# Clonal diversity and antimicrobial resistance of *Staphylococcus pseudintermedius* isolated from canine pyoderma

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## Introduction

*Staphylococcus pseudintermedius* is a predominant cause of skin infections in dogs and the most common causative agent of pyoderma. Methicillin-resistant *S. pseudintermedius* (MRSP) have been identified in increasing frequencies in canine pyoderma. MRSP strains are usually resistant to several classes of antibiotics which leads to therapeutic failure and, potentially, zoonotic problems. This study aimed to characterize the antimicrobial resistance and genetic lineages *of S. pseudintermedius* isolated from canine pyoderma.

## Methods

Sixty-one *S. pseudintermedius* were isolated from dogs with pyoderma in a veterinary hospital. The presence of *mec*A gene was detected by PCR. Antimicrobial susceptibility testing was performed by the Kirby-Bauer disk diffusion method against 17 antimicrobial agents. Multilocus-sequence-typing (MLST) was performed in all MRSP isolates as previously described (https://pubmlst.org/).

## Results

From the 61 isolates, 31 harbored the *mec*A gene and were therefore classified as MRSP. The majority of *S. pseudintermedius* isolates showed resistance to penicillin, erythromycin, clindamycin, tetracycline and trimethoprim-sulfamethoxazole (Figure 1). Most MRSP also showed resistance to aminoglycosides. MSRP isolates were ascribed to 9 previously described sequence types (ST): ST123, ST727, ST339, ST537, ST45, ST1029, ST118, ST1468, ST71; and to 5 ST described for the first time in this study: ST2024, ST2025, ST2026, ST2027 and ST2028 (Figure 2).

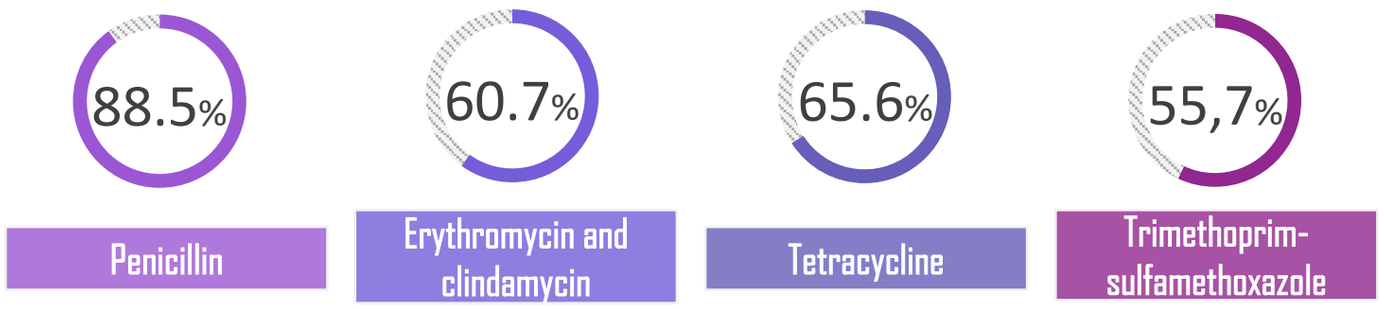


**Figure 1.** Percentages of the most prevalent resistances found among the *S. pseudintermedius.*

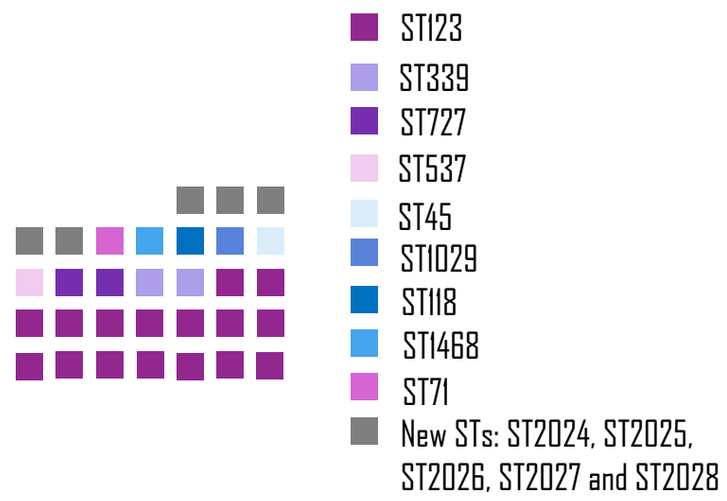


**Figure 2.** Distribution of 15 different STs among MRSP.

## Conclusions

These results show that more than half of *S. pseudintermedius* isolated from pyoderma were resistant to methicillin. There was a difference in the antimicrobial susceptibility pattern between methicillin-resistant and -sensible *S. pseudintermedius,* in particular, for aminoglycosides. Furthermore, there was a high diversity of genetic lineages among MSRP causing pyoderma.

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