

Utilizing Thoracic Ultrasound to Manage Calf Pneumonia on Your Farm

Dr. Kelly Fisher

Bovine Respiratory disease complex is a multi-factorial pneumonia affecting cattle. Viruses that are a part of the complex include Bovine herpesvirus (IBR), Parainfluenza (PI-3), Bovine Respiratory Syncytial Virus (BRSV), Bovine Viral Diarrhea Virus (BVD), and Bovine Coronavirus. Bacterial agents involved include *Mannheimia Haemolytica*, *Pasteurella Multocida*, *Histophilus Somni* and *Mycoplasma Bovis*.

Factors contributing to the development of pneumonia include:

- Failure of passive transfer (linked to colostrum management)
- Air quality (poor ventilation)
- Feeding equipment hygiene
- Maternal antibody waning
- Stress
- Mixed age groups
- Viral pathogens
- Adverse weather

Identifying calves with pneumonia includes observation from a distance and hands-on examination.

1) Visual cues in the pen environment:

- a. Poor appetite and/or lack of rumen fill
- b. Depression (droopy ears, lethargy)
- c. Increased respiratory rate (puffing)
- d. Nasal discharge and/or coughing
- e. Recumbency

2) Hands on confirmation:

- a. Rectal temperature. Any temp greater than 39.4C (103F)
- b. Lung sounds using a stethoscope- crackles, wheezes, induced cough.
- c. Thoracic Ultrasound.

Thoracic Ultrasound (TUS) is a tool used by veterinarians to help identify calves with clinical or subclinical pneumonia and/or upper respiratory infections.

Calves are typically scored on a 5-point scoring system, although this may vary between veterinarians. Figure 1 shows a normal/healthy lung ultrasound. The presence of mild to severe lung lesions can be seen such as the one in Figure 2. Using a

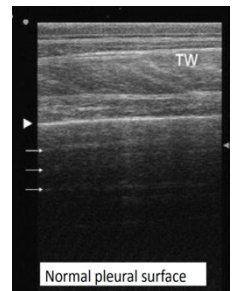


Figure 1:

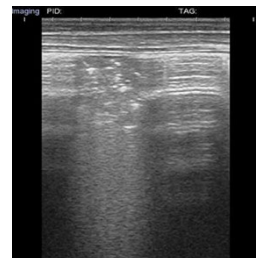


Figure 2:

scoring system with the overall clinical picture of the calf will allow veterinarians to make appropriate treatment decisions. In addition, it allows us to monitor if treatments given are successful or changes need to be made.

Thoracic Ultrasound can be used to diagnose calves with subclinical pneumonia. These are calves with lung lesions on ultrasound, however, have not yet presented with clinical signs. Most calves will have lung lesions 10 days before clinical signs. Catching these calves early is valuable to provide timely treatment prior to lung damage most often accompanied with the presence of clinical signs.

How do you go about including thoracic ultrasound on your farm?

I would encourage producers to discuss with their veterinarian. Review calf treatment records to determine how big of a challenge calf pneumonia is for your herd. Start thoracic ultrasounding to determine the prevalence of sub-clinical pneumonia. During your routine veterinarian visits add in time to have your calves assessed. This includes observation from a distance and hands on examination. Incorporating thoracic ultrasound on your farm as a part of routine veterinarian visits can help identify subclinical calves, monitor treatment outcomes and aid in culling decisions.

Resources:

- <https://calfcare.ca/management/health-and-welfare/calfhood-diseases/respiratory-problems/>
- Thoracic Ultrasound in Calves. AABP Recent Grads Seminar. Kendra Wells and Marc Caldwell.
- <https://www.merckvetmanual.com/respiratory-system/bovine-respiratory-disease-complex/overview-of-bovine-respiratory-disease-complex>