## INFECTIONOUS BOVINE RHINOTRACHEITIS

<table>
<thead>
<tr>
<th>Animal Group(s) Affected</th>
<th>Transmission</th>
<th>Clinical Signs</th>
<th>Severity</th>
<th>Treatment</th>
<th>Prevention and Control</th>
<th>Zoonotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruminants – cattle, goats, sheep, swine, red deer, American and Malaysian buffalo, and also Brazilian tapirs.</td>
<td>Direct contact with or aerosolization of viral particles from infected animal. It also is transmitted sexually and via artificial insemination. Infection may become latent and can recrudesce; with stress with viral shedding.</td>
<td>Upper respiratory disease; conjunctivitis; and reproductive; neurologic; and gastro-intestinal signs.</td>
<td>Mild to severe, depending on secondary bacterial invasion.</td>
<td>No treatment for the virus itself but supportive care should be provided. Antibiotics in the feed and water are used to treat secondary bacterial infections.</td>
<td>Vaccination; isolation of affected individuals and young until fully vaccinated; decrease stress.</td>
<td>No.</td>
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**Fact Sheet compiled by**: Christie Hicks  
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**Fact Sheet Reviewed by**: Marc Caldwell; Debbie Myers

**Susceptible animal groups**: Ruminants especially cattle, goats, swine, red deer, Malaysian buffalo, and also documented in Brazilian tapirs. Young animals at weaning age and those in crowded conditions are especially susceptible. However, the disease does occur in adult animals, especially non-vaccinated pregnant ruminants.

**Causative organism**: Bovine Herpesvirus 1  
**Zoonotic potential**: None.

**Distribution**: Worldwide distribution is considered present.

**Incubation period**: 2 to 6 days. Outbreaks reach a maximum intensity by the 2nd to 3rd week with mostly all recovered by the 4th to 6th week. Uncomplicated BHV-1 can resolve in one week if no secondary infections are present.

**Clinical signs**: Respiratory signs include coughing, serous to mucopurulent nasal discharge, and conjunctivitis with an ocular discharge and corneal opacity. “Red Nose” (muzzle hyperemia), respiratory distress due to discharges, salivation, anorexia and pyrexia may also be seen. Secondary infections are possible and can lead to a bronchopneumonia. Neonates may present with generalized infection similar to septicemia and/or encephalitis. IBR has been associated with a high mortality rate in calves (< 1 month of age) with no preceding signs. Mid- to late-term abortions can occur up to 100 days post exposure and infection of the dam and genital tract infections may occur. Infected calves can present enteritis. Subclinical infections can occur.

**Post mortem, gross, or histologic findings**: Within the upper respiratory tract and trachea, petechial to ecchymotic hemorrhages are observed in the mucous membranes of the nasal cavity and paranasal sinuses. Focal areas of necrosis are present in the nose, pharynx, larynx, and trachea which may join together to
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Form plaques. The sinuses can be filled with a serous to a serofibrinous exudate that may extend into the pharynx. The pharyngeal and pulmonary lymph nodes may become swollen and hemorrhagic. If the tracheitis extends into the bronchi and bronchioles, the epithelium can be sloughed into the airways. Nasal lesions consist of clusters of gray necrotic foci on the mucous membranes of the septal mucosa and/or with pseudo-diphtheritic yellow plaques. Aborted fetuses have multifocal non-raised white lesions throughout the liver. Placentitis is occasionally seen.

**Diagnosis:** Serum neutralization test should be used as paired titers which need to be at least 2 weeks apart. Virus isolation via nasal fluids in the early onset of disease. ELISA test for an antibody titer and a concurrent rise is available but also indirect hemagglutination and complement fixation serology available. Histopathology and fluorescent antibody on tissues can be used, especially the latter on frozen fetal kidney.

**Material required for laboratory analysis:** Nasal fluids, serum, or tissue.

**Relevant diagnostic laboratories:** Any state laboratory can perform the testing.

**Treatment:** While no treatment for the virus itself exists, one may treat for secondary bacterial infections with antibiotics and supportive care can be provided. Most cases recover in 4 to 5 days if secondary infections are not present.

**Prevention and control:** Vaccination with a modified live vaccine (MLV) given parenterally (SC or IM) or IN is possible. However, MLV given IM may cause abortions, especially in the third to eighth months of gestation. Vaccinating with an inactivated multivalent vaccine given SC or IM will protect against abortions if given prior to breeding.

For control, it is important to isolate affected individuals. In general, vaccinate at 6 to 8 months of age, before introduction into the herd, prior to breeding and annually thereafter.

**Suggested disinfectant for housing facilities:** As an enveloped virus, it can be managed by lipid solvents, bleach, and hydrogen peroxides. Virus also is inactivated by UV light and heat.

**Notification:** No.

**Measures required under the Animal Disease Surveillance Plan:** Currently none.

**Measures required for introducing animals to infected animal:** A period of 2-3 weeks after the illness starts should be waited before introducing any new individuals into the herd. Viral particles can still be seen in nasal secretions throughout this time. All new arrivals into the herd must be vaccinated prior to entry and then revaccinated in 3 months and again at 6 months.

**Conditions for restoring disease-free status after an outbreak:** Serologic testing to detect any reactors present and then euthanize those reactors or have 2 separate herds. Those animals that fully recover from the disease will have long-term immunity to future outbreaks.

**Experts who may be consulted:** Any state veterinarian.

**References:**


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