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A GUIDE TO FOALING

Good foaling management is very important for the optimum health and survival of the mare and foal.

Time is critical when a mare is experiencing difficulty foaling.
Thus, it is important to understand what is "normal" when it comes to the foaling process so that a problem can be recognized and dealt with promptly.

SIGNS OF IMPENDING FOALING:

Changes in mares suggesting approaching foaling day

SIGNS	USUAL OCCURRENCE
Udder Increases in Size (Bagging Up) • Maiden mares may not exhibit, may have partial filling & regression periodically through last trimester • Teats become shorter and fatter	1 month to 1 week prior Mare SHOULD NOT have milk earlier than 1 week prior. Earlier presentation of milk may indicate placentitis or impending abortion. Call your vet if this occurs!
Changes in conformation • Tail head musculature relaxes • Abdominal area drops down • Oedema and enlargement of the milk vein	1 week to 1 month prior
Teats fill with milk • Variable response • Some mares will not have milk until foaling	2 days to 1 week prior
Dripping of milk • Variable response • Make note of any mare's that drip milk	1 day to 1 week prior Mare SHOULD NOT drip milk longer than 1 week
Waxing • Secretions form wax-like beads on the end of teats • A yellowish, honey-like secretion (Colostrum)	1 week to 4 days prior
External genitalia relax • Musculature under tailhead relaxes, becomes soft & loose • Relaxation and lengthening of vulva	½ to 1 day prior

It is important to note that not all signs are seen in all mares.
Signs will differ in intensity and occurrence from maiden mares to those following previous births.

PARTURITION (FOALING DOWN):

There are three stages of parturition. The first stage is a preparation phase.

In stage one the mare will show signs of physical discomfort. She will exhibit signs similar to colic. She may act restless by lying down and getting up repeatedly. Additionally, she may walk around the paddock in an anxious or nervous manner. She may break out into a sweat in her flank area and behind her elbows. Furthermore, she may look at, bite at, or kick at her sides. She may hold her tail in an elevated position or do a lot of tail swishing. Frequent urination or defecation is also common.

STAGE 1 LABOUR – PREPARING FOR BIRTH:

In stage one, the mare's cervix is dilating and the foal is turning to get into the proper position for birth.

Stage one can last for a few minutes to several hours.
The mare has the ability to prolong stage one if she does not feel safe and secure.
More than seventy percent of mare's foal between 10pm and 2am because there is typically less activity in their surroundings during that time.
As experienced foaling attendants know, mares can and often do put off foaling until no one is watching.
However, if you are unsure if your mare is progressing normally, please call your veterinarian.

STAGE 1 LABOUR PREPARATION: 1 DAY TO 1 HOUR		
MARE	**FOAL**	**ATTENDANT**
• Patchy sweat on chest and behind elbows • Increased temperature • Anxious expression • Looks at flanks • Frequent urination/defecation	• Enters birth canal • Extends head & legs into "diving" position	• Quietly move mare to foaling paddock • Leave a headstall on the mare • If safe, place a tail bandage on the mare • Observe mare for normal progression through stage one.

ALERT!

Some mares begin to show signs of Stage 1, but don't progress.
The mare may just be uncomfortable and not ready to foal, however, if these signs become constant and more exaggerated and yet nothing appears to be happening – call your veterinarian!

STAGE 2 LABOUR – THE BIRTH:

Stage two begins when the mare's water breaks.

This is usually easy to recognize, as the mare will void seven to fifteen litres of allantoic fluid. That is significantly more fluid than is passed during a typical urination.

Once the mare's water breaks the foaling process cannot be stopped. From this point on, time is critical. Stage two usually is complete within 20 minutes, but it can take up to 1 hour.

During the actual birth a mare will usually be lying on her side, but she may get up and lie back down or even roll. The first thing you should see after the water breaks is the amniotic sac, which is a whitish colored membrane that some describe as having a water balloon appearance.

Five to ten minutes after the mare's water breaks, you should see the foal"s front feet, which will be inside of the amniotic sac. One front foot will appear first with the other front foot several inches above the first. At this time it should be determined if the soles of the feet are facing down as this indicates that the foal is in the correct birthing position.

After the two front feet, the nose should appear at approximately the level of the foal's knees.

