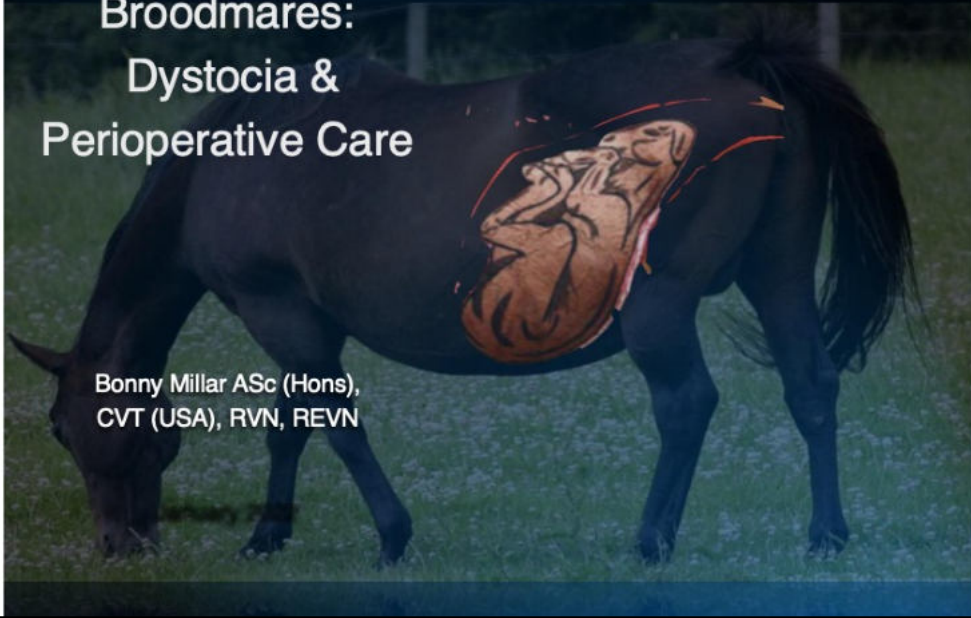
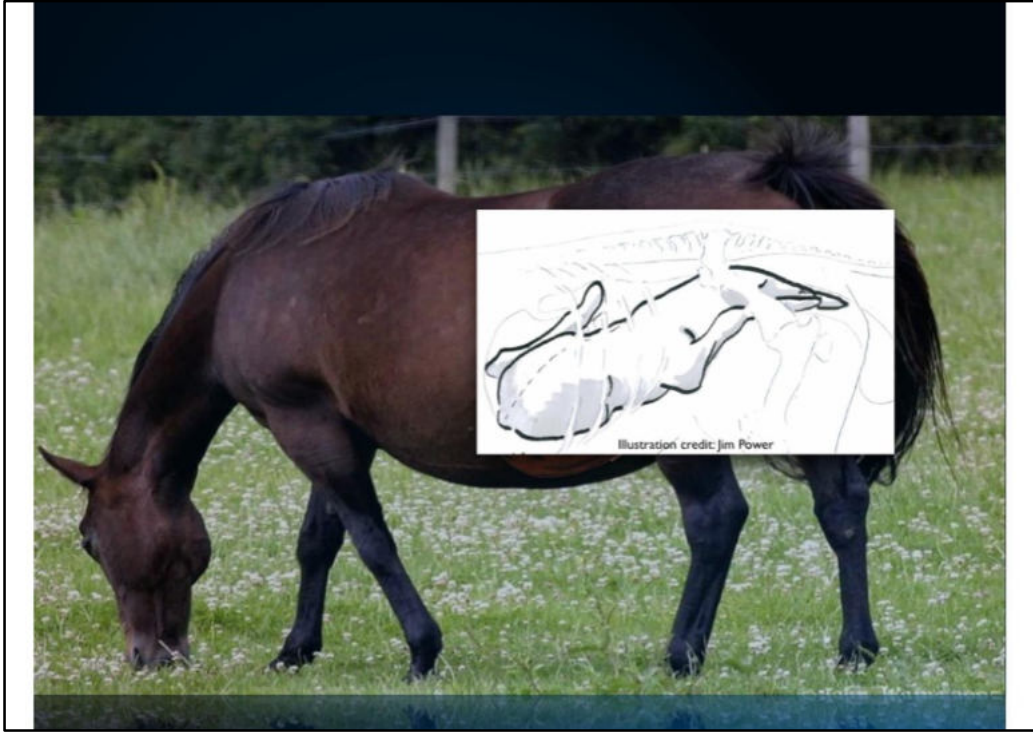


