

WHAT TO EXPECT WHEN YOUR MARE IS EXPECTING - A NORMAL FOALING -

The birth of a newborn foal is a very amazing experience to watch and to be a part of. As the pregnant mare approaches her due date, or foaling date, it is important to prepare and review the normal events that will take place so she may give birth to a healthy, long legged bundle of joy. Reviewing normal preparations for foaling, the stages of foaling, and the normal activity of a newborn foal will help prepare everyone involved and help the youngster hit the ground running.

The average gestation length of the mare is 340 days (range 315-365 days) and gives ample time to prepare for the arrival of the newborn foal. Mares due in winter tend to carry their foals longer than mares due in summer. Any foal born outside of the normal range may warrant a more thorough evaluation by your veterinarian. As the mare approaches her due date, it is important to booster her annual vaccinations one month prior to her due date. This stimulates her immune system and boosts antibody production. The antibodies concentrate in the colostrum as the mare nears foaling. A newborn foal is immuneologically naive and acquires its initial immune protection from the antibodies in the mare's colostrum. If the mare leaks colostrum or "runs milk" prior to foaling it is a good practice to supplement the foal with clean, tested colostrum via a bottle or to have your veterinarian administer it via a nasogastric tube.

Prior to foaling it is important to screen the mare for neonatal isoerythrolysis (NI), a disease that can lead to an anemic jaundiced foal. An NI positive mare produces antibodies in her colostrum to the foal's red blood cells. The foal becomes weak and anemic after the ingested antibodies cause their immune system to destroy their own red blood cells. An NI Screen can be done on a red top vacutainer tube of blood at most veterinary labs. If the mare tests positive, the foal should be muzzled and restricted from

nursing the mare until the colostrum tests negative. The Jaundice Foal Agglutination test will determine when it safe for the foal to nurse from an NI positive mare. The JFA test is run on a sample of the foal's blood and a sample of the mare's colostrum. The foal should be given two pints of NI negative colostrum during the first twelve hours of life. Once the mare has been vaccinated and tested for neonatal isoerythrolysis we can wait for signs of foaling. If the mare has a caslicks in place due to poor perineal confirmation, it should be opened prior to foaling.

With the due date around the corner it is a good idea to have a pregnant mare monitoring system in place. This could be either a foal alert system secured to the mare's vulva, a live video feed of the foaling stall to the Internet or a monitor on your bedside table. Often the best option is to have someone with foaling experience watch the mare or group of mares all night long. Outward physical pre-partum changes in the mare can help us predict when the foaling will occur. The udder begins to enlarge 4-6 weeks prior to foaling. The teats usually fill and distend 2-14 days prior to foaling and "waxing" of the teats should occur as the mare approaches foaling but this may not always be seen. Other signs may include relaxation of the tail head and pelvic ligaments, and relaxation of the flank area, vagina and vulva. The mare may begin to sweat or "heat up" in the early stages of labor. Since some, all or none of these signs may be seen, other tests can be done to help predict foaling. Tests available to predict foaling most commonly evaluate the "hardness" of the mare's precolostral mammary secretions. With varying reliability, these tests more accurately tell you when the mare will not foal rather than when she will foal. Ultimately, the best foaling monitor is to remain with the mare in a quiet and dark barn and personally monitor the mare for the signs of foaling we've previously discussed.

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The mare's stall or a designated foaling stall should be properly cleaned and maintained before and immediately after foaling to minimize bacterial exposure of both the mare and the foal. Stalls should be thoroughly cleaned and disinfected between foalings when possible. Stalls of sufficient size for the breed should be used and heavily bedded with clean straw. Other beddings may promote bacterial growth or be too dusty for newborn foals. In the event of an emergency it is always a good plan to have a truck and trailer or horse van readily available for transport of the mare or foal to a referral clinic. Once our mare is bedded down for the night we can wait patiently for the Stage I labor.

