

Streptococcus equi var. equi

Definition

Streptococcus equi is the etiologic agent for the upper respiratory disease commonly referred to as strangles. Less commonly, the bacteria may affect lymph nodes in the thorax and/or abdomen, causing a syndrome known as Metastatic strangles.

Comprehensive information is available in the ACVIM Consensus statement, 'Streptococcus equi Infections in Horses: Guidelines for Treatment, Control and Prevention of Strangles', Corrine R. Sweeney, John F. Timoney, J. Richard Newton, and Melissa T. Hines, *J Vet Intern Med* 2005;19:123-134. Click here for link to ACVIM document: www.acvim.org/uploadedfiles/Consensus_Statements/Strangles.pdf

Clinical Signs

Fever, usually preceding other clinical signs by 24-48 hours
Lymphadenopathy +/- abscessation (retropharyngeal and submandibular LNs most commonly involved)
Mucopurulent nasal discharge
Pharyngitis
Dysphagia
Upper airway stridor

Clinical signs are age related, with older horses typically exhibiting milder signs of shorter duration.

Incubation

3-14 days—shorter interval reflects exposure to larger bacterial challenge

Transmission

Direct: horse-to-horse contact
Indirect: fomites

Diagnostic Testing

Bacterial culture—diagnostic test of choice for clinically affected horses

Samples collected early in the course of clinical disease may yield negative results on culture. If signs are consistent with *Strep equi* infection, repeat testing at weekly intervals. If several animals are affected, submit single samples from as many animals as possible.

PCR—in combination with culture is test of choice determine the status of exposed and recovered animals

More sensitive than culture to small amounts of bacterial DNA but does not differentiate live bacteria from dead

False negative: PCR can be inhibited in presence of large amounts of mucopurulent debris

Sample collection:

Nasopharyngeal wash

Pass a sterile polypropylene catheter (8-10 fr.) through the ventral nasal meatus until resistance is met (approx 10-15 cm). Flush 60 ml of warmed sterile saline through the catheter. Catch reflux fluid that drains from both nostrils into sterile container. Refrigerate sample; do not freeze.

Wear disposable exam gloves; change after each horse

Disinfect twitch, lead shank, lip chain after each horse

If washes are being performed on multiple horses, exercise caution to avoid cross-contaminating the exteriors of collection containers.

**Endoscopic exam and testing of both guttural pouches should be performed on any horse for which a positive PCR and/or culture is reported by the laboratory. Click here for photos of endoscopic findings of guttural pouches.

SeM-specific ELISA

Cannot differentiate antibodies due to natural infection from those induced by vaccination, therefore of limited use in managing disease outbreaks, but may be useful for identification of animals requiring booster vaccination.

Shedding Time of Organism Past Resolution of Clinical Signs

Typically, 2-3 weeks post-recovery but intermittent shedding may occur for months to years when bacteria persists in guttural pouches or paranasal sinuses.

Endoscopic examination and sampling (for culture and PCR) of the guttural pouches is warranted in detection of persistent infection.

Absent of diagnostic testing to detect chronic shedders, horses should be considered infective for up to 6 weeks post -infection.

Environmental Persistence

Reports of environmental viability vary widely. Aggressive cleaning and disinfection, with special attention to the cleaning and disinfection of water containers, feeders, fences, stall walls and trailers, is indicated. It is recommended that pastures and paddocks be rested at least 30 days.

Specific Control and Treatment Measures

Biosecurity Guidelines

Disease surveillance

Recording rectal temperatures twice daily with segregation and initiation of testing on any horse developing fever > 102.5° F (39° C) or clinical signs.

Clinically normal horses housed within the primary perimeter may be permitted segregated exercise periods outside the perimeter. Precautions should be taken, and may include:

Exercise scheduled *after* general population's exercise period to avoid potential bacterial transfer to unaffected horses/barns by exercise riders

Access to starting gate or similar equipment denied

Restricted use of ponies/out-riders' horses—horses housed within the primary perimeter may only be escorted by horses housed within the same facility.

Direct horse-to-horse contact is to be avoided

Prompt post-contact use of hand sanitizer by individuals having contact with horses during exercise

Release of Animals

To minimize the risk that recovered horses may pose, 3 consecutive weekly PCR and culture by nasopharyngeal wash are recommended. Should one of these tests result in a positive, it is advisable that further diagnostic investigation be performed to locate the focus of persistent infection. Treatment, with subsequent retesting, is appropriate.

Note: Thorough cleaning and disinfection of endoscope is critical to generation of reliable test results and prevention of disease spread.

For animals having been housed within the secondary perimeter:

Release testing is unnecessary in clinically normal horses having no history of exposure, and having had normal rectal temperature for 21 days.

Biosecurity Management for Receipt of Animals

Requirements for accepting animals are determined after identifying 'acceptable level of risk' for the recipient facility. [View Pre-Outbreak Considerations.](#)

Given the mobility of populations involved in showing/racing/competition, exposure risk cannot be completely eliminated. The following options may be considered:

For horses having been housed within primary perimeter:

3 consecutive weekly nasopharyngeal lavagesamples tested by PCR and culture with negative results

For other horses:

Certificate of Veterinary Inspection with disease-specific endorsement:

Horse(s) represented on the certificate of Veterinary Inspection have not originated from premises under quarantine for Strep equi, nor have been exposed to a confirmed or suspect case of Strep equi, nor have shown clinical signs suggestive of Strep equi infection, nor have been febrile within the previous 21 days.

Vaccination—While it may be advisable to *recommend* vaccination, specific vaccination decisions should remain the purview of the attending veterinarian.

Single negative PCR/culture—of little value as a stand-alone indicator of risk, and must be evaluated in the context of exposure history.

Zoonotic Potential

Human cases have been reported, but are uncommon. Immuno-compromised individuals should take precautions to avoid exposure.