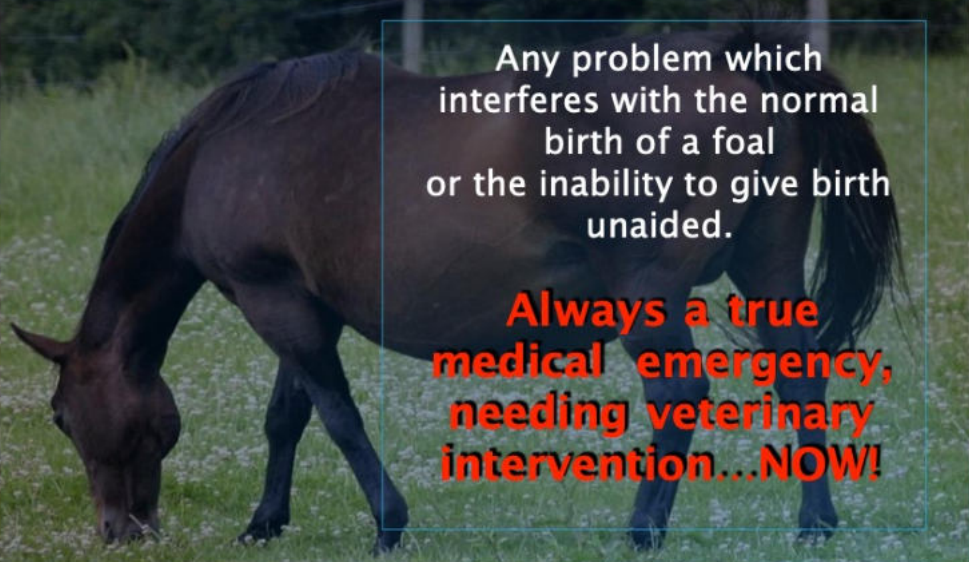
**Broodmares:
Dystocia &
Perioperative Care**

Bonny Millar ASc (Hons),
CVT (USA), RVN, REVN





Veterinary definition - Dystocia

A dark brown horse is shown in profile, grazing in a green field. The horse is the central focus of the image, with its head down and tail slightly raised. The background is a soft-focus green field with some white flowers.

Any problem which interferes with the normal birth of a foal or the inability to give birth unaided.

Always a true medical emergency, needing veterinary intervention...NOW!

Stages of Labour

Stage 1 (1 - 2 hours)

Contractions move foal through cervix, with head and forelimbs into position in birth canal

Foetal membranes may be visible

Stage 1 ends when sac breaks.



Stages of Labour

Stage 2 (15 - 30 min)

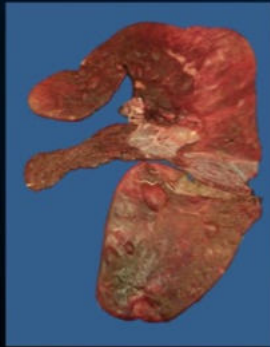
This stage begins when waters break.

Foal is born along with amnionic sac - normally feet first, hooves down, followed by nose



Stages of Labour

Stage 3 (1 - 3 hours)
Expulsion of the placenta



How Common is Dystocia?



- Up to 10% of all births require minor intervention
- Uncommon – approx. 4% in TB
- Draft horses and miniature breeds have higher incidence
- Maiden TB mares at higher risk



Causes of Dystocia



Foetal

- Position
- Size
- Malformations
- Twins



Maternal

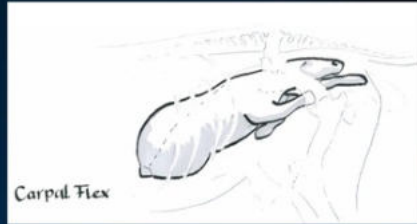
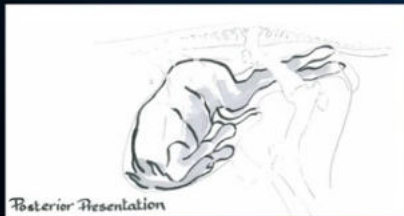
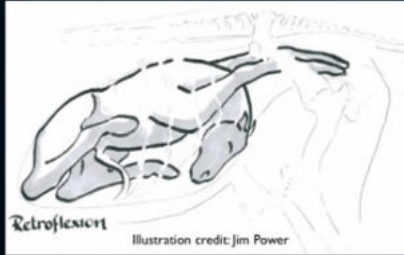
- Medical condition
- Pelvic deformities
- Uterine inertia / exhaustion



