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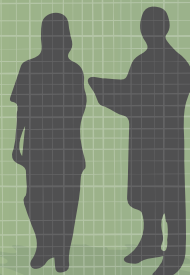
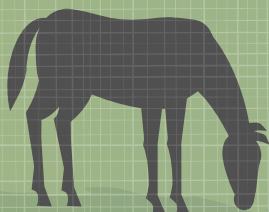
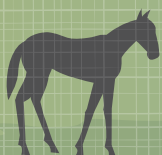
Championing the Equine Vet



**60th**



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### A clinician's perspective of dormant streptococcal infections

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*Streptococcus equi* subspecies *zooepidemicus* (*S. zooepidemicus*) has been described as being the most common bacteria associated with endometritis in the mare [1]. There are three ways in which endometritis due to *S. zooepidemicus* can present to the equine practitioner. The first is routine endometritis, when the mare has a vulvar discharge, intraluminal fluid on ultrasonography and identification of inflammation and bacteria on culture and cytology. The *S. zooepidemicus* is in a planktonic state in which it can move around the uterus mounting an inflammatory response and being identified by culture and cytology [2]. The second is where there is no vulvar discharge or intraluminal fluid, but there are signs of inflammation, mucus and debris on cytology, with no bacteria identified on culture. In this case, *S. zooepidemicus* could be residing in the increased inspissated mucus produced due to inflammation, or in biofilm. Identification by culture requires the breakdown of the mucous layer or biofilm by N-acetylcysteine, Tris-EDTA, or DMSO [3,4]. Lastly, a mare may be presented with no vulvar discharge, intraluminal fluid, evidence of inflammation or infection or any of the above, but showing acute or chronic inflammation on endometrial biopsy. In addition, a history of not becoming pregnant when bred to a fertile stallion over numerous oestrous cycles or of pregnancy loss is common. In this situation, further diagnostics are required to identify the presence of streptococci that are dormant within the endometrium and which may be the cause of the problem [5].

There are different ways that have been proposed to activate the *S. zooepidemicus* organism so that they no longer remain in a dormant, metabolically inactive state and therefore can be identified when cultured and treated. The process of breeding or deposition of spermatozoa elicits an inflammatory response that can activate dormant *S. zooepidemicus* [6]. This has been shown in endometritis studies as well as when a culture/cytology is performed post breeding on a mare that has previously not had *S. zooepidemicus* identified. The product bActivate has also been used to activate dormant *S. zooepidemicus* [7]. At the beginning of oestrus, culture/cytology is performed then the product is infused into the uterus. The following day, low-volume culture/cytology is performed to identify if any bacteria are present. Pregnancy rates post activation have been

reported as 70% [7]. Another option for potential activation or identification of streptococci that are either dormant or beneath the endometrial surface is to perform an intrauterine infusion of kerosene [8,9]. There are different protocols described as to when and how much kerosene should be used. This author prefers to infuse 100 mL of pure K1 kerosene during diestrus at least 6 days post ovulation. At the same time prostaglandin is administered to open the cervix over the next couple of days and allow intrauterine lavage to be done. Culture and cytology of the lavage post kerosene will help identify bacteria released from the deeper tissues of the uterus.

Treatment of activated or identified streptococci can include intrauterine antimicrobials according to sensitivity and adjunct therapies as well as systemic treatment [10]. Intrauterine treatment should be performed during oestrus for 4–6 days. In addition, systemic antimicrobials should be administered for 5–10 days according to susceptibility.

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