

# **Antibiogram Development And Multiple-drug-resistant Bacteria Of Equine Synovial Infections**

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**Introduction:** Equine synovial infections are an important cause of morbidity and mortality, often necessitating empirical antimicrobial treatment.<sup>1</sup> The aim was to develop a cumulative antibiogram of synovial bacterial isolates from an equine referral hospital.

**Methods:** Bacterial culture and antimicrobial susceptibility data from synovial fluid and directly communicating tissues were retrospectively collected from 196 horses between 2011 and 2024. Population demographics, sample origin, and prior antimicrobials used were recorded. The proportion of multiple-drug resistant (MDR) isolates was calculated, and 95% confidence intervals (CIs) for antimicrobial susceptibility were determined using the Agresti-Coull method.<sup>2</sup>

**Results:** 161 isolates from 21 bacterial families were identified. Enterobacteriaceae (22%, 36/161) and Staphylococcaceae (20%, 33/161) were the most commonly cultured. Susceptibility data was available for 142 isolates, of which 55% (78/142) were Gram-negative. Among commonly used antimicrobials, Gram-positive isolates were most susceptible to chloramphenicol (90%, CI: 78 - 96), trimethoprim-sulphamethoxazole (76%, CI: 64 - 85), doxycycline (60%, CI: 64 - 73) and penicillin (58%, CI: 41 - 73). Gram-negative isolates were most susceptible to amikacin (79%, CI: 67 - 87), chloramphenicol (60%, CI: 48 - 71), gentamicin (58%, CI: 47 - 69), and tetracycline (53%, CI: 42 - 63). Overall susceptibility of isolates to either penicillin or gentamicin was 55% (78/141). MDR was identified in 37% (52/142) of isolates, with 73% (38/52) of these being Gram-negative.

**Conclusions:** Empirical treatment with a combination of penicillin and gentamicin remains appropriate, with chloramphenicol an alternative when not prohibited (Victoria). The high prevalence of MDR organisms highlight the importance of antimicrobial stewardship.<sup>3</sup>

## References

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3. Magiorakos AP, Srinivasan A, Carey RB et al. Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. *Bacteriology* 2012;18(3):268-281.