



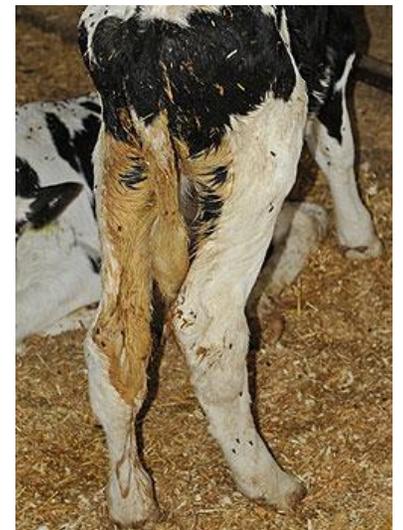
# CALF CARE CORNER

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## SALMONELLA DUBLIN – UPDATE FOR VEAL PRODUCERS IN ONTARIO

*Salmonella dublin* is an immediately notifiable disease in Ontario. It has recently been diagnosed on some veal farms in Ontario. As well as causing sickness and death in calves, *S. dublin* is **transmissible to people**. The strains currently circulating in Quebec, New York and Ontario are broadly **antibiotic-resistant**, making **heightened biosecurity measures** crucial to keep it out of the Ontario farm population. Producers are urged to instruct staff and other people on farms to take precautions to protect themselves when dealing with new introductions or sick calves on the farm.

*S. dublin* has been a rare occurrence in Ontario. Previous isolates here occurred over 30 years ago. However, in Quebec, since about 2011 veal farms were recently identified with highly resistant strains of *S. dublin*. Shortly thereafter a beef calf imported to Ontario from western Canada was found positive at the AHL. Recently more infected calves have been identified in veal operations in Ontario that have brought in calves from other provinces, countries or where the origin could not be determined. In one case calves sourced locally likely became infected by transport in a truck that had been used previously to transport heifers from the US.



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. Enteritis resulting in diarrhea is a common sign. *S. dublin* is unique in that it can be shed not only in manure but also in the milk, urine and vaginal secretions of infected carrier cows and be ingested directly (in milk) or indirectly (contamination) by calves shortly after birth. While diarrhea may occur, the more common presenting sign is respiratory disease in calves 2 to 12 weeks of age. *S. dublin* is also unique for its ability to invade beyond the gastrointestinal tract, into the blood stream and to spread to organs such as the liver, spleen or lymph nodes in the calf's body. Infected surviving calves have a high probability of becoming inapparent carriers for life. Carrier calves and cows can appear healthy but can shed bacteria periodically, spreading infection from farm to farm. Overcrowding, poor sanitation, poor air quality, co-infections, transportation, chilling and inadequate dietary energy intake can 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 and dietary stress can disrupt normal gastrointestinal defenses and facilitate *S. dublin* invasion. Close contact among similarly stressed calves during transport may result in large numbers of calves becoming infected. Testing for *S. dublin* is difficult as carrier calves or cows do not shed the bacterial all the time. Blood testing may be possible in older animals that have had time to develop antibodies post-infection. Culling of test positive cattle as soon as possible is recommended. Isolation of infected and exposed calves, and proper cleaning of affected rooms between groups of calves is necessary to prevent further spread within an affected veal farm.

### Clinical Signs

*S. dublin* most often appears in calves as respiratory illness. Calves less than six months old are at the highest risk for becoming newly infected although infection at any age is possible.

Infected calves can show no signs or combinations of fever, depression, anorexia (off-feed), pneumonia, respiratory distress, bloody diarrhea. Arthritis (swollen joints), osteomyelitis (bone infection) or meningoencephalitis (brain infection) can also occur following blood-borne spread of bacteria.

It is important to note that **carrier animals may not display any signs of illness** but can continue to shed the organisms in manure and milk.

#### Protecting the veal operation:

1. **Prevent the introduction of *S. dublin* to Ontario farms:** Currently it is likely that most Ontario dairy, beef and veal operations do not have infection with *S. dublin*, and are therefore at risk of newly introducing it to their premises. Infected cattle from outside the province, or local cattle moved in vehicles that have not been cleaned between uses, are high risk for introducing the infection. Purchase and acquire low risk cattle and calves. Ensure that cattle come from farms where *S. dublin* does not exist. Require that all drovers moving cattle to your farm remove all organic material and disinfect and re-bed their vehicles between uses.
2. **Monitor and test high risk cattle:** Cattle introduced from outside Ontario, particularly from Quebec and New York State should be considered and handled as high risk. Testing on arrival may not be feasible nor useful in young calves, however anytime mortality increases above normal levels, post-mortems should be conducted by the herd vet to determine the cause. Where warranted samples should be submitted to the AHL (Guelph) for testing.
3. **Reduce the spread between and within farms by implementing basic hygiene measures.** Vehicles that are used for cattle transport should be cleaned out and disinfected between uses. People moving between farms should have clean boots and coveralls for each farm and disinfect all equipment between farms. Within the farm, if *S. dublin* is suspected, veterinary advice should be sought to implement suitable quarantine procedures to isolate affected groups of cattle from all contact with other cattle and animals.
4. **Treat only infections likely to respond to therapy.** Work with the herd vet to develop treatment protocols specific to the herd situation. Include initial sample collection, before instituting therapy. Pretreatment samples can be frozen and retained so that testing can be done should there be an unexpectedly poor response to therapy.

#### IDENTIFICATION AND TREATMENT

*S. dublin* infection can become a long-term endemic herd problem on cattle operations with poor environmental management. Sick calves should be effectively isolated and the environment should be disinfected using dilute chlorine bleach, phenols, quaternary ammonium compounds or oxidizing agents (like Virkon-S). Use products at the concentration and allowing an appropriate contact time as directed on the label.

*S. dublin* is multi-drug resistant, meaning response to antibiotic therapy may be poor. Contact your veterinarian for advice on selecting the best treatment protocols to use to treat *S. dublin* and any secondary infections that occur. Excellent nursing care of sick calves will increase calf survival chances.

*S. dublin* can infect people. **Fecal-oral introduction** and **raw milk consumption are high-risk** activities. Very young or elderly people, those with weakened immune systems, and those who are pregnant have the highest risk of becoming infected. *S. dublin* in people can be a severe illness. If human infection is suspected professional medical attention should be sought immediately.

If you have any questions or concerns regarding *Salmonella dublin* risks and on-farm prevention contact your herd veterinarian for advice.

For more information please contact Kendra Keels at the Veal Farmers of Ontario office, [kkeels@livestockalliance.ca](mailto:kkeels@livestockalliance.ca) or 519-824-2942.