



# Limiting calf pneumonia

## This producer was a good manager, but calf pneumonia was stunting adult cow production

AT THE END OF John's herd health visit, he asked me to examine a fresh two year old that was on the thin side and not milking quite like he wanted.

During my exam I didn't find anything wrong except for slightly increased 'bronchial tones' or lung sounds in her lower lung lobes. I asked John if he remembered her ever being sick as a calf. He couldn't but was able to go back to his old DHI calendars to look up her treatment records.

There we found that on average, he was treating about one calf a month for pneumonia but almost three times that many during the fall and spring. Indeed, this cow was born at the end of July and three months later she had been treated with penicillin for two days and then with a long acting antibiotic that is used for pneumonia.

About a week later she had to be treated with yet another long acting antibiotic after which she seemed to recover and hadn't needed any further treatments – until now. At calving, she ran a fever and was treated with Excenel for four days and responded well.

It quickly became clear that this cow's difficulties likely stemmed from that initial bout of pneumonia as a baby calf and that it was now having lingering effects – in the form of lung abscesses and the related chronic lung damage. What seemed like a successfully treated bout of pneumonia in a young calf had permanently stunted this cow.

Bacterial pneumonia is still one of the most common problems for young dairy calves and unfortunately this hasn't changed much over the years. This fact emphasizes the need for early detection and effective treatment protocols but more importantly it shows the need for prevention.

Many factors play into the development of bacterial



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pneumonia but as in all infectious disease, it is a constant fight between immunity and challenge. Many of the bacteria involved in pneumonia are already living happily (and under control) in the upper respiratory tract of cattle, so the challenge is always close by.

If these bacteria gain access to the lungs then the balance gets tipped in their favour and pneumonia may develop. Some of the factors affecting this control cannot be easily managed but many can. These important areas

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of management include: colostrum, weaning, housing, vaccination and treatment.

One of the most important factors we can affect is colostrum. In John's case we reviewed his newborn management and found he was doing a good job, namely:

- calves were getting fed (or tubed) 3-4 L of colostrum as soon as possible and another 2-3 L about six hours later.
- colostrum harvesting was done after a full udder prep and was collected into clean pails – only rarely did John notice dirt in the colostrum.
- calves were then fed 3 L of their dam's milk in three daily feedings.
- feeding bottles and pails were sanitized and allowed to dry and each calf had their own pails/bottles.
- calves were getting injections of vitamin E/selenium and vitamin AD at birth.
- navels were being dipped with tincture of iodine

Then we discussed housing. Once a calf is dry after calving, John puts them into hutches that are placed about four feet apart. So, ventilation was not a concern for his calves as it often can be for calves housed in barns. (Calf barns should try to achieve 15 CFM of ventilation per calf to mimic the ventilation of hutches.)

John's calves are allowed out of the hutches on their chains but each hutch is placed in an opposite direction to the ones beside it – effectively restricting calves from being able to contact their neighbours. This helps reduce disease transmission amongst calves. Bedding is long straw in winter to allow for adequate "nesting" to keep warm.

Hutches were being disinfected and allowed to dry in the sun between calves. At weaning, calves are moved into a group pen in the old bank barn.

This pen is directly across from the cow stalls with another pen of older calves beside it – so, once inside the barn these newly weaned calves were going to be challenged by any pathogens harboured by the older animals.

There also was the possibility of overcrowding in this pen if John happened to have more than the usual number of heifers of the same age. Both John and I realized that this was an obvious risk for his calves but with limited space inside his barn there weren't many options.

We discussed the cost of a super hutch versus the costs of treating calves for pneumonia and any subsequent flare ups associated with lung abscesses. I also reminded him of the longer term losses of sub-producing milk cows that may be culled earlier

due to chronic pneumonia and the occasional cow that may die suddenly from a ruptured lung abscess. John wasn't sold on the super hutch yet but we decided to keep this option open for the future.

Weaning is a significant stress for dairy calves. John had been weaning abruptly once calves were consuming 2 lbs of starter for three consecutive days. Debate still continues about weaning at the same time as commingling into group housing, however, with the adoption of the higher milk feeding programs this may have changed.

Recent research from B.C. suggests that gradual weaning over 10 days is more suited to calves being fed higher amounts of milk and that abrupt weaning is the least desirable method. The gradually weaned calves actually had

better starter intakes.

In a non-automated feeding system such as John's, these practices may prove difficult without keeping a feeding chart that records the quantities of milk offered to each calf during the weaning process. Also, it would be difficult to commingle calves until after the gradual weaning is complete. John

had been impressed with calf performance and was reluctant to change this so he thought modifying his weaning process might be worth considering.

I was still concerned about the housing issue of the newly weaned calves and I offered up a couple of options for the weaning program to help manage our way through this bottleneck in the

heifer rearing.

1) metaphylaxis treatment of the calves at weaning. There is research showing that the routine administration of an injectable long acting antibiotic at weaning can significantly improve weight gains of calves with no prior history of pneumonia.

An alternative to injecting antibiotics would be to feed them. The use of a medicated feed with chlorotetracycline and sulfamethazine fed for 3-4 weeks after weaning has provided good results in helping to control respiratory problems. I told John I could write him a protocol for either of these options but wondered if he'd consider the next option instead.

2) vaccinating young calves. We encourage producers to consider vaccinating dairy calves in the fall (and sometimes in the spring) for

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pneumonia using a modified live viral (MLV) vaccine combination and depending on the farm, possibly including a *P. multocida*/*M. haemolytica* component. Some producers have had success in reducing their calf pneumonia incidence at weaning by routinely vaccinating the calves with a five-way modified live vaccine about 1-3 weeks prior to weaning and commingling.

I explained that this may produce direct immunity to the pathogens in the vaccine but it also can provide a non-specific immune response (cell-mediated immunity) that helps vaccinated animals fight off other diseases. John liked the idea of vaccinating over using antibiotics and since he was already using a MLV program in his older heifers and cows, it could integrate into his system easily.

Proper and timely treatment for

pneumonia is vital to success. John's selection of penicillin more than two years ago to treat pneumonia may have contributed to the prolonged course of that initial illness. Many newer drugs exist that have been specifically engineered to treat pneumonia. They can reach adequate blood levels quickly even when administered under the skin, can concentrate in the lungs and can last much longer at therapeutic levels than older drugs.

My final task for John was to devise a new treatment protocol for calfhood pneumonia. A main component to the protocol was detection and I managed to get John to promise that he would try to carry his thermometer in his shirt pocket at all times, thereby allowing him to readily use it when needed. The appearance of: inappetence, snotty nose or coughing should now initiate

John to take temperatures of all the calves in the pen and to treat those with a fever above 103°F (39.4°C) accordingly.

Since John was an excellent record keeper we decided to use his DHI calendar treatment records as a monitor of success. Our goal was to see a reduction in drug use in young calves. In general though, a recent OMAFRA factsheet suggests goals of:

- double calf birth weight by 60 days old.
- mortality (death) in less than five per cent of calves, and
- morbidity (illness) in less than 10 per cent of calves.

Hopefully we made enough changes to his calf rearing program that will help his calves tip the balance of power back towards health and away from the pneumonia producing bacteria. ⑩