopic surgery of the knee have been reported to be between 0.08% and 0.42%. Treatment of a joint with corticosteroids prior to arthroscopic surgery is recognised as significantly increasing the risk of post-operative infection.

Other specific complications include tissue swelling and haemorrhage. However, these complications are generally minor and self-resolving. Rarely, a synovial hernia may occur at the site of instrument or arthroscope insertion that can lead to a soft swelling on the skin surface over the joint.

Inadvertent damage to cartilage or other tissues adjacent to the joint may occur rarely.

Instrument breakage is rare but may require extended or subsequent surgery to remove the broken fragment.

Post-operative care of arthroscopic cases is important and careful attention should be paid to discharge instructions, maintaining a clean stable environment and bandage changes to avoid post-operative complications.

In some cases, arthroscopic surgery can involve multiple joints. Whilst this may reduce the costs associated with multiple surgeries, it will increase surgical and anaesthetic times which may increase the risks to the patient. The decision to perform arthroscopy on multiple joints will be considered and discussed prior to surgery.

- Transphyseal Bridge / Periosteal Strip surgery

Periosteal elevation surgery ("Strips") and transphyseal bridge surgery ("Bridges") are performed in foals to help correct angular limb deformities ("Bent legs").

Periosteal "strips" and transphyseal "bridges" are performed under general anaesthesia.

Periosteal strip surgery may be performed "on farm" if there are suitable facilities and staff or at Scone Equine Hospital at the discretion of the farm management and veterinary surgeon.

Complications associated with periosteal strips are rare but can include infection of the surgical site. Failure to correct the deformity may occur or the deformity may continue to worsen as the foal matures.

Overcorrection of angular limb deformity does not occur following periosteal strip surgery.

Transphyseal bridge surgery may be recommended if the angular limb deformity is severe or if there has been insufficient correction following periosteal stripping. "Bridge" surgery involves the placement of orthopaedic implants across the "physis" or "growth plate" of the bone to limit bone growth on that side and allow straightening of the limb. Success of this surgery is dependent on bone growth and therefore the age of the foal when this surgery is performed is very important.

Transphyseal bridge surgery is always performed at our surgical facility at Scone Equine Hospital.

Occasionally the single screw bridge may "pull loose" from the bone resulting in failure of the bridge. This has usually been observed in young foals with severe deformities. As a result, the alternative "Two screw and wire" technique may be recommended for these cases.

Local wound infection may occur, however; this is usually readily controlled by antibiotic therapy. Occasionally removal of the bridge may be required to control the infection.

Persistent local wound infection may lead to scarring and permanent white hairs at the surgery site.

Failure to remove the bridge at the appropriate time can result in "over-correction" of the angular deformity. It is therefore important that the foal is closely monitored for correction and is re-presented to the veterinary surgeon for bridge removal.

Failure to remove the bridge will mean that it will be visible on yearling sale radiographs.
It is the responsibility of the farm management to ensure that foals are re-presented for assessment and bridge removal.

Bridge removal requires a second general anaesthetic and surgical procedure.

Rarely, orthopaedic drill or screw breakage may occur. In most cases, the broken drill or screw can be removed but occasionally this is not possible. Whilst this is unlikely to be of clinical significance to the horse, the broken screw will remain visible on sales radiographs.

Inadvertent damage to a joint or fracture of the physis associated with bridging is extremely rare.

Post-operative care is extremely important to reduce complications such as wound infection.

In young foals with carpal valgus or "Knock knee" deformity, restriction of exercise can be very important to reduce the risk of serious complications such as "carpal bone fracture" of the knee.

Soft Tissue Surgery

- Colic

Abdominal pain in horses is commonly referred to as "Colic". Colic ranges in severity from mild abdominal discomfort, to severe life-threatening, uncontrollable pain that requires surgical intervention.

Colic surgery is a lifesaving and most frequently employed emergency procedure which allows examination of the abdomen and intestine and permits correction of surgical problems.

Colic surgery is performed by a midline incision through the abdominal wall under general anaesthesia.

Colic can cause serious changes to the normal function of many body systems, which can lead to cardiovascular compromise or shock. These changes will generally be worse if the duration of colic is prolonged. There is an increased risk of anaesthesia associated with such patients.

Complications are commonly encountered in colic patients because of the severity of the disease. Post-operative complications can include persistent pain or colic, endotoxaemia that can lead to other complications including "endotoxic shock" and laminitis or "founder" (inflammation and destruction of the tissues of the feet), "peritonitis" (infection within the abdomen), "colitis" (inflammation of the large intestine), adhesion formation (internal scar tissue), incisional infection of the surgery site that can lead to hernia or evisceration (release of the intestine through the wound), and infection or thrombosis of the blood vessels such as the jugular vein.
In some cases these complications may be life threatening despite intensive care treatment.

