 <b>University of British Columbia Centre for Dairy Education and Research</b>	<b>Document Number</b>	<b>SOP-Cow-017</b>
	<b>Revision Number</b>	<b>000</b>
	<b>Effective Date</b>	<b>December 1, 2020</b>
<b>CLINICAL MASTITIS</b>		

## 1. PURPOSE

This Standard Operating Procedure (SOP) instructs farm workers on the procedure used to treat any animal found to have clinical mastitis at the UBC Dairy Education and Research Centre.

## 2. SCOPE

- 2.1. This SOP will describe the method used to treat animals with any stage of clinical mastitis, and why it is important to the animal's welfare to do so.

## 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 all staff are trained in this procedure.
- 3.3. Training will include animal handling, how to drench animals, and give IM injections. See SOPs on Handling Cattle, Administering Oral Medications, and Giving Injections.
- 3.4. Trained Farm Workers are responsible for treating affected animals for mastitis.
- 3.5. The Operations Manager is responsible for transferring information from the dairy day book into the herd management software.

## 4. DEFINITIONS

- 4.1. **Clinical mastitis:** is an inflammatory response to infection causing visibly abnormal milk (eg, color, fibrin clots). As the extent of the inflammation increases, changes in the udder (swelling, heat, pain, redness) may also be apparent. Clinical cases that include only local signs are referred to as mild (**subacute**) or moderate, and is the most commonly seen instance of this disease. If the inflammatory response includes systemic involvement (fever, anorexia, shock), the case is termed severe. If the onset is very rapid, as often occurs with severe clinical cases, it is termed acute or severe mastitis. *Merck Veterinary Manual*



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- 4.2. **Subclinical mastitis:** is the presence of an infection without apparent signs of local inflammation or systemic involvement. Although the milk appears normal, subclinically infected **cows** will produce less milk, and the quality of the milk will be reduced. *Merck Veterinary Manual*
- 4.3. **Somatic Cell Count (SCC):** is used as a measure of milk quality. Somatic cells are composed mainly of white blood cells, and a SCC of <100,000 cells/ml indicates a healthy udder and good quality milk. Higher values indicate an infection in the udder, and declining milk quality as the count increases.

### 5. SAFETY PRECAUTIONS


- 5.1. All personnel working in the milking parlour will wear personal protective equipment - coveralls, rubber aprons and dedicated facility footwear.
- 5.2. Disposable latex gloves must also be worn when working in the milking parlour to protect both the workers and cows from bacteria.
- 5.3. All workers must thoroughly wash their hands with hot soap and water when leaving the milking parlour.
- 5.4. Some animals may kick when the milking cups are attached to their teats. Be especially careful when milking animals in their first lactation.
- 5.5. Walk carefully in the milking parlour so as not to slip on the wet floor.

### 6. GENERAL

- 6.1. Trained Farm Workers will give any required treatments for Clinical Mastitis.
- 6.2. Any treatments given will be recorded in both the dairy day book and herd management software.

### 7. MATERIALS AND EQUIPMENT

- 7.1. Oxytocin - hormone
- 7.2. Needles & syringes
- 7.3. 70% isopropanol

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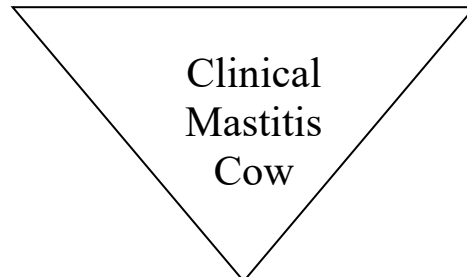
- 7.4. 4x4" gauze pads
- 7.5. Sterile culture tube with lid
- 7.6. Disposable Latex gloves
- 7.7. At the discretion of the attending veterinarian:
  - 7.7.1. Flunazine (Flunixin Meglumine) IV - antiinflammatory
  - 7.7.2. Spectramast LC – antibiotic - single dose syringes, See SOP on Drying Off Cows
  - 7.7.3. Trimidox IV (Trimethoprim Sulfadoxine)
  - 7.7.4. Drench Mate system- see SOP on Giving Oral Meds
  - 7.7.5. Drench Mate Powder – a mineral & vitamin mix
  - 7.7.6. SF17900 tube - antibiotic

## **8. PROCEDURE**

- 8.1. See SOPs on Moving and Chasing Cattle, and Milking Procedures to get animals to the milking parlour.
- 8.2. If signs of clinical mastitis are found, follow the flow chart below for appropriate treatment procedure:



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### Subacute Mastitis (Flakes only)


- Oxytocin, 1cc IM at milking for a maximum of 3 - 4 consecutive milkings;
- Careful milking
- Monitor for improvement
- Consider switching to “Moderate Mastitis” protocol if no improvement after 48 hr

### Moderate Mastitis (Flakes, hard quarter, +/- fever > 39.5 C)

- Oxytocin, 1cc IM at milking for a maximum of 3 - 4 consecutive milkings;
- Careful milking
- Give 25- 30 cc Flunazine IV daily for 2d
- Use once daily Spectramast LC tube **OR** give 50 to 60 cc Trimidox IV once daily for 3 days if no improvement at 48 hours

### Severe Mastitis (Flakes, watery milk, hard quarter, cow sick, milk drop >50%)

- Oxytocin, 1cc IM at milking for a maximum of 3 - 4 consecutive milkings;
- Box stall cow if weak
- Give 25- 30 cc Flunazine IV daily for 2-3d
- 50 to 60 cc Trimidox IV once daily for 3 -5 days
- Give 20 to 40 L of water by drench daily for 2-3 days, add 1 Drench Mate Powder for first 2 days
- Consider infusing SF17900 tube at each milking if quarter is very hard

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- 8.3. Generally, if an animal does not respond to the treatments outlined in the flow chart within 48 hours, or if her condition worsens (she goes down) the herd veterinarian is consulted and the cow may be euthanized. See SOP on Euthansia.
- 8.4. Wash hands thoroughly when finished working in the milking parlour.
- 8.5. Record treatments given to any animal in the Dairy Day Book and Herd Management software.

## 9. REFERENCES

- 9.1. CCAC Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009
- 9.2. Code of Practice for the Care and Use of Dairy Cattle. National Farm Animal Care Council. 2009
- 9.3. Merck Veterinary Manual. Mastitis in Cattle. Online document. <https://www.merckvetmanual.com/reproductive-system/mastitis-in-large-animals/mastitis-in-cattle> Accessed September 2020
- 9.4. National Mastitis Council. Fact Sheets. <https://www.nmconline.org/fact-sheets/> Accessed Nov 2019

## 10. REFERENCED SOPS

- 10.1. SOP-Cow-003 Euthansia
- 10.2. SOP-Cow-006 Moving and Chasing Cattle
- 10.3. SOP-Cow-008 Drying Off Cows
- 10.4. SOP-Cow-012 Giving SC IM and IV Injections
- 10.5. SOP-Cow-014 Administering Oral Medications
- 10.6. SOP-Cow-016 Milking Procedure



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**11. APPROVAL AND REVISION HISTORY**

Author/Approver	Date	Signature
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