

## **SOP: Bovine Physical Examination**

These SOPs were developed by the Office of the University Veterinarian and veterinarians at the VMCVM and reviewed by Virginia Tech IACUC to provide a reference and guidance to investigators during protocol preparation and IACUC reviewers during protocol review. They can be used as referenced descriptions for procedures on IACUC protocols. However, it is the sole responsibility of the Principal Investigator to ensure that the referenced SOPs adequately cover and accurately represent procedures to be undertaken in any research project or instructional activity. Any modification to procedure as described in the SOP must be outlined in each IACUC protocol application (e.g. if the Principal Investigator plans to use a needle size that is not referenced in the SOP, simply state that alteration in the IACUC protocol itself).

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## **I. Procedure Summary and Goal**

Describes procedures for the thorough and systematic physical examination.

### Considerations

Having a basic knowledge of the animal's behavior is important in safe and humane handling. When approaching cattle, assess the cow's reaction and adjust accordingly. Avoid loud noises or quick movements; use minimal restraint necessary.

## **II. Personal Protective Equipment (PPE) and Hygiene**

- a. Ensure appropriate PPE is used to protect handler from accidental injury or exposure to blood and other body fluids.
- b. Always wash your hands after handling an animal.

## **III. Supply List**

- a. Stethoscope
- b. Thermometer

## **IV. Detailed Procedure**

- a. Restraint
  1. In order to perform a physical examination proper restraint is required. Please reference the restraint SOP for this.
- b. Initial Examination
  1. Observe the animal from a distance and assess the overall appearance of the animal.
  2. Signs of pain can be indicated by reluctance to move, arched posture, stilted gait and teeth grinding.
- c. Head and Neck Examination
  1. Examine the head of the animal for symmetry. Observe the general head position and test for normal cranial nerve responses.
  2. Evaluate the nares for patency and any discharge.
  3. Assess the eyes for position, symmetry and vision. Check the sclera of both eyes.
  4. Assess the hydration of the animal by performing a skin tent.
- d. Musculoskeletal Examination
  1. Evaluate the limbs of the animal palpating the joints and assessing for any heat or swelling.
- e. Thoracic Examination
  1. Observe the animal's normal rate and rhythm. Obtain a respiratory rate.
  2. Auscult the lung field and assess for inspiratory vs. expiratory sounds. Palpate the trachea to assess if a cough can be induced. Both the left and right side should be evaluated.

3. Auscult the heart. The apex of the heart can be assessed caudal to the elbow at the sixth intercostal space. The aortic, pulmonic and mitral valves can be ausculted on the left side of the animal. Assess the animal's heart rate and rhythm.
  4. Observe the jugular vein and mammary vein for any signs of distension or pulsation while evaluating the heart.
- f. Abdominal Examination
1. The left side of the cow should be pinged. This can be done by simultaneously percussing and ausculting the left side of the animal while flicking a finger against the body wall. This should also be completed in the same manner to the right side.
  2. Auscult the rumen by placing the stethoscope in the left paralumbar fossa. Assess the rumen contractions and calculate the normal rumen contractions hear per minute.
- g. Udder Examination
1. Examine the udder for symmetry. Evaluate any signs of edema or inflammation.
- h. Rectal Examination
1. Reference rectal examination SOP.

## **V. Variations**

A limited or partial physical exam can be done for purposes of examining only one body system for rechecks, sedation, or other purposes.

## **VI. Potential Adverse Effects, Mitigation, or Treatment**

Physical examination should not cause any harm or distress to the animals beyond that described in the restraint or rectal exam SOPs.

## **VII. Suggested Literature Search for Pain Category D and E Procedures**

Not applicable

## **VIII. References**

"Bovine Physical Examination." University of Pennsylvania Veterinary Medicine Training. N.p., n.d. Web. 28 Apr. 2017.

Jackson, Peter G. G., and Peter D. Cockcroft. Clinical Examination of Farm Animals. Oxford: Blackwell Science, 2002. Print.