Success of colic surgery will vary depending on the particular surgical problem identified, ease of surgical correction, the duration of colic and the occurrence and successful management of post-operative complications.

Overall colic surgery is associated with a success rate of approximately 70%. Prompt referral and surgical intervention can significantly reduce the risk of complications and improve the chances of success of colic surgery.

- Castration

Castration involves surgical removal of the horse's testicles.

Castration can be performed in the standing horse under sedation and local anaesthesia or under general anaesthesia. The decision to perform castration standing or under general anaesthesia is made in consultation with the person who is physically in charge of the horse at the time of the surgery. Owners who require that the surgery is performed either standing or under general anaesthesia should make this requirement known to both the veterinary surgeon and the person in charge of the horse.

Whilst castration is a "routine" procedure very commonly performed on colts for management reasons, there are potentially serious complications associated with castration in horses.

Accurate identification and signed consent form is mandatory before castration will be performed on any horse.

Castration may be performed by either an "open" or "closed" technique and may be performed "on farm" or in our surgical facility. Choice of technique is dependent on whether castration is performed on the standing or anaesthetized horse, facilities available, age and type of the horse and preference of the veterinary surgeon. Potential complications exist with both techniques and whether the procedure is performed on the standing or anaesthetized horse.

"Open" castration can be performed in the standing horse or under general anaesthesia. Potential complications associated with "open" castration include swelling, bleeding or haemorrhage, infection and herniation or evisceration (release of internal tissue or bowel through the wound). Minor complications such as swelling of the scrotum and sheath or local infection are common and most often require little or no treatment. However, occasionally more serious complications can occur including severe haemorrhage or more rarely herniation of intestine. These complications can be life threatening and emergency treatment may be necessary to save the horse.

"Closed" castration is performed under general anaesthesia and involves placement of a suture around the spermatic cord before emasculation (removal of the testicle). This technique reduces the risk of serious haemorrhage, herniation of the intestine and often reduces post-operative swelling.

"Closed" castration requires increased surgery time and the placement of sutures which can increase the risk of infection. Closed castration is generally recommended in cases where there may be an increased risk of complications associated with the "open" technique, such as castration of an older horse or where a scrotal hernia is suspected.

If castration is requested at the time of another surgical procedure, such as arthroscopy, that requires a period of confinement post operatively, "closed" castration is generally performed because of the reduction in post-operative swelling.

- Cryptorchid "Rig" castration

Cryptorchidism is where one or both testes have failed to descend from the abdomen into the scrotum. Cryptorchid castration involves surgical exploration to remove the retained testes.

Cryptorchid castration surgery is performed in a surgical facility and may be done under general anaesthesia or via laparoscopy (inserting a camera and instruments into the abdomen) on the standing sedated horse.

Complications can include bleeding, swelling of the surgical site, infection and breakdown of the tissue at the surgical site which could lead to peritonitis (infection within the abdomen) or herniation of intestine.

- Laparoscopic Surgery

Laparoscopic surgery involves the insertion of a camera and surgical instruments through the abdominal wall. Laparoscopic surgery may be recommended for reproductive surgery such as removal of an abnormal ovary ("ovariectomy") e.g. Granulosa cell tumour, "oviduct flushing" or "uteropexy" in subfertile mares or cryptorchid castration in colts. Laparoscopy also allows visualization of areas of the horse's abdomen that are inaccessible by other surgical methods, and may allow diagnosis and treatment without the need for more invasive abdominal surgery and general anaesthesia.

Complications and post-operative recovery times associated with laparoscopic surgery are significantly reduced because of the small incisions that are used. However, potential complications that are infrequently encountered include intra-abdominal bleeding or haemorrhage, peritonitis (infection of the abdominal cavity), inadvertent injury to intestine and instrument breakage or loss.

- Caesarean

Caesarean section surgery to manage "dystocia" (foaling difficulty) in the horse is an emergency procedure that is used to deliver a live foal or a foal that has died and cannot be safely delivered through the vagina.

Caesarean section surgery to is performed through a large surgical incision in the mare's abdomen and uterus to remove the foal and is performed under general anaesthesia.

Complications are commonly encountered due to the severity of the condition and its effects on the various tissues and organs of the mare. In addition to increased risk of anaesthesia in a foaling mare, surgical risks associated with caesarean section include bleeding/haemorrhage, peritonitis (infection within the abdomen), infection and tissue breakdown at the surgical site which can lead to hernia or evisceration (release of the intestine through the wound). Retained placenta and foetal membranes occurs commonly following caesarean section and is normally managed post operatively with uterine lavage (flushing) and other medical treatments but are associated with risk of infection, endotoxaemia and laminitis.