Placental

- Premature separation / failure to rupture - 'red bag'
- Normal presentation of foal

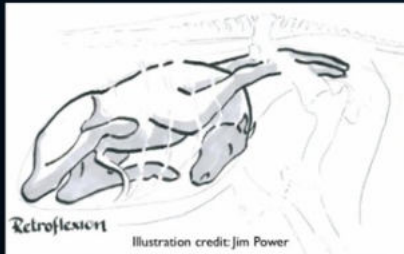
Causes of Dystocia



Foetal

- Position
- Size
- Malformations
- Twins

Causes of Dystocia



Retroflexion - Head and neck back

- Repel foal back out of birth canal then reposition
- Easier to reposition in standing mare
- Feel for the tongue, pull head around and deliver in normal position

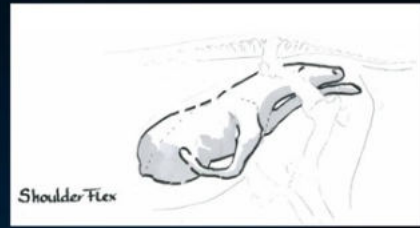
Causes of Dystocia



Posterior -

- May delivery without much abnormality or intervention
- Very rapid delivery
- Affects umbilical blood flow
- Resuscitate with oxygen and monitor foal for NMS
- Breech - rump presents first, with legs forward

Causes of Dystocia



Shoulder Flexion

- Difficult to correctly position quickly
- Requires controlled delivery with GA
- Need to lift shoulder, then address resulting carpal flexion
- If live foal - caesarean without delay

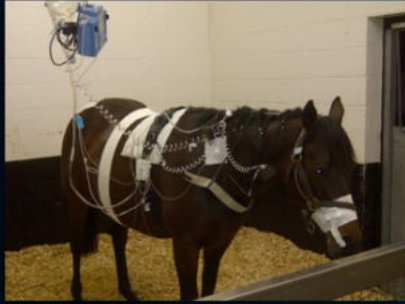
Causes of Dystocia

Carpal Flexion

- Related to carpal contracture
- Repel foetus back into uterus, extend carpus then reposition for delivery
- Can involve both carpi
- Uterine trauma is a concern

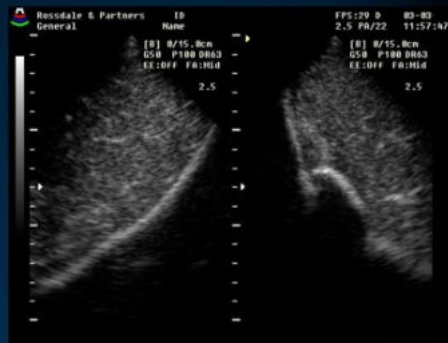


Causes of Dystocia



Maternal

- Medical conditions
- Pelvic deformities
- Uterine inertia / exhaustion



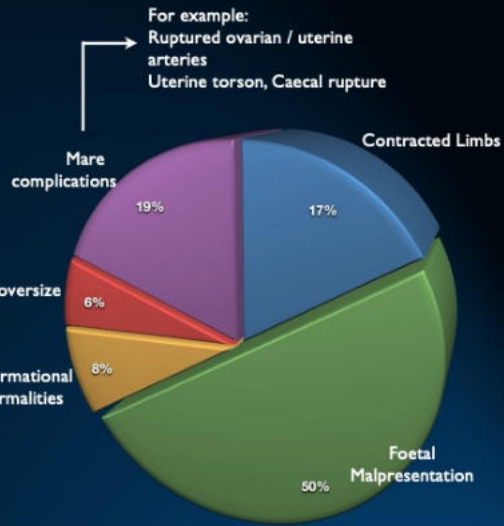
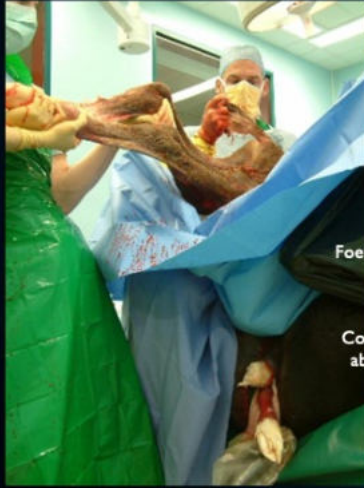
Causes of Dystocia



