


| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|
|  University of British Columbia Centre for Dairy Education and Research | Document Number | SOP-Cow-024 |
| | Revision Number | 000 |
| | Effective Date | October 26, 2020 |
| PNEUMONIA | | |

1. PURPOSE

- 1.1. This Standard Operating Procedure (SOP) instructs farm workers and students at the UBC Dairy and Education Centre on how to identify and treat animals suffering from pneumonia.

2. SCOPE

- 2.1. This SOP will describe how to recognize pneumonia in heifers and cows, and how to treat her if needed.

3. RESPONSIBILITY


- 3.1. The Operations Manager is responsible for reviewing and updating this procedure as required.
- 3.2. The Operations Manager is responsible for ensuring staff are trained in recognizing signs of pneumonia.
- 3.3. The Operations Manager is responsible for transferring entries from the dairy day book to the herd management software.
- 3.4. Farm worker II's will be responsible for treating any animals with pneumonia.

4. DEFINITIONS

- 4.1. **Pneumonia:** inflammation of the lungs, most commonly caused by a bacterial or viral infection.
- 4.2. **Drenching:** process of orally administering large volumes of fluids (e.g. electrolytes) or drug solutions (e.g. antibiotics or dewormers) into the stomach of an animal.

5. TRAINING

- 5.1. Training will include animal handling, how to recognize pneumonia infections, and administering injections and oral medications.


| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|
|  University of British Columbia Centre for Dairy Education and Research | Document Number | SOP-Cow-024 |
| | Revision Number | 000 |
| | Effective Date | October 26, 2020 |
| PNEUMONIA | | |

6. SAFETY PRECAUTIONS

- 6.1. All personnel entering the cattle holding area will wear personal protective equipment -coveralls, disposable latex gloves and dedicated facility footwear.
- 6.2. Care will be taken when handling sharps. Needles and syringes will be disposed of in appropriate sharps container.
- 6.3. Always thoroughly wash hands with soap and hot water when leaving the barn.

7. GENERAL

- 7.1. Animals with pneumonia will usually have a fever. Normal temperature of the cow is 38-39.1°C, but will be higher in animals with pneumonia.
- 7.2. A cow with pneumonia will be noticeably depressed, off feed and have lowered milk production. The worse the pneumonia, the more noticeable this will be.
- 7.3. The animal may be coughing, and breathing may be labored or rapid. A normal breathing rate for a cow is ~ 20-30 (15-50 range) breaths per minute. A nasal discharge

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|
|  University of British Columbia Centre for Dairy Education and Research | Document Number | SOP-Cow-024 |
| | Revision Number | 000 |
| | Effective Date | October 26, 2020 |
| PNEUMONIA | | |

may be present (clear to purulent, sometimes with blood). A cow with a severe case of pneumonia may be mouth breathing.

- 7.4. Calves, heifers and cows all receive vaccinations to boost their immunity against pneumonia (See SOP on Vaccinations).
- 7.5. Record any observations and treatments in the dairy day book.

