
DAIRY NEWSLETTER

SALMONELLA DUBLIN

Diseases caused by Salmonella bacteria are some of the most important diseases found in cattle. Not because they are very common or because infection causes high disease rates and potentially higher death rates, but because almost all Salmonella found in cattle can potentially spread to humans (zoonotic) – including the newest bug on the block – *Salmonella dublin*.

Salmonella dublin is an immediately notifiable disease in Ontario. It has recently been diagnosed on a number of veal and dairy farms across Ontario and is widely circulating in Quebec and the United States. What makes this particular Salmonella strain extremely dangerous is the knowledge that it is zoonotic and it is multi-antibiotic resistant therefore very hard to treat. Knowing this, taking steps to keep the calves and people on your farm disease free is extremely important.

Route of Infection:

Like most kinds of Salmonella, infection with *S. dublin* can occur when susceptible calves ingest the bacteria shed in manure from infected cows or calves. Unfortunately *S. dublin* can also be shed in milk, urine and vaginal secretions of carrier animals adding to the complexity of disease management on farm.

Clinical signs:

Most infections with Salmonella cause fever and diarrhea in calves. While diarrhea may occur with *S. dublin* infection, the bacteria has the ability to invade beyond the intestines and into the blood stream. Therefore the more common presenting sign is respiratory disease in calves 2-12 weeks of age. Due to the spread of the bacteria to other organs such as liver, spleen and lymph nodes, septicemia, arthritis, meningitis and abortion are other common clinical signs in calves and older cows.

The disease has a very high death rate due to its severity, as well as the fact that it is resistant to many common antibiotics. However, infected calves that do survive have a high probability of becoming carriers for life. Carrier calves and cows will appear healthy but can shed bacteria periodically, which is a source of continued infection on the farm.

Testing:

Testing for *S. dublin* is difficult in the live animal as carrier cattle do not shed the bacteria all of the time. Blood, fecal and milk testing is available, but reliability of the testing is less than 70%. The most definitive diagnosis comes



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through culturing the bacteria in lung tissues from an animal that has died. Knowing this, performing a post mortem on any calf that dies of respiratory illness, is showing toxicity or septicemia, or dies of unknown causes is extremely important. A calf post mortem can be performed on farm with little mess and the carcass is still able to go to deadstock or can be buried or composted on farm. The ability to identify infected or carrier animals and eliminate them from your farm's population is key to controlling spread of the disease.

Biosecurity Factors to Keep your Cattle Salmonella dublin free:

Overcrowding, poor sanitation, poor air quality, co-infections, transportation, chilling and inadequate dietary energy intake can all trigger illness, and with or without illness, can cause carrier calves to shed *S. dublin*. Veal calves may be particularly predisposed to infection as transport, co-mingling and dietary stress can disrupt normal gastrointestinal defenses and allow *S. dublin* to invade. Close contact among similarly stressed calves during transport may result in large numbers of calves becoming infected.

Identify Positive Animals: Identify, isolate or depopulate infected and exposed calves as quickly as possible. Performing post mortem exams and sending samples for laboratory diagnosis is key to identifying positive animals.

Prevent introduction of infected animals: Minimize the introduction of new animals to your farm, especially animals from areas with known high prevalence of *S.dublin*. When purchasing animals, do so from a known high health status farm, and ask questions about disease management. When moving cattle, ensure a clean and disinfected truck and trailer is used every time and ship cattle with as little stress as possible. If another individual picks up calves at your farm and has been on other farms, ensure that driver does not enter your barn, you should not enter the trailer and prevent the backwards movement of animals so that once an animal is on the trailer, it does not come back onto your farm.

Reduce the spread between and within farms by implementing basic hygiene measures: People moving between farms should have clean boots and coveralls for each farm and disinfect all equipment between farms. If *S.dublin* is suspected on a farm, notify your veterinarian to implement quarantine procedures. Clean and disinfect pens or hutches using approved products like chlorine bleach or oxidizing agents like Virkon. Wash hands after dealing with sick calves and use an alcohol hand sanitizer.

Treat infections that are likely to respond to therapy only: Perform culture and sensitivity on any isolated bacteria to identify what (if any!) antibiotics are likely to work. Your veterinarian will provide the most appropriate treatment protocols based on this information to provide the best chance for success and the least chance for creating on-going antibiotic resistance issues.

If you have any questions or concerns regarding *Salmonella dublin* risks and on-farm prevention speak with your herd veterinarian or call the clinic to discuss best management protocols.