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HAPPY NEW YEAR

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**HAPPY
NEW
YEAR!**



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Emergency Calf Management after Dystocia (Difficult Birth)

By Michelle Arnold

“Dystocia” is defined as a difficult or prolonged calving, whether or not human assistance was necessary for delivery of the calf. Factors known to cause dystocia include a mismatch between small pelvic size of the dam and large calf size, abnormal calf presentation (for example, backwards or head turned back), and maternal factors such as weak labor, insufficient dilation of the cervix, or a uterine twist or torsion. Thin cows often experience prolonged labor and calves are born weak and slow to stand and nurse. Inappropriate timing of intervention or excessive force applied during delivery may cause additional stress and injury to an already weakened calf. Following dystocia, a calf is 6 times more likely to get sick than a calf born normally, with most deaths occurring within 96 hours of birth.

The key event in the transition from life inside the uterus to an independent existence is the initiation of breathing. As the lungs inflate, blood is enriched with life-sustaining oxygen. The first breath is the hardest to take and is comparable to the first hard push of air necessary when inflating a balloon. In order to help breathing begin after a difficult delivery, immediately place the calf upright on its sternum (breastbone) to maximize ventilation (Figure 1). Calves should have their nose and mouth cleared of any fluid or other physical obstruction, either by hand or suction bulb. Calves should not be hung upside-down or swung around by their rear legs to remove fluids by gravity. These procedures cause the abdominal organs to push against the diaphragm, making it even

more difficult to expand the lungs. Calves should make active respiratory movements within 30 seconds of being delivered.

If spontaneous breathing does not begin, it is important to stimulate respiration. Many methods have been tried but very little published information is available as to their usefulness. Once the calf is placed on its sternum, vigorous stimulation of the calf by rubbing the head and body and placing a finger or piece of straw in the nose should initiate a gasping reflex that helps bring air into the lungs. Mouth-to-mouth or mouth-to-nose resuscitation is very difficult to do effectively. Establishing a tight seal to prevent air leakage is difficult but, even more importantly, the air blown in usually goes down the esophagus and fills the stomach, making the situation worse for the struggling calf. To avoid these problems, a veterinarian may use an endotracheal tube with an inflatable cuff to provide positive pressure ventilation effectively. Certain prescription medications such as doxapram may also be used to stimulate respiration although severely affected calves do not always respond to it. Veterinarians may also use injectable sodium bicarbonate to correct metabolic acidosis, a condition that often follows dystocia in which the calf’s blood is more acidic than it should be due to the lack of oxygen. In general, cardiac resuscitation is not attempted in calves born without a heartbeat as there is very little chance of survival. Similarly, calves that do not

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Emergency Calf Management..... continued from front page

respond to respiratory stimulation techniques and cannot sit up on their own after 10 minutes are unlikely to survive.

In moving from the uterus to the outside environment during birth, newborn calves often experience a dramatic shift in temperature. Calves delivered normally maintain their body temperature (thermoregulation) by shivering and by mobilizing energy from brown adipose (fat) tissue. Simple, natural physical activities such as standing, walking, and consuming colostrum will also generate body heat. Following a difficult birth, calves have an impaired response to cold temperatures. Inadequate oxygen can reduce muscle tone and prevent shivering as well as decrease the calf's ability to utilize its brown fat. Calves with thermal stress and low energy are slow to stand and nurse, limiting their ability to warm themselves through this natural physical behavior. These calves should be exposed to an infrared heater or placed in a warm bath to improve rectal temperature, blood oxygen level, and respiratory rate. If electric heating pads are used, they must be closely monitored because pads can get hot enough to cause burns, particularly if the calf is unable to move off the pad. Heat lamps must also be monitored to prevent burns.

The single most important factor in calf survival after a calf establishes its breathing, is receiving and absorbing an adequate amount of good-quality colostrum. It is essential that all calves receive 3-4 quarts of colostrum within the first 6 hours of life, preferably 2 of those quarts within an hour of birth. Since a calf is unlikely to voluntarily suckle after dystocia, it is recommended to feed colostrum via stomach tube ("esophageal feeder") within one hour of birth if there is any doubt as to the calf's vitality. Calves that are wedged in the pelvic canal for prolonged periods may be born with a swollen head and/or tongue. This condition will usually resolve itself within one to two days but feeding the calf with an esophageal feeder is required until the calf is able to suckle. Colostrum contains immunoglobulins that form the calf's immune system as well as nutrients vital to the newborn such as fat-soluble vitamins and sugars. A weak newborn calf left to suckle the cow without assistance is a major cause of "failure of passive transfer" (FPT) of antibodies from dam to calf because of delayed consumption of colostrum. FPT increases susceptibility to infectious diseases, increases neonatal sickness and death and has long-term effects on growth and performance if the calf survives.

Major problems in the calf may arise days to weeks after a complicated delivery. Excessive force applied during delivery may result in trauma such as fractures of the legs, ribs and vertebral column and damage to the spinal cord.

The extent of these injuries may not be obvious at birth but will become apparent over the next one to two weeks. The umbilicus (or "navel") may become infected due to prolonged contact with the ground, predisposing the calf to



Figure 1: Meconium staining (yellow color) is an indicator of calf stress during delivery. Placing the calf on the sternum (as pictured) maximizes ventilation of the lungs.

infections carried by the bloodstream to all major organs and death follows shortly afterward. Mild antiseptics can be used on the umbilical cord but avoid strong, caustic agents as these will cause irritation and inflammation of these sensitive tissues. Maintaining a clean, dry calving area and ensuring adequate high-quality colostrum ingestion quickly after birth are the best methods to prevent disease in fragile newborns.