The next thing to pass will be the foal's shoulders. This is the most difficult part of the birth. It may take several minutes as the mare may rest briefly to gain the strength to push the foal's shoulders through the birth canal.

Once the shoulders are out the rest of the foal follows quickly.

When the foal is completely delivered stage two is complete.

STAGE 2 LABOUR
THE BIRTH: 15 TO 20 MINUTES

MARE	FOAL	ATTENDANT
• "Breaks water" (thin yellow-brown liquid is discharged from the vulva) • May lie down or get up & down repeatedly • A white "bubble-like" amnion appears between the lips of her vulva (within about 5 minutes of the water breaking) • Most mares will rest for 10-20 minutes, post foaling – longer than this and she should be asked to stand	• Emerges from birth canal (See picture of normal presentation on the next page) • Front hooves appear soles down, with one foot slightly ahead of the other. Legs should continue to emerge with the nose appearing just over the knees. • Once the shoulders have appeared, mare will probably rest • The next push should complete the delivery • Foal should be bright, alert & active	• Wash hands in iodine scrub • Check presentation of foal • If the amnion hasn't broken over the foal's nose, carefully tear it open with your fingers • Clear obstructions from the foal's nose • Assist mare by gently pulling on the foal's feet during contractions • Do not break the umbilical cord • As soon as the motion of the mare and foal breaks the umbilical cord, thoroughly saturate the foal's navel stump with iodine scrub • Monitor the foal's condition • Sit foal upright and dry with towels – also helps to stimulate breathing

ALERT!

Once the water has broken, events must go forward, so with each contraction you should see visible progress. If foal is not delivered with 20 minutes, your mare requires assistance.

ALERT!

If you see a velvety red membrane (instead of the white "bubble-like" amnion) = EMERGENCY!
The entire placenta has become dislodged and is being delivered with the foal (premature separation). This condition can lead to suffocation of the foal.
Quickly rupture the membrane with blunt scissors (it is tough) & deliver the foal as quickly as possible

WHAT IS HAPPENING INSIDE THE MARE?

The foal is active in the uterus with periods of movement and sleep.

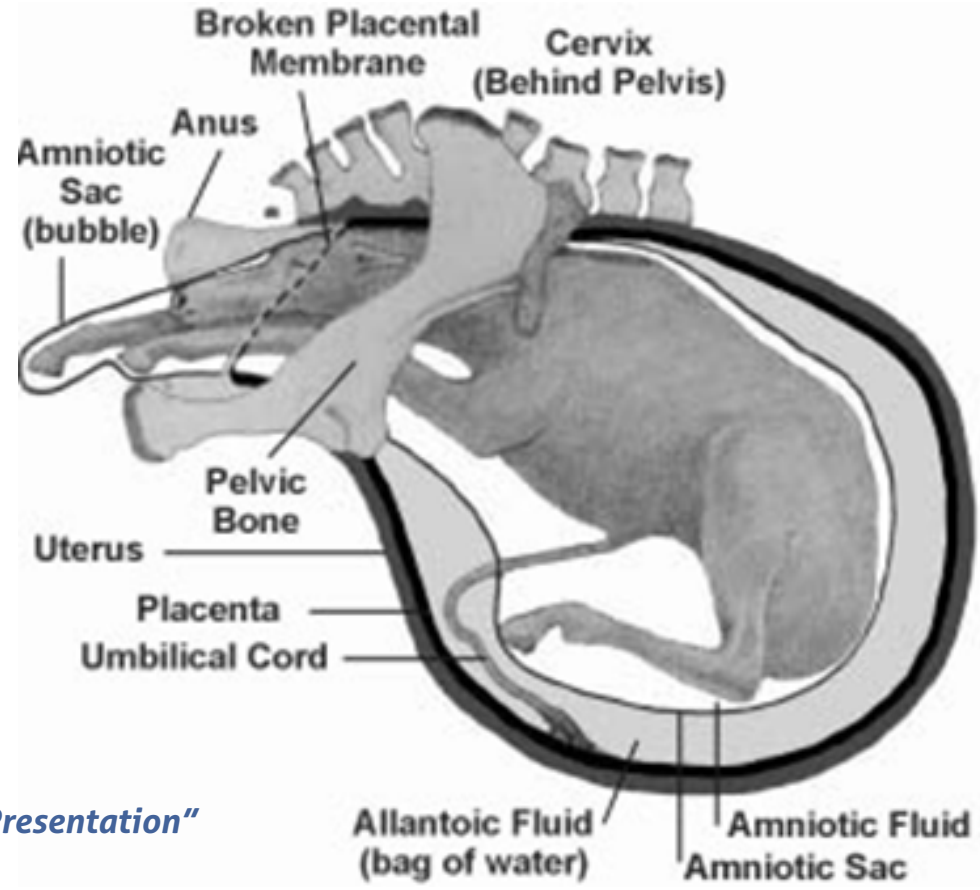
From approximately seven months most foals lie with their back bone against the abdominal floor and their head towards the pelvic inlet.

