



Calf Scours: Causes & Prevention

Kimberley Morrill, Ph.D, Regional Dairy Specialist

kmm434@cornell.edu

Why worry about calf care?

Heifer raising costs are one of the greatest costs for a dairy operation. Raising a heifer from birth to calving costs \$2,084 with a range of \$1,860 to \$2,260. The greatest expenses during this time are feed (53.3%) and labor (12.1%). Health costs average \$42.00/animal with a range of \$20 to \$87. These expenses can include vaccinations, worming programs, and pregnancy checks. The health expense also includes treatments used during the year to treat individual animals for specific issues, such as scours, and respiratory illnesses.

Calfhood Illnesses:

Pre-weaned calves affected by and treated for an illness in the U.S.:

Scours = 23.9%
Respiratory = 12.4%
Navel Infection = 1.6%
Other = 0.9%

On average, 23.9% of dairy heifers in the U.S. are affected by and treated for scours. This is the greatest disease challenge of pre-weaned calves. Reducing the number of calves affected by and

treated for scours on your farm can have a positive economical impact.

What are scours?

During scours, the normal cycling of body water in and out of intestinal tract is disrupted. This leads to an increase in the amount of fluid that is excreted with the feces (often fluid-like themselves). Bowel movements also become more frequent.



Types of scours:

Increased permeability of the intestine due to inflammation or trauma. Excess secretions into the intestines exceed absorptive abilities, and diarrhea results.

Hypersecretion: Excess secretion into intestines, normal reabsorption. Intestinal epithelium are not destroyed.

Osmotic: Solutes collect in gut causing water to be retained in intestine. May be caused by malabsorption or mal-digestion. Dietary imbalances in liquids (excess lactose or protein) or rapid changes in diet may induce osmotic scours.

Impacts of diarrhea:

Increased body fluid loss => DEHYDRATION. In turn this leads to body electrolyte (salts) loss and imbalance. This can impact heart and skeletal muscle function. If severe, the heart will stop.

Identification is key:



Early detection of dehydrated calves is critical so that oral electrolyte therapy is still effective. Body fluids and electrolytes need to be replaced before fluid loss becomes too profound. Delayed identification may

lead to severe dehydration and death.

Signs of dehydration include: skin tents, mouth is dry, limbs and ears are cold, eyes sink, urine output decreases or stops. Additional, management signs include the calf having a lack of appetite, drinking milk slower than normal, not finishing milk. Changes in normal calf behavior are often a sign of distress and the calf should be further evaluated for illness.

Many calves do not show obvious signs of dehydration until 7% or more of body weight (**BW**) is lost in fluids. Once a calf has a fluid loss of 7% BW or more you may need to use an esophageal feeder to deliver electrolytes, at >9% BW loss calves will need to received I.V. fluids, as oral electrolytes will not be absorbed due to poor circulation. At 15% BW fluid loss, death will occur.

Supplemental fluids such as electrolytes should be given to calves when manure looks like a puddle or fluid. Electrolyte products are combinations of minerals, carbohydrates (sugars), and amino acids that assist in rehydrating the calf, replacing lost minerals, and provide energy and protein for the calf. Electrolytes are not intended to be used as a treatment for scours, but as a supplemental fluid to rehydrate the calf.

When a calf is receiving electrolytes, **DO NOT** take her off of milk/milk replacer. The calf needs the nutrients in the milk (energy, protein...) to maintain body function and for the immune system to function.





Common infectious agents that cause scours in calves

Bacteria	Viruses	Protozoa
E.coli	Rotavirus	Cryptosporidia
Salmonella	Coronavirus	Coccidia

What pathogens cause scours?

- **Bacteria** - this includes E.coli and salmonella. Often calves will ingest E.coli in manure, mud or other material before or along with getting colostrum. Salmonella can be shed by other animals in feces, urine, saliva and nasal secretions.
- **Viruses** - Corona and rotavirus. These viruses are shed by carrier cows. The virus destroys intestinal villi cells leading to malabsorption scours.
- **Protozoa** - Cryptosporidia and Coccidia.

Reducing the risk of scours - PREVENTION

Many of the pathogens that cause scours are ubiquitous (everywhere), survive well in the environment, are not treatable with antibiotics and establish carrier states in herd mates. Therefore prevention becomes key to reducing the risk of infection.

1. **Maximize resistance and acquired immunity**, this can be achieved by minimizing dystocia, calving in clean pen to reduce exposure to pathogens, then moving the calf immediately to a clean, dry, well ventilated calf pen/hutch. This is then followed by a minimum of 4 L of colostrum within the first 4 hours of life. Antibodies in the colostrum will help reduce the risk of infection until the immune system is fully functioning. To maintain a healthy immune system a calf must receive adequate nutrition throughout its lifetime.
2. **Cleanliness**, this includes all feeding equipment (buckets, bottles, nipples...), hutches, pens, calving pens, and **your hands and clothes**. You can be a vector to pathogens to both calves and yourself.

Sanitizing calf feeding equipment

1. Rinse with lukewarm water. Remove as much organic matter as possible.
2. Use wash water with soap and chlorine that stays above 120 F. Wash by brushing all equipment surfaces.
3. Rinse in an acid solution.

3. **Delay and minimize the infectious dose the calf is exposed to.** Unfortunately many of the pathogens that cause scours are in the environment and the calf will eventually be exposed. The more developed the immune system, the greater change the calf has to fight the infection. If the calf is born in a clean pen and moved immediately to a clean pen she is less at risk. Providing clean colostrum is important - if bacteria get in the gut of the calf before colostrum she is at a much greater risk of developing scours as well as other illnesses. Providing adequate bedding, ventilation and not overcrowding group calves reduce the amount of pathogens in the environment around the calf, thus reducing the risk of infection.
4. **Vaccinate** - work with your veterinarian to develop a vaccination schedule for dry cows, calves and herd mates. The risk of scours caused by viral agents can be reduced with a well managed vaccination program. Additionally the cows may produce higher quality colostrum thus increasing the acquired immunity of calves.

One final note....

Scours are zoonotic - many of the pathogens that cause illness in calves, can be transferred and cause illness in humans. People caring for sick calves or who may come in contact with sick calves are at risk of getting sick. Make sure you are washing your hands before and after feeding calves as well as working with sick animals. Wearing milking gloves during calf chores is a great way to keep your hands clean. Barn clothes should be washed regularly. No one wants to end up in the hospital.



Please direct questions and comments to:

Kimberley Morrill, PhD
Regional Dairy Specialist
Cornell Cooperative Extension
Cell: (603)-568-1404
Office: (315)- 379-9192 ext 233
Fax: (315)-370-0926

<http://www.facebook.com/CceNnyDairyPrograms>

These fact sheets are made possible through the collaborative efforts of the CCE County Associations of NNY (Clinton, Essex, Franklin, Jefferson, Lewis & St. Lawrence) To contact any of the NNY CCE offices directly: Clinton: 518-561-7450; Essex: 518-962-4810, Franklin: 518-483-7403; Jefferson: 315-788-8450; Lewis: 315-376-5270; St. Lawrence: 315-379-9192.