"Elective Caesarean section" may be performed on mares that have a previous history of foaling difficulty, cervix injury or narrowing of the pelvic canal. Elective Caesarean is performed to decrease the risk to the mare and increase the chances of the foal's survival. Birth of a viable foal via elective Caesarean is dependent on "readiness of the foal for birth" and how well the mare tolerates the anaesthesia and surgery. It is critical that elective Caesarean is performed at the optimal time. Intensive monitoring of the mare and foal are undertaken prior to elective Caesarean.

The risks associated with an elective Caesarean are lower than for an emergency Caesarean however this remains a major surgical procedure and there is the potential for similar complications to occur.

"Terminal Caesarean section" may be performed in the emergency situation to remove a live foal from a mare that is dying but is close to her expected foaling date. The procedure results in a dead mare and a foal which requires intensive care to survive.

- Sinus surgery

Sinus surgery may be necessary to treat problems such as "ethmoid haematomas" (benign growths of highly blood filled tissue within the nasal cavity and sinus) or infection of the sinuses "sinusitis".

These conditions are more frequently encountered in older horses.

Sinus surgery may be performed on the standing horse, under sedation and local anaesthesia, or under general anaesthesia.

Potential risks associated with sinus surgery include blood loss, persistent infection, oromaxillary fistula (a permanent hole) formation and neurological problems. Removal of a "bone flap" to allow surgical access to the sinus, may also result in a poor cosmetic appearance.

If the risk of blood loss is considered high, a transfusion of blood from a donor horse may be performed. Blood transfusion carries a risk of "transfusion reaction" which can be life-threatening.

- Surgery of the eye

Surgical treatment of the eye or adjacent structures is performed for a variety of conditions including injury and infection.

Surgical treatment of eyes is most often performed under general anaesthesia but minor procedures such as the placement of eye treatment tubes (subpalpebral treatment tubes) may be performed on the standing horse using sedation and local anaesthesia.

All surgical procedures of the eye or close to the eye, carry the risk of inadvertent injury to the structures and tissues of the eye and inflammation that could lead to loss of vision.

An increased risk of "bradycardia" (slow heart beat) and occasionally "cardiac arrest" have been associated with eye surgery due to stimulation of the vagus nerve. Local nerve blocks, topical local anaesthesia, non steroidal anti-inflammatory treatments are utilized in addition to careful monitoring of general anaesthesia to minimize this risk associated with eye surgery.

Conjunctival pedicle grafts ("Conj Grafts") are commonly used to help treat deep corneal ulcers. Risks associated with this procedure include breakdown or failure of the graft, ongoing infection that could lead to rupture of the globe (eyeball), and permanent scar formation leading to corneal opacity. Globe rupture can result in permanent blindness and removal of the eye may be necessary. Permanent corneal scarring may lead to a reduction in the field of vision; the significance of this will vary depending on the location on the cornea.

Sub-palpebral lavage tubes ("eye treatment tubes") are frequently used to aid medical treatment of the eye. These tubes are well tolerated by most horses but occasionally cause irritation and rubbing that may result in self inflicted trauma to the eye.

Class of Horse

- Foals

Foals commonly undergo general anaesthesia and surgery to treat angular or flexural limb deformities ("bent legs").

Foals may also undergo general anaesthesia and surgery to treat injuries, infections, colic or ruptured bladder.

In general, the specific risks associated with anaesthesia and surgeries of newborn foals are related to the immaturity of their physiological systems.

Any condition which causes stress to a foal may predispose the foal to gastric ulceration. This may lead to perforation of the stomach or intestine and subsequent death. To minimise stress, foals are kept with the mare as much as possible in the induction of and recovery from anaesthesia.

Colic surgery in foals is a high risk procedure and foals are susceptible to all of the complications outlined under "Colic" above.

In particular, colic surgery in foals is associated with an increased risk of "adhesion formation" (internal scarring within the abdomen), which can lead to subsequent episodes of colic and possibly death.

Foals with ruptured bladders are high risk patients. They are unable to excrete potassium from the body. High blood potassium can cause serious heart problems and death if not corrected. These cases are treated medically before surgical repair is performed under general anaesthesia however the effects of electrolyte imbalances make the foal more susceptible to the adverse effects of anaesthetic drugs.

- Pregnant mares

Pregnant mares may undergo general anaesthesia and surgery for treatment of a variety of conditions including injury, infection, colic and foaling difficulties.