From approximately nine months, it is sometimes possible to see the foal moving in the flank area of the mare.

(a) The foal is lying on it's back before the mare goes into labor

(b) In the first stage of labor the foal rotates w/head & legs extended into the birth canal.

(c) The nose and forelegs pass through the birth canal w/the pads of the feet pointing down.



A "Normal Presentation"

STAGE 3 LABOUR – PLACENTAL DELIVERY & RECOVERY:

The final stage of the birthing process is placental passage (cleaning).

After the foal is delivered the mare may remain lying down for ten to twenty minutes. This time allows her to rest in addition to providing time for placental blood to transfer to the foal. It is important to not interfere with the natural breakage of the umbilical cord. Cutting the cord with a knife or scissors creates too clean of a cut and prevents rapid clotting. There is a natural stricture on the cord where breakage occurs when the foal struggles sufficiently or the mare stands.

During stage three, the mare may again show signs of mild colic. She is still experiencing uterine contractions that facilitate the expulsion of the placenta (after birth). Stage three lasts approximately one hour and ends with the passage of the placenta. The placenta should not be manually removed, as that can damage the mare's uterus or result in pieces being left inside her, which leads to infection.

Most veterinarians will consider a placenta to be retained after two hours. Retention of a placenta predisposes mares to uterine infection that could lead to endometritis and infertility. Additionally, mares are prone to laminitis (founder) if they have a retained placenta. If a mare has not passed her placenta after two hours it is advisable to contact a veterinarian.

Once the placenta is passed, it should be spread out on a flat surface to determine if any pieces are missing. As stated above, pieces left in the mare will cause infection. There should only be one hole in the placenta where the foal exited. The total placental weight is approximately eleven percent of the foal"s weight, so from the placental weight you can estimate the foal's birth weight.

STAGE 3 LABOUR PLACENTAL DELIVERY & RECOVERY: 1 TO 2 HOURS		
MARE	**FOAL**	**ATTENDANT**
• Sheds the placenta to complete the birth process • Alternatively rests and nuzzles/ licks foal • Gets to her feet & encourages the foal to find her udder • Be aware of a "foal proud" mare – can be dangerous	• Normal parameters (See over page)	• DO NOT pull out the placenta. • You may tie it in a knot so that it doesn't drag on the ground • If the placenta isn't expelled within 2 hours - ***Call your vet!*** • If the placenta has passed – check for completeness • Dip foal's umbilicus in iodine scrub • Give a tetanus antitoxin • Monitor foal for normal parameters • Once foal is up and nursing – administer Fleet enema

THE FOAL – IMMEDIATELY AFTER BIRTH

The first thing to do is make sure the foal is breathing.

If struggling by the foal does not tear the fetal sac, the foaling attendant should rip it and expose the foal's nose. Furthermore, the foaling attendant should clear the mucus from the foal's nostrils by lifting the head to allow fluids to drain or by stripping the nostrils clear.

If the foal does not appear to be breathing, rubbing it vigorously on the belly and ribs with a towel to stimulate breathing.

Check that the foal is showing normal behaviour signs. It should be bright and alert and within a short period of time, should be showing signs of struggling to stand. Many foals show a suck reflex very soon after birth and this should appear as the foal is attempting to stand.

Check that it's heart rate and respiratory rate is normal.