8. MATERIALS AND EQUIPMENT

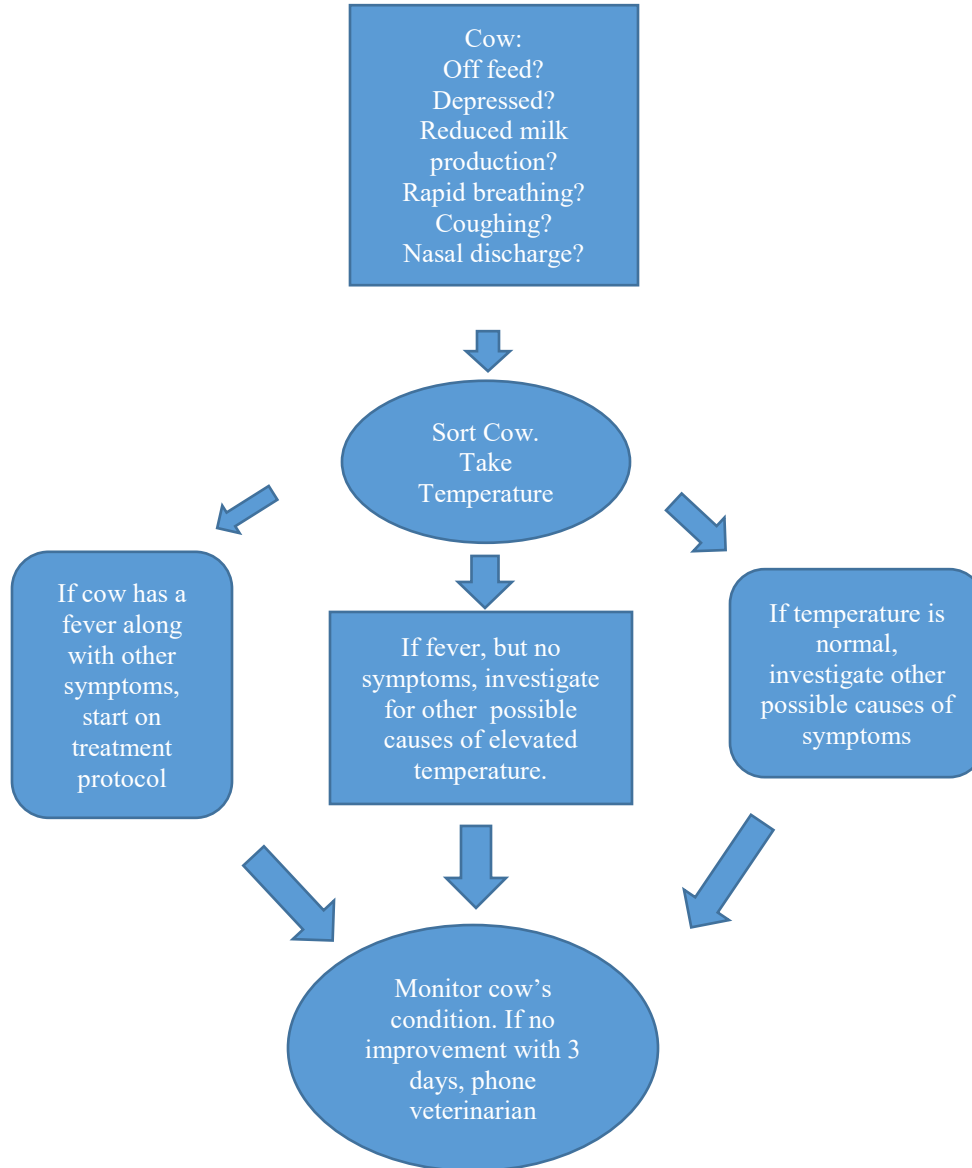
- 8.1. Disposable latex gloves
- 8.2. Rectal thermometer
- 8.3. Antibiotics-Trimidox/Borgal (trimethoprim/sulfadoxine)
- 8.4. Anti-inflammatory - Flunazine (Flunixin meglumine)
- 8.5. Combination antibiotic/anti-inflammatory – Resflor (Florfenicol/Flunixin)
- 8.6. Needles -2” 14G for cows, 1.5” 16G for heifers
- 8.7. Syringes – variable volumes
- 8.8. 4x4” sterile gauze
- 8.9. 70% Isopropanol
- 8.10. Drenchmate apparatus
- 8.11. Drenchmate powder

9. PROCEDURES


- 9.1. Identify animals seen to have signs of pneumonia and that may require treatment. See Flowchart below.
- 9.2. If necessary, move sick animals to a pen with headlocks and allow them time to lock up. See SOPs on Moving & Chasing Cattle, and Handling Cattle.
- 9.3. Take the animals’ rectal temperature (See SOP on Handling Cattle). Record temperature in day book.



PNEUMONIA



- 9.4. Farm worker IIs will evaluate the sick animal based on above flow chart. If after consulting with the Operations Manager and/or Herd Veterinarian, pneumonia is diagnosed, they will drench animal and start her on an antibiotic and anti-


| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|
|  University of British Columbia Centre for Dairy Education and Research | Document Number | SOP-Cow-024 |
| | Revision Number | 000 |
| | Effective Date | October 26, 2020 |
| PNEUMONIA | | |

inflammatory medication. See treatment protocol below and SOPs on giving oral medications and injections.