General anaesthesia during pregnancy carries a risk of abortion. This risk is extremely low, especially in the first two thirds of pregnancy. When possible, elective surgery under general anaesthesia in heavily pregnant mares is avoided. There is no evidence that any of the anaesthetic drugs commonly used in horses cause foetal damage or loss.

Anaesthesia in pregnant mares also carries increased risks associated with reduced heart function, blood flow and respiration. Pregnant mares have an increased risk of catastrophic limb fracture during recovery from anaesthesia. Limb fracture usually results in death of the mare.

- Stallions

Stallions may undergo general anaesthesia and surgery for treatment of a variety of conditions including injury, infection and colic.

Specific risks associated with surgery on stallions are related to temperament and size. Stallions may be at increased risk of myositis (muscle injury) or neuropathy (nerve injury) because of their increased muscle mass and weight. Temperament may lead to poor anaesthetic induction or recovery which can lead to injury.
Sperm production and fertility can be affected by any condition which causes a stress reaction in a stallion; these conditions can include pain, infection, high temperature, general anaesthesia and surgery

- Older Horses

Older horses may undergo general anaesthesia and surgery for treatment of a variety of conditions including injury, infection and colic.
Ageing is associated with less effective organ function, diseases affecting metabolism, lameness, reduced joint flexion, osteoporosis ("weak bones") and muscle weakness. All of these factors are associated with increased risks for general anaesthesia and surgery.

- Sick Horses

Horses which are suffering from underlying illness may need to undergo general anaesthesia and surgery for treatment of a variety of conditions including injury, infection and colic.

There is an increased risk associated with anaesthesia and surgery of sick horses.
The underlying illness may be associated with less effective organ function, including a lower ability to cope with the adverse effects of anaesthetic drugs and an increased susceptibility to infection.
The underlying illness can result in severe and potentially life threatening consequences.

Medical treatment including fluid therapy may be recommended prior to performing surgery in some cases.

The advantages and disadvantages of performing surgery on any sick horse are considered and discussed prior to a decision being made.

- Fit Athletic Horses

Fit athletic horses may undergo general anaesthesia and surgery for treatment of a variety of conditions including injury, infection and colic.

There is an increased risk associated with anaesthesia of fit horses. Fit horses often have significantly lowered respiratory and heart rates during anaesthesia. Fitness, coupled with the effects of the anaesthetic drugs can lead to decreased heart and lung function and to low blood pressure which can result in severe and potentially life threatening consequences.

It is common practice for fit horses to be rested or "let down" for a period of time before elective surgery.

In summary:

In consenting to surgery for your horse, you accept that:

- All Surgery involves some risk.
- SEH veterinarians act to manage the risks as well as possible.
- Complications do occur and can be serious and life threatening.
- If complications occur we will inform you and advise you on the best course of action.

8.5 Antibiotic Therapy Risks

Antibiotics are powerful drugs that are commonly used to treat infection in horses.

Before agreeing to antibiotic treatment for your horse, it is important that you understand that the use of all antibiotic drugs involves some risk to the patient.

Horses are complex animals and while it is not possible to detail all the potential complications associated with antibiotic therapy; the following is an outline of the recognised areas of risk.

It is important that antibiotics are used in the manner in which they are prescribed and that specific instructions are exactly followed.

Risks and Complications Related to Antibiotic Therapy

Antibiotic Therapy Risks are divided into General Risks which accompany all Antibiotics and Specific Risks which are related to a particular type of drug.

General Antibiotic Risks

There are many different classes and types of antibiotics but all drugs may result in the following complications: colitis, pain, muscle injury, abscess formation, thrombophlebitis, iatrogenic injury.

The consequences of a horse suffering one or more of these conditions can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEH veterinarians are aware of the risks and potential consequences of antibiotic therapy and act to manage these risks as far as is practically possible.

Occasionally and in spite of all precautions, horses may suffer one or more of these general complications when they undergo antibiotic therapy. This most commonly occurs when the horse is already suffering from disease or injury; however, it can also happen to horses which appear fit and healthy and show no signs of compromise prior to antibiotic therapy.

1. Colitis (diarrhoea) This condition can range from mild signs requiring no treatment, apart from stopping the antibiotics, through to severe diarrhoea which may require hospitalisation and intensive care and may be life threatening. Adults are at greater risk than foals.
2. Pain or muscle injury at the injection site.
3. Abscess formation at the injection site. Abscesses may require lancing and further therapy.
4. Thrombophlebitis (infected vein): This condition can occur following catheter placement or a single intravenous injection. These infections range from mild, requiring no further treatment to more severe infections that result in the loss of the vein.
5. Iatrogenic Injury: Any procedure involving horses, especially young, unhandled and temperamental animals can result in accidental injury to the horse including the eye which may result in damage and possible loss of the eye.