Stage I of labor is the preparatory stage where final positioning and posturing of fetus take place. As the foal moves into the normal dorsosacral position, the feet and nose help to dilate the cervix as the uterine contractions increase. The beginning of this stage may be difficult to identify and it is not marked by a single event or change in the mare. Stage I labor often begins two hours before foaling and may be seen only as colic-like signs; restlessness, gets up and down, tail-swishing and pawing. Milk may be seen streaming from the teats. The colic-like signs are due to the pain from intermittent uterine contractions. This stage may range from 30mins-4hrs. During stage one it is best to observe quietly and notify managers or foaling team about the pending birth. Any disturbances may delay the foaling. Stage I ends when the chorioallantoic membrane ruptures and the allantoic fluid is expelled. This is most commonly known as "when the water breaks."

Stage II of labor, the Active Stage, is clearly marked by the water breaking. Most mares are recumbent during Stage II but they may sit sternal and sometimes roll as they try to ease the pain of the uterine contractions. The average length of Stage II is 20-30mins. Once the water breaks, the amniotic membranes should be visible at the vulvar lips within 5-10 minutes. The fetus is now in the birth canal and this further

stimulates stronger abdominal contractions. At this point of the foaling, experienced foaling personnel may choose to hygienically (palpation sleeve and lube) palpate the mare vaginally to confirm a normal dorsosacral position. When palpating vaginally, two-upside down v's, and the front feet should be followed by the nose during a normal foaling. As the abdominal contractions continue the feet will be observed extending from the vagina through the amniotic membrane. The amniotic membranes generally rupture when the foal is midway through the birth canal and they should be ruptured or opened if they come out intact and over the foals airway. The normal position of the forelimbs should be one followed by the other to help the shoulders pass through the mare's pelvis. The nose should rest on the forelimbs or knees and the head and neck are extended. This is analogous to a diving foal. If the nose of the foal is not observed, only one hoof is present or the hooves are upside down, the foal is not in the correct position. This is an emergency and your veterinarian should be contacted right away. Time lost during Stage II can greatly jeopardize the survivability of your newborn foal. Assuming a normal position, the abdominal contractions may be assisted with gentle manual traction on the front legs in a downward direction toward the hocks until the foal is delivered. As contractions continue, the hind feet are the last part to be delivered and indicate the end of Stage II.

It is important to stress that Stage II should progress fairly quickly once the foal enters the birth canal. Deviations from normal put the foal at risk of a hypoxic (lack of oxygen) insult. Please contact your veterinarian if you think your foal experienced a hypoxic event during foaling. The mare and her newborn foal should be allowed to lie quietly as the last transfer of blood passes through the connected umbilical cord to the foal. When the healthy newborn struggles and flails its legs trying to stand or as the mare stands the umbilical cord will break on its own. The cord should not be cut with scissors or a scalpel blade. At this point it should be quickly

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dipped in a clean cup of naval iodine or chlorhexidine naval solution. It is recommended to use clean exam gloves when handling an umbellicus for the first time.

Stage III of labor begins when the foal is born and ends when the mare passes a complete placenta. The placenta is normally passed within 3 hours of foaling. The placenta should be weighed and weigh approximately 10% of the foals birthweight. Unusually heavy placentas should be presented to your veterinarian for examination. All placentas should be laid out in an F position and examined for completeness. This insures that no pieces of uterine horns are left in the mare. If unidentified, retained fetal membranes can cause profound sickness and laminitis in a post-foaling mare. Your veterinarian should evaluate mares that fail to pass their placenta within six hours of foaling.

The initial exam of the newborn foal is typically carried out on the farm-by-farm personnel. The initial respiratory rate is 60-70 breaths/min and the mucous membranes should become pink within one minute after delivery. If they are not or they become pale, nasally administered oxygen may help oxygenation. The foal should be responsive to stimuli and have a suckle reflex within 5-20mins post foaling. The heart rate should be 60-120 beats per minute. Foals with heart rates less than 60 should be carefully monitored and your veterinarian notified. As a rule of thumb, foals should stand within one hour of birth and nurse the mare within two hours of birth. These are general guidelines as other factors such as size, confirmation, etc., may influence your newborn foal. Mares that deliver according to plan and have newborn foals that stand approximately within 1 hour and nurse within 2 hours should be considered normal. Your veterinarian sometime within the first 12 hours of life should evaluate the mare and foal. Your veterinarian will evaluate the foal clinically, physically and submit blood work to evaluate the foal's white blood cell count and IgG concentration before giving your foal a clean

bill of health. The normal WBC for a newborn foal is 5-16,000 cells/ul and the normal IgG ranges from 400-1200mg/dl after 12hrs of age. An IgG <400mg/dl indicates failure of passive transfer and requires either colostrum or plasma supplementation.

