

TOWARDS AN INNOVATIVE SOLUTION: LAMP TECHNOLOGY FOR DIAGNOSTIC SUPPORT AS CLOSE AS POSSIBLE TO THE PATIENT

As a specialist veterinary diagnostics company, our rapid molecular diagnostic solution using LAMP (Loop-Mediated Isothermal Amplification) offers many benefits to equine veterinarians. **This isothermal DNA amplification method** allows **rapid and accurate** detection of *Streptococcus equi subsp. equi* **DNA in less than an hour.**

What's more, our solution is **easy to use in the field**, using samples taken from **nasopharyngeal swabs** or guttural pouch washes, making it a **versatile method and adaptable to different clinical situations.** It offers veterinary professionals a **new approach to diagnosing and managing strangles in equines.** The benefits for day-to-day practice in equine internal medicine include **improved diagnostic responsiveness, reduced treatment times and improved management of epizootics** in stables and stud farms.



A COMMITMENT TOWARDS EQUINE HEALTH

Strangles remains a major challenge for equine veterinary professionals, but advances in the diagnosis and management of the disease are opening up new opportunities. By **combining an in-depth understanding of the disease with innovative diagnostic technologies such as LAMP**, equine veterinary professionals can **improve the health and welfare of horses**, while contributing to **the prevention and control of epizootics.**

IF YOU WANT TO KNOW MORE about respiratory diseases in horses, consult our webinar in collaboration with EIDS..



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STRANGLES IN EQUINES

A SCIENTIFIC CHALLENGE FOR EQUINE VETS

Strangles, an age-old infectious disease mainly affecting equines, represents a major challenge for equine veterinary professionals. This disease, caused by *Streptococcus equi subspecies equi*, an **obligate β -haemolytic, Gram-positive cocci bacterium**, is **often associated with epidemics in stables and stud farms.**

PRESENTATION & EPIDEMIOLOGY



Strangles is an ancient disease that is widespread throughout the world. **Regions with a high density of horses**, such as **Europe, North America and Asia**, are particularly affected. Although the disease can occur at any time of year, it is often seen in **winter and spring**, when horses



are confined in enclosed spaces and the **stress of environmental changes** (travel, equine competitions) can **weaken their immune systems.**

Strangles mainly affects **young horses under 5 years of age**, but can occur at any age. In a population of **naïve horses, morbidity can be close to 100%**, although **mortality** is generally low, at between **1% and 5%**. It takes at least **3 months to eradicate the disease** from a group of horses.

TRANSMISSION OF STRANGLES

➤ Strangles in horses is a **highly contagious disease**, mainly transmitted by **direct contact with infected horses or healthy carriers of *Streptococcus equi equi***. According to data collected by the French Horse and Riding Institute (IFCE), the rate of **strangles transmission** can be extremely high, reaching up to **100% in herds of non-immune horses.**

➤ Furthermore, strangles can persist in the environment for variable periods, increasing the risk of indirect transmission. According to data collected by the IFCE, *Streptococcus equi equi* **can survive in the environment for several weeks, even several months, in favourable conditions of temperature and humidity.**

➤ The spread of the disease can be particularly rapid in **stables, riding schools and equine gatherings**, where horses are in close contact with each other. A study by veterinary professional epidemiology researchers found that **strangles can be transmitted** by multiple routes, including **nasal spray, respiratory secretions and contaminated surfaces.**

➤ It is therefore essential to implement **strict prevention and control measures** to limit the spread of strangles. This includes **isolating infected horses, quarantining new arrivals, regularly cleaning and disinfecting facilities and equipment, and systematically screening horses at risk.**



The origin of the name "**strangles**" can be traced back to the distinctive appearance of affected horses, which have difficulty breathing and a characteristic downward head posture due to inflammation of the submandibular lymph nodes.

CLINICAL SIGNS: RECOGNISING THE SYMPTOMS OF STRANGLES



Strangles in horses presents a **variety of clinical signs**, making its **diagnosis sometimes difficult**.



The first symptoms may not appear for **3 to 14 days after infection**.



Patients may remain **contagious for up to 1 month**.



Around **80 to 100%*** of horses with strangles have a **fever (40°C or more)**.

*According to a study by the French Horse and Riding Institute (IFCE).



70-100%* have **swollen lymph nodes** under the jaw, often accompanied by **neck stiffness**. These lymph nodes can increase up to **three times their normal size** in cases of severe infection.



They may also present **respiratory symptoms**. These may include a **dry, persistent cough**, **purulent nasal discharge** and **breathing difficulties**, especially during physical exertion.



In severe forms of the disease, other complications can arise, such as **multiple abscesses** in different parts of the body, **gastrointestinal disorders** and **neurological damage**. These complications can **worsen the horse's general condition** and require **urgent medical intervention**.



It is important to note that the symptoms of strangles can vary from one animal to another

at not all infected horses necessarily present the clinical signs described above.

However, the **presence of persistent fever, swollen lymph nodes and respiratory symptoms** in a horse should always arouse **suspicion of strangles** and **warrant a thorough veterinary professional consultation**.



DIAGNOSTIC CHALLENGES: THE LIMITATIONS OF TRADITIONAL METHODS



Diagnosing strangles in horses has long been a challenge for veterinary professionals due to the **variety of clinical symptoms** and the limitations of traditional methods. However, with **advances** in technology, new, faster and more accurate diagnostic solutions have emerged, providing practitioners with **effective tools to rapidly detect infection and take appropriate action**.

Traditional methods of diagnosing strangles, such as **bacterial culture** and **serology**, have certain limitations.



Bacterial culture, although considered the reference method for diagnosing strangles, can take several days to produce results and may lack sensitivity in some cases.



Although **serology** can detect the presence of antibodies against *Streptococcus equi equi*, it is not always possible to differentiate between an active and a past infection.



An alternative to these two methods is **molecular diagnosis**. Diagnosis by **PCR or LAMP enables Streptococcus equi DNA to be detected with high sensitivity and specificity**, providing an accurate diagnosis **in just a few hours**.



Some studies have shown that **PCR** can detect the presence of the pathogen in nasopharyngeal samples with a **sensitivity of more than**

95 %*
(source : IFCE).



These challenges have made it **imperative to find innovative and effective diagnostic solutions** to combat strangles in horses.