Specific Antibiotic Risks

Many antibiotics have specific complications related to their mode of action and their interaction with the horse.

Penicillin (Benzyl penicillin and procaine penicillin)

1. Anaphylaxis/ allergic reactions occur following previous exposure/ sensitisation to penicillin. Mild signs include skin wheals or oedema to more severe signs causing the horse to drop suddenly to the ground showing breathing difficulties. This is often fatal. If the horse survives an allergic reaction penicillin should not be given again as the next dose may be fatal.

2. Procaine is the agent that stabilises penicillin for intramuscular use. If procaine is accidently injected in the vein it will cause extreme central nervous system stimulation including frantic and uncontrollable behaviour. This is not an allergic reaction. Most horses survive this reaction however they may obtain severe injuries that may be fatal. Keeping the procaine penicillin refrigerated and ensuring careful injection technique will reduce this risk.

3. Autoimmune haemolytic anaemia occasionally occurs and horses may show lethargy (dull), fever, pale mucous membranes, weight loss and rarely discoloured or dark urine. Signs usually resolve once penicillin therapy has stopped, severe signs may require supportive therapy including hospitalisation, fluids or a blood transfusion.

4. Autoimmune thrombocytopenia (drug induced destruction of platelets) causes haemorrhages (red spots on gums, eyelids, vulval lips) or signs of bleeding. Signs usually resolve once penicillin therapy has stopped, rarely severe signs may require supportive therapy including hospitalisation, fluids or a blood transfusion.

Ceftiofur

Anaphylaxis/Allergic (see above)

1. Immune mediated effects – haemolytic anaemia or thrombocytopenia (see above)

2. Pain is commonly seen following intramuscular injection of Ceftiofur (Excenell™ or Accent™)

Aminoglycocides (Gentamicin and Amikacin)

1. Nephrotoxicity/ kidney injury. Increased risk of nephrotoxicity is associated with length of therapy (greater than 7- 10 days), dehydration, and treatment with other drugs that affect kidney function, existing renal disease and high doses. The signs may initially be vague including failure to thrive, weight loss or abnormal blood results. Mild cases may return to normal with time and minimal therapy. Severe cases may result in kidney failure and potentially the death of the horse. These risks are reduced with ensuring correct dose is given once only per day, monitoring hydration and blood tests to monitor drug levels and kidney function.

2. Ototoxicity damage to the ear that may result in loss of hearing.

Chloramphenicol

Use of this antibiotic is restricted and can not be used in food producing animals.
Please see "Therapeutic Risk" document for more information.

1. Long term therapy, greater than 2 weeks can reversibly affect bone marrow causing anaemia (pale mucous membranes) and low white blood cell numbers.

2. Public health risks: 1 in 24,000-40,000 people develop a fatal idiosyncratic (specific to individual person, not possible to predict) aplastic anaemia. This can occur if the drug is ingested or touches the skin of sensitive people so it is essential to use safety precautions (gloves and mask) whenever handling the drug.

3. Avoid vaccinating horses when under treatment with Chloramphenicol as it may cause vaccine failure by suppressing antibodies.

Trimethoprim / Sulphonamides

1. Anaphylaxis/allergic reactions may occur following intravenous use (see penicillin).
2. Concurrent use with detomidine sedation may affect the heart causing arrhythmias and low blood pressure that can be fatal.
3. Autoimmune conditions, Anaemia or Thrombocytopenia/platelet destruction (see penicillin)
4. Rapid intravenous administration can cause a rapid drop in blood pressure and may result in death. This is avoided by slow intravenous dosing.
5. Kidney damage may occur in horses that are dehydrated. Ensure horses are drinking well when treated with these drugs.
6. Anaemia has been reported in horses on long term high doses.

Tetracyclines (Oxytetracycline, Doxycycline)

1. Nephrotoxicity/ renal injury (see aminoglycosides). Risks are increased with dehydration, use of other nephrotoxic drugs and existing kidney disease. Risks are reduced when horses are well hydrated and by ensuring normal kidney function where possible.
2. These drugs result in collapse and death if given rapidly intravenously. This risk is reduced by diluting the drug with sterile saline and slow intravenous administration.
3. Tendon relaxation may occur. This will reverse with time after finishing treatment with the antibiotic.
4. Teeth may become discoloured, especially in younger animals, this may be permanent.