A healthy pregnancy culminates with the birth of a healthy newborn foal. The goal of this article is to present the normal foaling with normal newborn mare and foal parameters. In some instances things do not go as planned and emergencies arise. We will present and share cases of dystocias, difficult births, and newborn foal complications in the coming months. If you have any questions please talk to your veterinarian or you may talk to a Hagyard veterinarian at 859-255-8741.

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Dr. Martinez graduated from the Oklahoma State College of Veterinary Medicine in 2003. He completed an ambulatory internship at Hagyard Equine Medical Institute and became a Field Care Associate in 2004. His practice includes emergency field medicine, herd health and wellness, neonatal foal care, mare and stallion reproduction, and equine dentistry. Dr. Martinez is



actively involved with veterinary medicine organizations, holding positions in the Kentucky Association of Equine Practitioners and the National American Association of Equine Practitioners. His wife practices small animal emergency medicine in Lexington, KY. They live in Versailles with their three year old son and two dogs.

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FOALING NORMALS

Gestation Length - Normal- 322-345 days (11m+7d), Premature <320

Stage I - Preparatory Stage

Lasts **30min-4hrs**, Highly Variable, May begin 2 hrs before foaling

Fetal Positioning - Moves to Dorsosacral position, Contractions Increase, Cervix Dilates

Colic-like signs - restlessness, up and down, tail swishing, pawing, look at flank, stream milk, “heat up” & sweat

Observe Quietly, Alert Foal Team & Managers, Emergency Transportation Plans

Ends w/ **Rupture of Chorioallantoic Membrane** & Expels allantoic fluid-“**water breaks**”

Emergency - RED BAG - Failure of chorioallantoic membrane to rupture

Tear or cut membrane, supplement oxygen and notify vet!

Stage II - Active Stage

Begins with Rupture of Chorioallantoic Membranes

Lasts 20-30mins after water breaks and ends with delivery of foal

PROGRESSES RAPIDLY

Amniotic sack (thin and sheen) seen from vulvar lips within 5-10 minutes after water breaks

Presentation - **Two front feet (upside down v's) and a nose**

One front foot follows to allow shoulders to pass thru mare's pelvis

Assist delivery with gentle manual traction pulling above fetlocks down toward mare's hocks

Consult veterinarian if abnormal positioning or progress stops!! Time lost decr survivability!

Stage III - Passage of Fetal Membranes

Normal: **5mins to < 3 hrs**

>6 Hrs Consult your veterinarian

Weigh & Examine all placentas in “F” pattern. Make sure complete, no retained horns.

Monitor Mare's temp, gum color, HR & RR for first 42-78 hrs.

EMERGENCY CONTACT INFO:

NAME:

Phone#

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NEWBORN FOAL NORMALS

Gestation Length - Normal- 322-345 days (11m+7d), Premature <320

Physical Exam:

Temp- 99-102 F

HR - 60-120 beats per min **<60 give nasal oxygen & monitor closely

RR - 60-80 breaths per min initially, then 20-40 bpm

mucous membranes - become pink within 1st min of life, monitor for jaundice/NI for 24hrs

Time to stand: 1-2 hrs

Time to nurse: 2-3 hrs

Time to suckle reflex: 5-25min post foaling

First urination: ~8hrs after birth

Meconium passage: ~12hrs after birth

Do not give more than 3 Fleet enemas in a 24 hr period!

Warm soapy enema - ivory soap

Menace Response: Not present until 2wks of age

Emergency Resuscitation - ABCs

A - Airway - Clear airway, remove membranes and fluid

B - Breathing - Stimulate foal, VENTILATE, Mouth to nose, extend head and neck,
20-30/ breaths min, give supplemental oxygen

C - Circulation - Chest compressions 100-120 per minute, above costochondral junction

D - Drugs - Discuss with your veterinarian prior to an Emergency

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