Spring at Elgin Veterinary Hospital is a time for sick calves and worried clients. To help ease some of that anxiety, this article will help to focus on primary concerns with young calves.

**COLOSTRUM IS KEY**

The path to a healthy calf crop starts with high quality colostrum. Colostrum is made with immunoglobulins during the last four to six weeks of pregnancy. Cows that are appropriately vaccinated during pregnancy should transfer acquired immunoglobulins from their serum to their colostrum. Most vaccine guidelines suggest vaccinating cows 30 to 60 days prior to breeding and 30 days prior to calving. The most common vaccines used are a multi-way Clostridial (C. perfringens, C. difficile, etc.), for respiratory pathogens (IBR, BVD, PI-3, etc.), for neonatal diarrhea pathogens (E. coli, Rotavirus, Coronavirus, and C. perfringens), and sometimes for Leptospirosis serovars (L. hardjo, etc.).

Timing of colostrum intake is imperative: calves need to ingest colostrum two to four hours after birth as their ability to absorb immunoglobulins through their gastrointestinal tract decreases after 12 hours and is almost non-existent after 24 hours. Calves should be monitored after birth to ensure that they are able to nurse. Calves that may require supplemental colostrum are those whose dam has poor anatomical teat/udder structure (too large of teats or lack of udder development), calf who is slow/too weak to nurse, calf who is unable to nurse (swollen muzzle due to prolonged time in birth canal), or those calves who had a difficult delivery from dystocia (stress may decrease colostrum absorption or calves may be too sore to stand).

Calves should ingest at least 100 grams of immunoglobulins. Commercial powdered colostrum products are available through veterinary hospitals and feed stores. However, be aware of the quality of powdered colostrum as there are differences. Colostrum is species specific. Additionally, colostrum may be stripped from other vaccinated cows in the herd after their own calves have nursed, and stored in the freezer until needed. Frozen colostrum should be slowly warmed in tepid water (no microwaves!) before administering to calves (either with a bottle or by orogastric tubing).
Calves that do not ingest an adequate amount or adequate quality colostrum can have partial or complete failure of passive transfer. Calves with failure of passive transfer are more susceptible to diseases and have a higher risk of sickness during their first months of life. Monitor calves for several days after birth for signs of weakness, reluctance to nurse, lameness, or generalized sickness (head and ears down). Those animals that are lame may have developed an infected joint due to sepsis (infection throughout the body). Look at the calf’s eyes closely.

A calf with failure of passive transfer can characteristically develop hypopyon, or pus (white fluid), in the anterior chamber of the eye. Veterinarians can diagnose failure of passive transfer by performing a few easy blood tests and with a physical exam. Calves with failure of passive transfer may require fluid therapy (which may include plasma to increase immunoglobulin values), antibiotics, and anti-inflammatories.

**DEHYDRATION, HYPOGLYCEMIA, DIARRHEA ~ MAJOR CONCERNS IN NEONATES**

Calves that are weak or too cold may not be able to nurse their dam for several hours, which may lead to dehydration and hypoglycemia (low blood sugar). Dehydration can affect all body systems by decreasing the amount of blood volume that the heart can circulate through the body. Too little blood volume can af-

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fect vital organs negatively in a short amount of time. Calves that are dehydrated may be slow moving (or laying down and require stimulation to stand), eyes that are sunken, and have a decreased urine or fecal output. Hypoglycemia can have serious effects in a young calf: neurological signs (convulsions, abnormal eye movements, and facial twitches), lethargy, and potentially, death.

Calf diarrhea can be compounded by dehydration and hypoglycemia, as calves will be losing water, electrolytes, and sugars through their feces. Calves may develop diarrhea due to bacterial causes (E. coli, Salmonella, etc.), viral insults (Rotavirus, Coronavirus, etc.), or from malabsorption. Be sure to monitor the frequency of diarrhea (how often does the calf have diarrhea?), the consistency of the diarrhea (soft-formed, pasty, watery?), if other calves are experiencing similar signs, and the color or smell. These clinical signs may aid in the calf’s diagnosis and prognosis for the veterinarian.