Macrolides (Erythromycin, Azithromycin and Clarithromycin)

1. Hyperthermia may occur in foals, particularly in hot weather, and in extreme cases can be fatal. Foals should be kept in the shade or boxed during hot periods and their temperatures monitored frequently. If a foal shows respiratory distress or has a temperature above 39.5 alcohol baths, cold hosing, or anti-inflammatories may be urgently required. Air-conditioned boxes are very useful with these foals. Please contact the treating veterinarian to help manage these foals. Signs can be seen up to 3 days after finishing the antibiotic.
2. Acute respiratory distress syndrome: signs are dramatic and appear similar to hyperthermia however clinical signs don't improve with cold hosing, anti-inflammatories or alcohol baths and may require hospitalisation and intensive care, many cases are fatal.
3. Acute potentially fatal diarrhoea in adults has been reported in mares when their foals are treated with these drugs for Rhodococcus equi (rattles). This risk can be minimised by wiping any residue from the foal's muzzle after treatment.

These antibiotics are usually not recommended in foals over 4 months of age because of the risk of "colitis"

Fluroquinolones (Enrofloxacin)

1. Arthropathies (joint disease) in foals causing joint effusion, pain, cartilage defects have been reported. Horses should be confined during treatment to minimise damage to joints. Please contact your veterinarian if there are any signs of joint effusion or lameness.
2. Transient neurological signs including excitability and seizures following a rapid intravenous dose. These signs are avoided by administering the dose via a slow intravenous injection.
3. Potential of inducing cardiac and CNS toxicity.

Rifampin

This antibiotic is only used in combination with another antibiotic such as Clarithromycin or Trimethoprim / sulphonamide because of a high likelihood of antibiotic resistance developing
Red staining of urine, tears, sweat and saliva. This will reverse at the end of treatment and is of no concern.

Metronidazole

1. Anorexia or reduced appetite may occur and may be reduced by wiping or hosing out any residue in the horse's mouth after the treatment has been swallowed.

If you are concerned that your horse may be suffering from complications of Antibiotic Therapy you should contact your veterinarian immediately.

In Summary

In consenting to Antibiotic Therapy for your horse, you accept that:

- All Antibiotic Therapy involves some risk.
- SEH veterinarians act to manage the risks as well as possible.
- Complications do occur and can be serious and life threatening.
- If complications occur you will be informed and advised on the best course of action.

8.6 Anti-Inflammatory Therapy Risks

Anti-inflammatories are powerful drugs that are commonly used to treat the signs of inflammation such as pain and swelling in horses.

Before agreeing to anti-inflammatory treatment for your horse, it is important that you understand that the use of all anti-inflammatory drugs involves some risk to the patient.

Horses are complex animals and while it is not possible to detail all the potential complications associated with anti-inflammatory therapy; the following is an outline of the recognised areas of risk.

It is important that anti-inflammatory drugs are used in the manner in which they are prescribed and that specific instructions are exactly followed.

Risks and Complications

Anti-inflammatory Therapy Risks are divided into General Risks which accompany all Anti-inflammatory drugs and Specific Risks which are related to a particular type of drug.

General Anti-inflammatory Drug Risks

There are three major classes of anti-inflammatory drugs, Corticosteroids, Non-steroidal anti-inflammatory drugs (NSAIDs) and Polysulfated Glycosaminoglycans (PsGag's).

The use of drugs from any of these classes may result in the following complications: pain; muscle injury; abscess formation; thrombophlebitis; iatrogenic injury.

The consequences of a horse suffering one or more of these conditions can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEH veterinarians are aware of the risks and potential consequences of anti-inflammatory therapy and act to manage these risks as far as is practically possible.

Occasionally and in spite of all precautions, horses may suffer one or more of these general complications when they undergo anti-inflammatory therapy. This most commonly occurs when the horse is already suffering from disease or injury; however it can also happen to horses which appear fit and healthy and show no signs of compromise prior to anti-inflammatory therapy.

1. Pain or muscle injury at the injection site.
2. Abscess formation at the injection site. Abscesses may require lancing and further therapy.
3. Thrombophlebitis (infected vein): This condition can occur following catheter placement or a single intravenous injection. These infections range from mild, requiring no further treatment to more severe infections that result in the loss of the vein and significant scarring.
4. Iatrogenic Injury: Any procedure involving horses, especially young, unhandled and temperamental animals can result in accidental injury to the horse, including the eye which may result in damage and possible loss of the eye.

Specific Anti-inflammatory Risks

Different anti-inflammatory drugs have specific complications related to their mode of action and their interaction with the horse.

