

## The Asymptomatic Carrier Stallion: Critical Role in Venereal Disease Transmission

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A range of venereally transmissible agents—viral, bacterial, and protozoal—have long been known to establish persistence or the carrier state in stallions, mares, or both. Some of these agents (e.g. *Pseudomonas aeruginosa*, certain capsule types of *Klebsiella pneumoniae* and *Streptococcus zooepidemicus*) are commonplace in most domesticated horse populations. Others such as equine herpesvirus 3, equine arteritis virus, *Taylorella equigenitalis*, or *T. asinigenitalis* are less frequently encountered. Of additional significance is *Trypanosoma equiperdum*, the causal agent of dourine, which though rarely reported nowadays, is reputedly still present in certain regions/countries of the world.

Even though some but not all of the foregoing agents can establish persistent infection in both the stallion and the mare, it is the carrier stallion that plays a more important role in the epidemiology of the respective infections. Not only has it the potential to disseminate a particular infectious agent among the mares to which it is bred, but of even greater long-term significance, it ensures the transfer of infection from one breeding season to the next.

While some of these agents, such as equine arteritis virus and *T. equigenitalis*, can be transmitted either through natural service or artificial insemination, the risk of more widespread transmission is much greater through the practice of artificial insemination with fresh-chilled or frozen semen from a carrier stallion. This was borne out in the course of the 2006 equine viral arteritis disease event in the USA, when fresh-chilled semen from a well-known Quarter horse stallion in high commercial demand was responsible for spread of the virus to breeding stock in 18 states and two provinces in Canada, all within a two- to three-week period. This resulted in outbreaks of equine viral arteritis, abortion in naïve pregnant mares, and establishment of the carrier state in a variable number of exposed stallions.

It must be emphasized that stallions that continue to harbor equine arteritis virus, equine herpesvirus 3 or *T. equigenitalis* are asymptomatic or clinically inapparent carriers. With the exception of infection with *T. equiperdum*, there is no means of knowing whether a stallion is a carrier of a particular venereal pathogen or not without subjecting it to appropriate testing

protocols for whatever the agent under consideration might be. Regardless of what venereal infection is being screened for, however, it is critically important that such testing is carried out by a reputable veterinary diagnostic laboratory with an established record of competency and experience in testing for that infection. The reliability of laboratory testing is crucially important to the success of any prevention and control program especially in the case of equine viral arteritis and contagious equine metritis.

A further confounding factor when dealing with stallions that are asymptomatic carriers of equine arteritis virus or *T. equigenitalis* is the fact that the majority of naïve mares to which they are bred may subsequently exhibit minimal, if any, clinical evidence of infection. This leaves the breeder/mare owner unaware that transmission of infection has occurred and that the stallion in question is a carrier of either of these two venereal pathogens. This could have significant consequences in the case of equine arteritis virus should such an acutely infected mare be pastured with naïve pregnant mares. The 2008-2010 CEM event in the USA illustrated how easily a stallion that was a carrier of *T. equigenitalis* could escape detection at time of importation and ultimately be responsible for the very costly event that first came to light in 2008.

Past and recent experiences underscore the importance of screening breeding stallions regardless of breed, for presence of the carrier state. This applies especially to equine arteritis virus. Moreover, the responsibility for ensuring the safety of breeding stallion populations ultimately resides with the equine industry.

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