Placental

- Premature separation / failure to rupture - 'red bag'
- Can have normal presentation of foal
- Not technically a dystocia, but requires emergency intervention

Causes of Dystocia



Rosdales clinical audit data 2006-2011

Preparation

- Drugs - sedation
 - Detomidine / Butorphanol
 - Ketamine
 - Needles and syringes
- Copious volumes of lubrication
- Warm water
- Hand washing disinfectant
- Stomach pump, stomach tube & clean buckets
- Foaling ropes (3 colours) with handles



Preparation



Roles



Allocate specific responsibilities –

- Stud vet – in charge, manipulate mare
- Foal / medical team – foal resus and assist stud vet
- General nurse – clip abdomen, assist stud vet, operate hoist
- Theatre nurse – set up theatre & lay up surgical trolleys
- Intern – anaesthesia
- Students – time and record keeping
- Surgeon – waits in the wings!

Controlled Vaginal Delivery



- Must be very quick and efficient!
- Requires a GA and hoist
- Trandelenberg position – mare in dorsal recumbancy w/ hind quarters lifted high
- Gravity helps move foal cranially, out of pelvis
- With foal out of pelvis, room to reposition for normal delivery
- Fetotomy – NO !!
- For live foal – 10 minutes maximum time spent on CVD

Controlled Vaginal Delivery

A word on fetotomies...



- Definition – the reduction of the foetus to decrease its size prior to removal from the uterus
- To be avoided!
- Only indicated to save the mare if caesarean is refused
- Carried out by experience stud vets only
- Often leads to a damaged cervix – affecting future fertility

CVD vs. Caesarean



When all other methods of delivery have failed, the main reason to carry out a caesarean is to save the mare

Caesarean

- Surgical instruments laid up during CVD
- Move mare to theatre FAST!
- Antibiotics / analgesia
- Reverse Trendelenburg position -->>
- Completely cover mare with bed sheets
- Final skin prep
- Don't keep the surgeon waiting!!



Caesarean

Standard colic instruments
plus:

- Abdominal towels
- Large crushing artery forceps (Rochester-Pean)
- Abdominal drain
- large radiopaque swabs (count swabs AND towels)



Caesarean



- Long midline skin incision
- Incise through abdominal wall - umbilicus cranially
- Locate gravid horn and exteriorise
- Pack around horn with sterile towels
- Locate leg through wall of horn - cut 15-20cm right over that leg
- Lift foal out of uterus
- Peel back placenta from wound edges
- Suture uterus - oversew edges w/ continuous suture. Then 2 layer closure, slightly inverting edges
- Routine abdominal closure

Anaesthetic recovery

Protect and support incision -

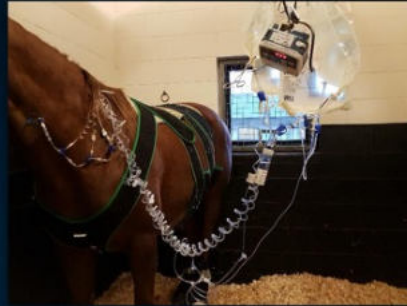
- Dress incision
- Apply belly band in the hoist
- Prevent early standing - sedate
- Empty bladder
- Keep area quiet and dark



Post op care of the mare

Critical care -

- Monitor vitals
- GI and urinary function
- Monitor feet - heat & pulses
- Monitor incision & drains
- Haem / Biochem
- "PGLTTS" - BID
(PCV, glucose, lactate,
triglycerides, total solids)