Corticosteroids

1. Stomach ulcers may occur following corticosteroid therapy. Horses may show a reduced appetite, discomfort when eating, failure to thrive, diarrhoea and rarely, sudden death due to perforation of the stomach wall. Ulcers may also occur in the mouth, oesophagus and caecum.
2. Nephrotoxicity (kidney injury) may result from corticosteroid therapy. The signs may initially be vague, including failure to thrive, weight loss or abnormal blood results. Mild cases may return to normal with time and minimal therapy. Severe cases may result in kidney failure and the death of the horse.
3. Suppression of Immune Function may allow infectious agents to multiply unchecked and cause more severe disease requiring aggressive treatment and intensive care and can result in prolonged illness and occasionally death.
4. Joint infection can occur following injection of corticosteroids intra-articularly (into a joint). Infected joints result in lameness and swelling of the joint and are a serious and potentially fatal condition. Early recognition and aggressive treatment of the infection are vital to the horse's chance of a successful outcome. Occasionally, in spite of early and aggressive treatment, the infection is unable to be controlled and the lameness is so severe that the horse has to be euthanased.
5. Laminitis is a condition in which the soft and connective tissues of the horse's feet become inflamed and damaged. These tissue changes are permanent and result in lifelong feet issues which require therapeutic farriery management. The signs of laminitis can vary from mild lameness to severe non-weight-bearing lameness requiring euthanasia. Corticosteroid therapy has been linked in some cases to the development of laminitis.
6. Abortion/premature foaling may occur when corticosteroids are given in the late stages of pregnancy. Corticosteroid therapy in pregnant mares is usually initiated in cases of severe disease. In these cases, the severity of the illness and the progression of the disease are often responsible for the abortion.
7. Retarded growth can occur in foals suckling from mares treated with prolonged courses of corticosteroids. This condition occurs as a result of the drug being passed from the mother to the foal via the milk.
8. Increased appetite, drinking and urinating may occur as a result of treatment with high doses of corticosteroids.

Non-steroidal Anti-inflammatory Drugs (NSAID's)

1. Right Dorsal Colitis is an inflammatory condition of part of the colon which can be caused by NSAID therapy. Horses may show signs ranging from anorexia (poor or no appetite), weight loss and intermittent colic, swollen lower limbs or sudden, severe diarrhoea. Depending on the severity of the signs, horses may require aggressive intensive care and may die from the condition. Horses affected by this condition may be susceptible to further bouts if treated again with NSAID therapy.

2. The action of platelets may be inhibited by NSAID therapy. Platelets are components of blood which are involved in the clotting process. Inhibition of platelets can result in spontaneous or excessive bleeding following injury. Severe cases may require a blood transfusion.

3. Bone marrow production of blood cells may be suppressed by NSAID therapy. Low production of blood cells may result in anaemia or poor immunity which may require intensive care including blood transfusion and antibiotic therapy.

4. Stomach ulcers may occur following NSAID therapy. Horses may show a reduced appetite, discomfort when eating, failure to thrive, diarrhoea and rarely, sudden death due to perforation of the stomach wall. Ulcers may also occur in the mouth, oesophagus and caecum.

5. Nephrotoxicity (kidney injury) may result from NSAID therapy. The signs may initially be vague including failure to thrive, weight loss or abnormal blood results. Mild cases may return to normal with time and minimal therapy. Severe cases may result in kidney failure and the death of the horse.

- Flunixin
  Clostridial myositis is an infection of muscle at the site of the injection. This is a potentially fatal condition and Flunixin is particularly associated with this effect. Signs include depression, elevated temperature, heat, pain and swelling at the site of the injection. Early recognition and aggressive treatment are vital to the horse's chance of survival. Occasionally, in spite of early and aggressive treatment, the infection is unable to be controlled and the condition is so severe that the horse has to be euthanased.

- Aspirin
  The action of platelets may be inhibited by NSAID therapy. Platelets are components of blood which are involved in the clotting process. Inhibition of platelets can result in spontaneous or excessive bleeding following injury. Severe cases may require a blood transfusion. Aspirin is particularly associated with this effect.

- Phenylbutazone
  Phenylbutazone has a narrow safety margin for the NSAID risks, especially in foals, ponies and dehydrated horses.
  The intravenous form of phenylbutazone is irritating to tissue if accidently injected outside the vein. Signs include heat, pain and swelling at the site of injection and can be mild or so severe as to require aggressive surgical treatment and result in loss of the vein and significant scarring.

Polysulphated Glycosaminoglycans (PsGag's)

- Pentosan polysulphate
  Pentosan can decrease the ability of blood to clot which can result in excessive bleeding following injury. Severe cases of blood loss may require a blood transfusion.

