

Calving Ease

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Diagnosis: Salmonella dublin What do we do next?

- **What is the nature of this pathogen and salmonellosis?**
- **Control: Minimize exposure, maximize immunity.**
- **Remember: People can get infected, too.**

What is the nature of Salmonella dublin?

It is a bacteria. It has been called a “host-adapted strain” meaning that infected, subclinical carriers are important in maintaining infection in a herd by shedding into feces and milk. It is easily spread from infected animals to healthy ones, including humans. Like any class of bacteria it can be removed from feeding equipment and pens by thorough cleaning and disinfecting. However, under the right conditions of moisture and darkness survival can extend to months, even years.

What is salmonellosis?

When a calf gets infected with Salmonella dublin or has salmonellosis what are we likely to see? “Affected calves primarily show signs of respiratory illness including coughing, labored breathing, and high fever.” (NYS Dept. Agr, Animal Health Advisory). Calves may or may not have diarrhea symptoms.

It is possible for a calf to pick a low level infection in the first week of life from feces in calving pen. Without showing clinical symptoms she may then maintain this infection for several weeks actively shedding the organism in the calf housing. If she becomes stressed in subsequent weeks she is very likely to break with clinical symptoms at four to seven weeks of age.

Minimize exposure and maximize immunity

A critical control point in arresting the spread of these bacteria is avoiding infection of newborn calves. These best management practices include:

- Remove calves from calving area before standing attempts are made.
- Wash and disinfect equipment used to handle and feed colostrum. Click [HERE](#) for an effective washing protocol.

- Never feed colostrum from a dam known to have salmonella or even a cow that is suspected to be a carrier.
- Confirm by laboratory culturing that colostrum has less than 5,000cfu/ml coliforms and less than 50,000 total bacteria count.
- Feed colostrum replacer if it is not practical to either test colostrum for bacterial contamination or pasteurize it.

A second critical control point is fine tuning the farm's colostrum management program. Our goal is to have minimum blood serum total protein values of 90 percent at 5.0 and above and 80 percent at 5.5 and above. In order to achieve these levels of passive immunity we expect that the on-farm practices will include:

- Vaccinating dry cows to boost antibody levels in their colostrum.
- Milking fresh cows soon after calving to get the highest quality colostrum possible. [Note: as much as 1/3rd loss of antibodies if first milking is delayed 10 hours]
- Giving the first feeding as soon as practical after birth. A good goal is 80 percent of newborns fed within two hours post birth and 95 percent with four hours.
- Testing all colostrum for antibody concentration and feed the best available as first feeding.
- Feeding 10 percent of body weight colostrum as first feeding (4 quarts for 90 lb. calf).

The third critical control point involves people. Workers on a dairy can very effectively carry these bacteria from place to place and from animal to animal. Key points to focus attention:

- Boots – the biggest offenders. Good boots give effective traction and hold lots of feces in their treads. If workers must go from adult housing to calf housing the easiest fecal control method is a dedicated set of boots for the calf housing.
- Hands – gloves were just great if they are used and then discarded. Glove supply points need to be convenient. Also, glove disposal containers need to be equally handy. Avoid stuffing gloves into pockets. (See also "Calves with Sam" blog for 1/24/17 Salmonella Dublin: Now What? and 1/28/17 Stopping Salmonella from Infecting the Next Calf.)

Safety First: People can get infected with Salmonella from calves.

- Avoid drinking and eating in and around the calf housing. Adopt the assumption that every surface associated with calves is covered with enough Salmonella bacteria to make you sick.
- If the calves have salmonellosis it is fairly safe to assume that there may be one or more cows shedding the same bacteria in their milk. **DO NOT DRINK RAW MILK.**
- Wear disposable gloves and throw them away as soon as practical. Have multiple boxes handy (on the 4-wheeler, utility room) and multiple places to dispose of contaminated gloves.
- If possible ban pets from calf housing – especially important if these are household pets that might come into contact with small children.

References: NYS Cattle Health Assurance Program(NYSCHAP) Salmonellosis and Salmonella Dublin Module (click [HERE](#) for a list of the 9 fact sheets including "Critical Control Points). Gardner, C.E. and Others, "Case Report – Management of an outbreak of Salmonellosis on a commercial calf raising Unit." Bovine Veterinarian 38:2 pp147-154. Sheila McGuirk, "Salmonella Dublin is particularly challenging." Hoard's Dairyman September 25, 2014.

Thanks to Merck Animal Health for their support of Calving Ease.

Remember to search for "Calves with Sam" blog for profit tips for calf rearing.