The navel stump should be treated with iodine scrub or one-half percent chlorhexidine.
Filling a small cup with the iodine or chlorhexidine and dipping the navel stump for 30 seconds can accomplish this. One application is all that is needed. In fact, repeatedly dipping the navel stump over a few hours can be too caustic to the umbilical tissue.

NORMAL FOALING PARAMETERS (STAGE 1):	
PARAMETER	**NORMAL TIME**
Length of Gestation	• 315 - 365 days
Temperature	• 37.2° to 38.9°
Heart Rate	• Greater than 60 beats per minute (bpm) at 1 to 5 minutes post foaling • 80 to 130 bpm at 6 to 60 minutes post foaling • 80 to 120 bpm at 1 to 5 days post foaling
Respiritory Rate	• 60 to 80 breathes per minute first 30 minutes, then 30 per minute within the first hour • 30 to 40 breathes per minute at 1 to 12 hours after foaling
Normal Appearance	• Early signs of prematurity/ dismaturity include: *• Weakness* *• "Floppiness"* *• Short, silky hair coat* *• Floppy ears* *• Bulging, prominent forehead and eye* *• Increased passive range of limb motion, a tendency for increased slope of pastern axis* • Brown staining of foal is a sign of meconium staining - ***Call your vet!***

THE FOAL – NORMAL BEHAVIOURS

The newborn foal should stand within two hours and it should nurse within three hours.

The less human interference with this process the better, however the foaling attendant does need to confirm that the foal is nursing.

In order to develop its immune system, the foal needs to drink the mare's first milk (colostrum) as it is rich in antibodies that will protect the foal until its own immunity system is functional. The foal is only capable of absorbing the antibodies in the mare's colostrums for the first 24 hours of life, and more so during the first 12 hours. Thus it is essential to the viability of the foal to nurse. In addition to actually seeing the foal nurse, there are a few other signs that suggest it has consumed colostrums. The foal may have milk on its lips or whiskers if it has suckled. Also, if the mare has one side of her udder that looks significantly less full, that may suggest that the foal has nursed. If there is doubt as to if the foal has consumed colostrums a veterinarian needs to be advised so that he/she can provide the foal with antibodies either by injection or stomach tube.

It is recommended that every foal have an IgG Test within 24 hours of birth. This test measures the amount of antibodies the foal has received from the colostrum. A foal with normal levels is significantly less likely to suffer potentially life threatening infections in the early weeks of life compared with foals who have not received enough antibodies. These at risk foals can receive a plasma transfusion.

It is important to make sure the foal passes its meconium (first faeces). This is a reddish-coloured faeces that has a very sticky consistency, thus it can be difficult to pass. If the foal appears to be continually straining, but fails to defecate, an enema can be administered. A soap and water enema can be prepared or a Fleet enema can be given. It is important to be very careful when giving an enema so that the rectum is not perforated.

NORMAL FOALING PARAMETERS (STAGE 2):	
PARAMETER	**NORMAL TIMEFRAME**
Suckling Reflex	• 2 to 20 minutes - often present at birth • Can check by placing fingers in the foal's mouth
Sitting Upright	• 1 to 2 minutes
Standing	• 1 hour, however most will be much quicker than this • If the foal takes over 2 hours to stand then problems might be present that require immediate attention - ***Call your vet!***
Nursing	• 1 to 2 hours, however most will be quicker than this • If the foal takes over 2 hours to nurse then problems might be present that require immediate attention - ***Call your vet!*** • Ensure no milk comes from nose when suckling. If it does - ***Call your vet!***
Urination	• Less than 8 hours • Monitor urination to ensure no straining or leakage out of umbilicus
Passing Meconium	• Within 12 hours • Monitor foal for straining • Repeat enema, if required
Foal IgG Test	• Complete the test within the first 24 hours • If > 800mg/gl, the foal is fine

Being aware of the normal events in the foaling process will make a foaling attendant more able to recognise when a mare is having birthing difficulty.

In addition to understanding the physical events, it is important to be aware of the timing of the events as well.

If a veterinarian needs to be called for assistance be prepared to tell him/her how long it has been since the mare's water broke, how long since feet have been seen, how long the placenta had been retained, etc.

In the event of difficulties, this information will help your veterinarian make more appropriate decisions for the welfare of both the mare and the foal.