Post op care of the mare

Critical care -

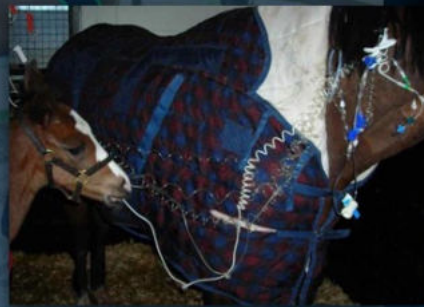
- IV Fluids
 - Close monitoring of rates
 - Check compatibility with drugs
- Prevent breaks in sterility
- Catheter monitoring
 - Heat, pain, swelling
 - q 3hrs
 - Remove immediately if sign of problem



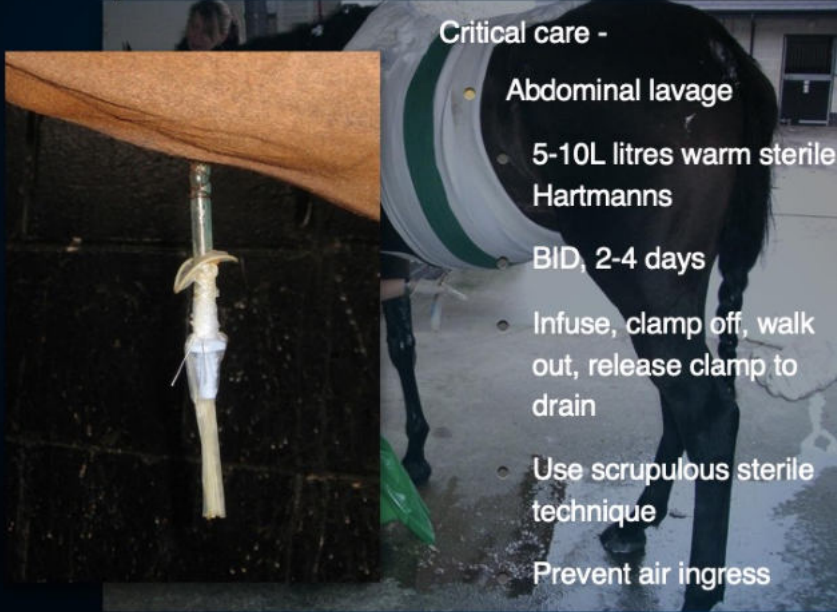
Post op care of the mare

Critical care -

- Abdominal support - 'Belly Band'
- Support large incisions
- Support 'weak' midline musculature
- Protects from nursing foal
- Reduce risk of incisional oedema and infection
- Prevent laminitis
- Prevent interference



Post op care of the mare



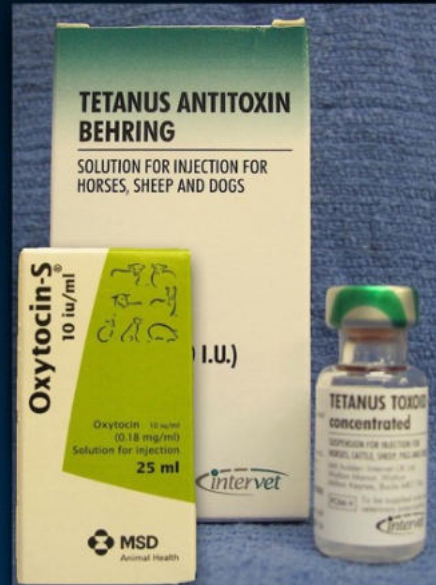
Critical care -

- Abdominal lavage
- 5-10L litres warm sterile Hartmanns
- BID, 2-4 days
- Infuse, clamp off, walk out, release clamp to drain
- Use scrupulous sterile technique
- Prevent air ingress

Post op care of the mare

Standard post foaling care -

- Antibiotics
- Analgesia -
 - NSAIDs (Flunixin 1mg/kg IV)
 - Lidocaine infusion
- Tetanus antitoxin
- Oxytocin
 - Placenta removed: single injection 10-20 IU iv / im
 - Placenta left in situ: Oxytocin drip 10-20 IU / 1 L saline



Post op care of the mare



Uterine lavage -

- Large volume dilute 1% povidine solution (15+ L)

****NOT IN CAESAR MARES** - 3L Sterile Saline instead**

- Oxytocin
- Repeat SID / BID until flushing clear, with good uterine involution

Record keeping

Very important!