In summary, success in saving a calf after a difficult delivery will depend largely on the condition of the calf at birth. Some will suffer major trauma during delivery resulting in severe bruising, fractured ribs, bleeding in the central nervous system, and other maladies resulting in death irrespective of treatment. Other calves will be born with a heartbeat but not breathing; these calves are good candidates for resuscitation. Establishing a straight airway by placing the calf on its sternum, initiating breathing through vigorous rubbing of the head and body and tickling the nasal passages with a piece of straw, and establishing a warm body temperature are the cornerstones to immediate calf survival. Once the calf is stable, early delivery of high quality colostrum is essential for passive transfer of immunoglobulins, energy, and long-term survival.

Early Identification of Sick Dairy Calves Important To Their Survival and Future Milk Production

By Donna M. Amaral-Phillips

The health of dairy calves early in life (first 8 weeks of life) directly impacts future milk production and longevity in the dairy herd. Protecting the future health and survivability of calves starts with timely feeding of adequate amounts of high-quality colostrum and disinfecting the navel with 7% tincture of iodine or a chlorhexidine solution. In addition, dairy calf managers must be able to identify sick calves early and provide supportive therapy early for the best survival rates and to minimize effects on long-term productivity.



Excellent dairy calf managers can spot diseases early and treat these calves so they have the best chances of recovering quickly. To help train employees and family members to detect illnesses in dairy calves a check sheet with common symptoms to evaluate is outlined here. Once sick calves have been identified and more closely examined, protocols developed with your local veterinarian, should be implemented to treat these calves.

Step 1: Identify calves needing more careful evaluation at and just before feeding times.

Part 1: Response to calves at feeding time: For calves where the answer to the question below is no, examine these calves more closely using the questions listed under step 2 – closer inspection).

Yes No

- Does the calf get up and actively position itself at its milk feeding station?
- Does the calf want to drink her milk?
- Does she drink her milk at her normal expected rate?
- With automatic feeders, does the calf drink their normal allocation of milk within the allocated time frame?
- Are the calf's ears erect and is calf alert? Droopy ears are a sign of illness.

Part 2: Additional observations done at each feeding: If any problems are detected, calves should be examined closer using the questions listed under step 2.

What is the manure consistency of calves? Check the description that is the closest. Calves that are scouring need additional fluids, and need to be examined closer and should be fed last to prevent spread of diseases to healthy calves.



- Pudding consistency- normal fecal consistency
- Yogurt consistency- fecal consistency does not warrant feeding electrolytes
- Maple syrup consistency and/or strong odor- too thin (calf needs closer examination and electrolytes should be fed in addition and separately from milk)
- Apple juice consistency – too thin (calf needs closer examination and electrolytes should be fed in addition and separately from milk)

Yes No

- Is the calf coughing or/and has a discharge from her nose or eyes? If so, closer examination of the calf is needed for potential respiratory illnesses. Your veterinarian can help you diagnose the source of the problem and prescribe the best course of action to take. Antibiotics should be used as directed by local veterinarian.

Step 2: Closer Inspection for calves with potential illness (detected through questions answered in step 1)

Calf's Vital Signs or Physical Measurements- If calf's vitals are outside the normal range (answered yes to any question), treatment protocols which have been developed with the help of your local veterinarian should be implemented.

	Normal or expected calf vitals
<p><u>Yes</u> <u>No</u></p> <p><input type="checkbox"/> <input type="checkbox"/> Is the calf's temperature elevated?</p>	<p>101 to 103 °F is normal.</p>
<p><input type="checkbox"/> <input type="checkbox"/> Is the calf breathing rapidly?</p>	<p>24 to 26 breaths per minute is normal in calves less than 1 month of age and 15 to 30 breaths/minute in older calves.</p>
<p><input type="checkbox"/> <input type="checkbox"/> Is the calf's heart rate elevated?</p>	<p>100 to 140 beats per minute is normal in calves (twice as fast as a cow). An irregular beating of the heart is one sign of illness.</p>
<p><input type="checkbox"/> <input type="checkbox"/> Are the calf's eyes sunken into the eye socket? Gently evert the lower eyelid of the calf and observe the amount of space between the eyeball and the lower eyelid.</p>	<p>Healthy calves have a minimal amount of space between the lower eyelid and eyeball (less than 2 mm or a little more than 1/16th inch). As the calf becomes dehydrated, the amount of space between the eyeball and lower lid increases.</p> 
<p><input type="checkbox"/> <input type="checkbox"/> When the skin of the neck is pinched and gently rotated 90°, a tent of the skin forms. Does this skin tent return to normal within 2 seconds?</p>	<p>Normally, expect the tenting of skin to return to normal within 2 seconds.</p> 
<p><input type="checkbox"/> <input type="checkbox"/> Are the calf's gums dry and white in color?</p>	<p>Normally, calves' gums are moist and pink in color. Dry, white gums are a symptom of severe dehydration (8-10% dehydration).</p>
<p><input type="checkbox"/> <input type="checkbox"/> If the calf is lying down, does she fail to want to get up when given a small amount of persuasion?</p>	<p>For calves that are unable to rise, contact and/or follow your veterinarian's recommendations immediately. These calves might need IV fluids (fluids administered directly into the blood) to help treat the dehydration and possible acidosis. If not treated appropriately and quickly, this calf may die.</p>