If calves are experiencing these signs, segregate the cow and calf from other young calves. The calf may need supplementation with oral fluids that contain electrolytes (sodium, chloride, potassium, etc.). Powdered electrolyte supplements are available from your veterinary hospital or feed stores. Calves should also be supplied with either milk from the dam or milk replacer. If symptoms of diarrhea do not subside, the calf may need to be seen by your veterinarian for fluid therapy which may include oral or intravenous fluids, antibiotics, and anti-inflammatories.

**PNEUMONIA**

Pneumonia can affect calves swiftly. Young calves who have decreased immunity (failure of passive transfer), are in areas of extreme temperatures (hot or cold), decreased ventilation (ammonia, dust/dander in air), or have aspiration issues due to pharyngeal dysfunction or traumatic orogastric tubing practices (placing a feeding tube down the trachea instead of the esophagus or causing trauma to throat structures) may be more at risk for developing pneumonia. Calves will usually have increased respiratory rates, elevated rectal temperatures, and abnormal lung sounds. Normal temperatures range from 100 degrees to 102 degrees depending on ambient outside temperature. Additionally, some calves may cough, have nasal or eye discharge, keep their head and ears down, may have shoulders angled away from their body, panting (tongue protruding from mouth), or be lethargic and dehydrated.

Calves showing these clinical signs and who have not improved from traditional therapies should be evaluated by their veterinarian. A veterinarian may decide to run some blood tests that may help to determine if the pneumonia is bacterial or viral induced. Additionally, the veterinarian may decide to run additional diagnostics like ultrasounds or radiographs (x-rays) of the chest. These diagnostics can help to understand the severity of the clinical signs. Your veterinarian will decide on appropriate antibiotics and anti-inflammatories based on their clinical findings. Depending on the ambient temperatures, calves may require shearing so that they are not battling a wooly coat when trying to cool off. This may apply to older calves during the summer that may have had lung issues previously.

**UMBILICAL HERNIAS, INFECTED UMBILICUS**

Calves should be evaluated after birth for the presence of an umbilical hernia. Hernias are openings in the body wall surrounding the umbilicus. To evaluate this area, one may gently use their fingers to palpate the tissues of the umbilicus. The body wall, if normal, should be smooth and firm over the umbilicus. If a hernia is present, there will be a break in the body wall that is usually oval in shape. The fingers can be used to measure the diameter of a hernia. Additionally, if the umbilicus is firm, warm, or pus is able to be expressed, the calf may have an infected umbilicus. This infection can lead to other organ systems being affected or could cause lameness due to a joint infection (often called, “Navel Ill”). Monitoring rectal temperatures can be vital if there is a concern over an umbilical infection. Calves with fevers may need to see a veterinarian as quickly as possible.

Small hernias can be more of a concern than large hernias. Small
hernias may allow intestines to pass through the opening where they can become entrapped. This situation can be life threatening as the intestines may lose blood flow which can kill the tissues and may be lethal. Patients with abdominal contents trapped within a hernia may be uncomfortable (laying down often, kicking at abdomen), stop nursing or eating, have elevated temperatures, or unable to defecate.

If a hernia is palpable, surgery will be required to close the body wall. This is a relatively standard surgery that does require anesthesia. An infected umbilicus also requires surgery to remove the affected tissues and a course of antibiotics. Although not proven scientifically, anecdotal evidence shows that 90% of hernias experienced in beef cattle are due to an infection of the umbilical components.

As a side note, hernias can be a heritable trait. Due to this, considerations should be made when repairing hernias in breeding stock.

CONCLUSION
Calves should always be monitored closely after birth for any abnormalities. Those described in this article are common issues presented to veterinary hospitals. Some may be more life-threatening than others. However, your veterinarian can help to diagnose and treat these issues before they become worse and hopefully prevent any lasting damage to the calf.

Editor’s Note: Dr. Kelly Warner is a 2013 graduate of Texas A&M’s College of Veterinary Medicine and Biomedical Sciences and completed an intensive year-long internship at Equine Sports Medicine and Surgery in Weatherford, Texas, in May of 2014. She is certified in Veterinary Medical Acupuncture and Animal Chiropractic and has a special interest in show animals, bucking bull athletes and neonatal care. She is currently practicing at Elgin Veterinary Hospital in Elgin, Texas.