Name: _____ Date: 17/5/15

Daily Treatment Sheet

Treatments:	Circle time to request treatment, ✓ when completed, X if cancelled:
NICU check, stand, stimulate & turn Q	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Lab Work: <i>MINUTE WEIGHTS LETHAL</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Lab Work: <i>B/S → PELTS + CELL + PHS</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Lab Work:	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Change fluid lines, O ₂ bubbler, O ₂ lines, Ryles tube SID	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Ophtho Exam SID	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Weigh SID <i>580g</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Gastroguard for 50g PO SID	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>PERV 38 SID PM</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>CEFT 38 SID PM</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>METRONIDAZOLE 20 PO BID</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>FW 12 BID</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>REACTIV - 1.2g SL</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>Oxytocin 0.5ml IV - give 5 more bags</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>Pamperidol 50 tabs BID PO</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>PCP 1ml IM</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>FLUIDS - 100ml - 12hr</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>LIDOCAINE - 0.2g</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>LACTACE MAX + UTAMIS → 1000ml PM</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Progestogens (serum tube, admission, 240, 4th, preflash) →	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>Ureaplasma - admission</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
<i>Marennik 500mg 62 REFUR NOT NEEDED</i>	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09
Mare: midnight feed & water @; change foot dips 13, 21, 05 @	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 01 02 03 04 05 06 07 08 09

TURN OVER FOR FLUID PLAN

Post dystocia complications



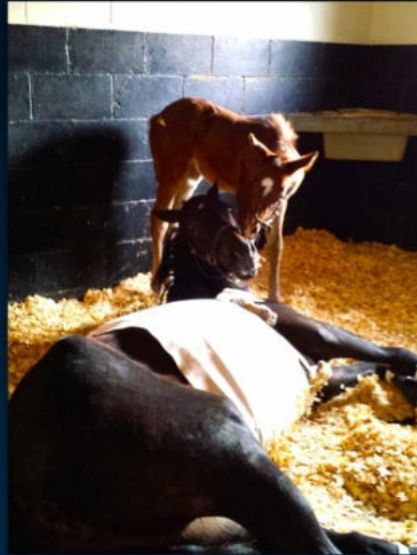
Not uncommon...

- Trauma to cervix - guarded prognosis for future breeding
- Recto-vaginal tears
- Peritonitis
- Haemorrhage (uterine artery)
- Uterine prolapse, rupture or torsion
- Intestinal rupture (caecum or colon)
- Retained placenta

Post dystocia complications

Colic pain

- Common on recovery from dystocia
- Normally uterine cramping
- Usually resolves quickly
- Severe unrelenting pain - colon torsion?!
- q3 hr check of vital signs
 - +/- analgesia
 - +/- IV fluids



Post dystocia complications



Retained foetal membranes can lead to -

- endotoxaemia
- metritis
- laminitis
- death

Tie up placenta, do not cut!

- Weighted with water bag
- Oxytocin
- ABs if persistent
- Inspect closely after it has passed

Post dystocia complications



Abdominal Haemorrhage -

- Sudden death!
- Colic, sweating, elevated HR, weak
- Keep quiet - DO NOT MOVE!
- Keep foal safe!
- +/- Colloids
- +/- Hypertonic NaCl
- Check BP - keep slightly hypotensive
- Transfusion / autotransfuse?
- Analgesia

Post dystocia complications



Trauma -

- Vaginal bruising
- Vaginal / perineal tears
- Uterine tears
- Hind limb paralysis - compression myopathy or neuropathy
- Anaesthesia recovery -fractures getting up

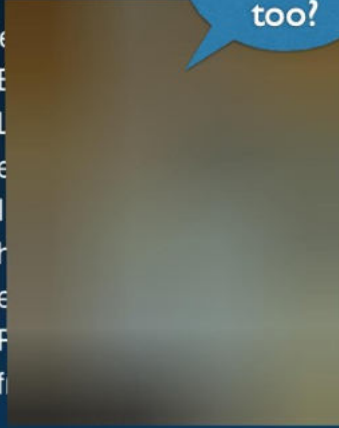
Biosecurity



Barriers

- E
- L
- e
- I
- h
- e
- F
- f

Do I have to dip too?



Rest and recuperation!

Stabling -

- Quiet and clean
- Spacious
- Segregate from other patients

Dedicated equipment

Good quality hay and feed

Dedicated turnout paddock





Thank you...
any questions?

bonny@millarconsulting.com