- 9.5. Cows with pneumonia will usually respond better to antibiotics when combined with anti-inflammatories (Flunixin) for pain control.
- 9.6. Young heifers (after weaning) receive a combination antibiotic/anti-inflammatory – Resflor, given subcutaneously into the neck (see treatment protocol below and the SOP on giving subcutaneous injections). They are not drenched.
- 9.7. Ensure sick animal has access to plenty of fresh water and feed.
- 9.8. If animal’s condition worsens, or if there is no improvement after 3 days phone the herd veterinarian.

PNEUMONIA TREATMENT PROTOCOL:

| Age of Animal | Trade name | Drug name | Dosage | Route | Frequency | Duration |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------|---------------|--------------|------------------|------------------------------------------------------------|
| Heifers (after weaning-1 st calving) | Resflor | Florfenicol/ Flunixin | 6ml/45 kg | SQ | 1x | Once |
| Resflor is administered as a single, subcutaneous treatment in the neck. Do not give more than 10 mls at an injection site. If after 3 days there is no improvement in heifer’s condition, or if condition worsens, call the veterinarian. | | | | | | |
| Lactating Cows | Trimidox/Borgal | Trimethoprim: Sulfadoxine | 3mls/45 kg | IV | 1x daily | 5d |
| Lactating Cows | Flunazine | Flunixin meoglumin | 2mls/45 kg | IV | 1x daily | 2d |
| Lactating Cows | Drench mate powder (cows only) | Electrolyte/ vitamin supplement | 40L | Orally | 1x daily | Day 1 – <i>and</i> Day 2 and 3 if slow to respond |
| Monitor animal temperature and milk production. If no improvement in animal’s condition after 3 days, or if it worsens before then, phone herd veterinarian. | | | | | | |
| Withdrawal times after last treatment: Milk: 96 hrs for Borgal/Trimidox., 36 hrs for IV Flunazine.. Meat: 10 days for Borgal/Trimidox ,6 days for Flunazine. 60 days for Resflor. | | | | | | |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|
|  University of British Columbia Centre for Dairy Education and Research | Document Number | SOP-Cow-024 |
| | Revision Number | 000 |
| | Effective Date | October 26, 2020 |
| PNEUMONIA | | |

10. REFERENCES

- 10.1. CCAC Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009
- 10.2. Code of Practice for the Care and Use of Dairy Cattle. National Farm Animal Care Council. 2009.
- 10.3. Merck Manual. Veterinary Manual. Bacterial Pneumonia in Cattle. Accessed Feb. 2020. <https://www.merckvetmanual.com/respiratory-system/respiratory-diseases-of-cattle/bacterial-pneumonia-in-cattle?query=pneumonia>
- 10.4. Zoetis. Online article. Pneumonia-Bovine Respiratory Disease – Dairy (BRD). Accessed Feb 2020. <https://www.zoetis.com.au/diseases/pneumonia-bovine-respiratory-disease-dairy-brd.aspx>

11. REFERENCED SOPs

- 11.1. SOP-Cow-006 Moving and Chasing Cattle
- 11.2. SOP-Cow-011 Giving Vaccinations
- 11.3. SOP-Cow-012 Giving Injections – Subcutaneous, Intramuscular and Intravenous.
- 11.4. SOP-Cow-014 Administering Oral Medications
- 11.5. SOP-Cow-023 Handling Cattle

12. APPROVAL AND REVISION HISTORY

| Author/Approver | Date | Signature |
|------------------------|-------------------|------------------|
| | | |
| | | |
| History | | |
| Document # | Revision # | Changes |
| | | |
| | | |
| | | |
| | | |



**University of British Columbia
Centre for Dairy Education
and Research**

Document Number

SOP-Cow-024

Revision Number

000

Effective Date

October 26, 2020

PNEUMONIA



**University of British Columbia
Centre for Dairy Education
and Research**

Document Number

SOP-Cow-024

Revision Number

000

Effective Date

October 26, 2020

PNEUMONIA