- Adequan

This drug is often given intra-articularly (into a joint). Joint infection can occur following injection of PsGag's into a joint. Infected joints result in lameness and swelling of the joint and are a serious and potentially fatal condition. Early recognition and aggressive treatment of the infection are vital to the horse's chance of a successful outcome. Occasionally, in spite of early and aggressive treatment, the infection is unable to be controlled and the lameness is so severe that the horse has to be euthanased.

Other Agents

- Hyaluronic Acid

    1. Haemarthrosis (bleeding into a joint) may occur following injection of Hyaluronic Acid into a joint. Horses show signs of mild to severe lameness and may require intensive care and surgical flushing of the joint.

    2. Immune mediated flares may occur following injection of Hyaluronic Acid into a joint. They are an inflammatory reaction to a foreign substance within the joint. Horses show signs of moderate to severe lameness and may require intensive care and surgical flushing of the joint.

3. Joint infection can occur following injection of Hyaluronic acid into a joint. Infected joints result in lameness and swelling of the joint and are a serious and potentially fatal condition. Early recognition and aggressive treatment of the infection are vital to the horse's chance of a successful outcome. Occasionally, in spite of early and aggressive treatment, the infection is unable to be controlled and the lameness is so severe that the horse has to be euthanased.

8.7 Risk Rating Definition for Repository Radiograph

The following radiographic risk guidelines have been created and are used by the Scone Equine Group when interpreting and reporting on repository radiographs.

YEARLINGS

Low Risk - No or very minor radiographic changes that are unlikely to be of significance for future racing.

Low to Moderate Risk - Minor radiographic changes that are unlikely to affect future racing, or with treatment have a good prognosis.

Moderate Risk - radiographic changes that may require treatment or may delay and/or shorten the longevity of the horse's racing career.

Moderate to High Risk- radiographic changes that will likely affect the horse's ability to be trained and its racing career longevity.

High Risk - radiographic changes that are highly likely to cause lameness and will affect the horse's ability to be trained and to race.

WEANLINGS

The significance of radiographic changes are more difficult to predict, compared to yearlings. This is largely due to their immaturity and the potential for healing or development of other lesions.

Low Risk - No or very minor radiographic changes that are unlikely to be of significance for resale or future racing.

Moderate Risk - radiographic changes that may require treatment or affect a horse's future resale or future racing potential.

High Risk - radiographic changes that are likely to require treatment and significantly affect resale and racing potential.

8.8 Nosocomial Infection Risk (Acquired in Hospital)

In order to provide surgery, intensive medical treatment and nursing care for horses, it is often necessary to admit them to a veterinary hospital.

Horses are complex animals; individuals respond differently, and occasionally unpredictably to challenge by infectious disease and to medical treatment.

Before agreeing to admission of your horse to hospital, it is important that you understand that hospitalisation of all animals may involve some risk to the patient. These risks include acquiring infections that were not present prior to admission – Nosocomial Infections.

The risk of nosocomial infection in equine hospitals is comparable to the situation in human hospitals where nosocomial infections occur in approximately 5% of all patients, with higher rates reported in intensive care patients

Several factors place hospitalised horses at risk of developing nosocomial infection. These include stress (associated with illness or being away from their home environment), transport, fasting or change of feed, invasive medical or surgical procedures, administration of medication, and the presence of gastrointestinal disease, which can alter both the normal motility and flora of the intestines.

Veterinary hospitals are complex environments. They house sick animals with a range of conditions.

Some diseases are contagious and some disease conditions increase the infectious potential of the bacteria or virus. Some horses may be carriers of disease agents but show no clinical signs of infection.

The health status of hospital patients can range from healthy animals which are in hospital for elective surgical treatment, to horses which are critically ill with severely compromised immune systems. In addition, sick foals are usually accompanied by healthy mares; sick mares may be accompanied by healthy foals and occasionally, both the mare and foal are sick on admission or become sick during their hospitalisation.

Hospitals are also subject to high levels of human and equine traffic, making quarantine and disinfection challenging.

The consequences of a horse suffering from a nosocomial infection can range from minor to fatal, depending on the degree to which the horse is affected and the organ system involved.

SEG Veterinarians are aware of the risks and potential consequences of hospitalisation and nosocomial infection and act to manage these risks as far as is practically possible.

Occasionally, and in spite of all precautions, horses are affected by nosocomial infection when they are hospitalised. This most commonly occurs when the horse is already suffering from disease or injury, is very young, is an older animal or has a compromised immune system; however, it can also happen to horses which appear fit and healthy and show no signs of compromise.