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Methicillin-resistant *Staphylococcus pseudintermedius* in dogs: a European perspective

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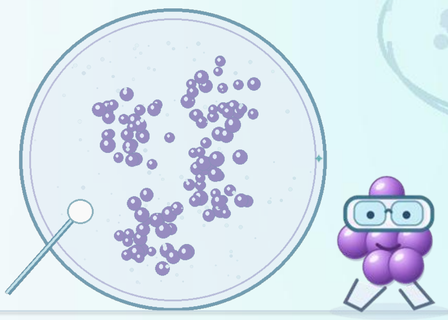
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ABSTRACT

Staphylococcus pseudintermedius is an opportunistic pathogen in dogs, commonly associated with skin, ear and wound infections. Methicillin-resistant *S. pseudintermedius* (MRSP) represents a major concern due to its frequent multidrug resistance. This review analyzed 20 studies published between 2016 and 2026 across 14 European countries, focusing on MRSP occurrence, antimicrobial resistance and clonal diversity. MRSP prevalence varied considerably between studies, while multidrug resistance was frequently reported. ST71 was commonly identified, alongside other lineages such as CC258 and ST551. The findings highlight the importance of accurate identification, antimicrobial susceptibility testing, responsible antibiotic use and continuous surveillance within a One Health framework.

01 INTRODUCTION

Staphylococcus pseudintermedius is a coagulase-positive bacterium commonly found on the skin and mucous membranes of dogs, but it can also cause pyoderma, otitis externa and other infections. Methicillin-resistant S. pseudintermedius (MRSP) represents a major veterinary concern due to resistance mediated primarily by the mecA gene and frequent multidrug resistance, which limits therapeutic options. Accurate identification remains challenging because of similarities with other members of the S. intermedius group. MRSP also has zoonotic potential, particularly through close contact with infected dogs. Its clonal distribution varies across Europe, with ST71 historically representing a predominant lineage. This review examines European studies published between 2016 and 2026, focusing on MRSP occurrence, antimicrobial resistance, identification methods and clonal diversity, including data from Romania.



02 MATERIALS AND METHODS

A narrative synthesis of original European studies published between 2016 and 2026 was performed using Google Scholar, publishers' websites and reference lists. Eligible studies included canine *S. pseudintermedius* isolates and reported methicillin resistance based on phenotypic testing or *mec*A detection. Information on sampling, bacterial identification, MRSP occurrence, antimicrobial resistance and molecular lineages was extracted. Results were compared descriptively; no meta-analysis was conducted because the studies used different populations and laboratory methods.

20 ORIGINAL STUDIES

14 EUROPEAN COUNTRIES

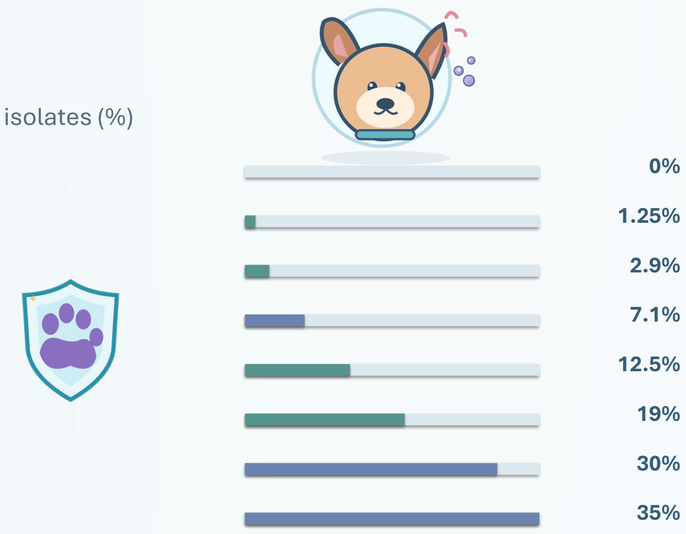
2016–2026 PUBLICATION PERIOD

03 RESULTS AND DISCUSSION

MRSP occurrence varied considerably among study populations, from 0% in healthy Romanian dogs (Popa et al., 2025) to 35% in a Portuguese otitis cohort (Saraiva et al., 2025). The percentages below are study-specific and must not be interpreted as a pooled European prevalence.

SELECTED MRSP PROPORTIONS

MRSP among tested *S. pseudintermedius* isolates (%)



** Different populations and testing methods; estimates are not directly comparable.*

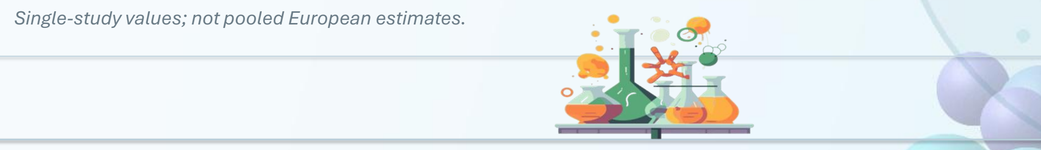
OCCURRENCE & DIAGNOSIS

Two large German diagnostic datasets reported 7.1% MRSP, but their periods and sources partly overlapped. Clinical, shelter, carriage and healthy-dog collections cannot be compared directly. Methicillin resistance was evaluated using oxacillin testing and/or *mec*A detection; cefoxitin is not a reliable surrogate for *S. pseudintermedius*. Differences in sampling and diagnostic methods complicate interpretation.

RESISTANCE & CLONAL DIVERSITY

Multidrug resistance was common, reaching 94.7–100% in several investigated MRSP collections. In Belgium, 102 canine MRSP isolates showed high resistance to gentamicin, erythromycin, clindamycin, tetracycline and ciprofloxacin. ST71 remained prominent, but other lineages, including ST258, ST496 and ST551, were identified across Europe. None of the four Romanian studies included molecular typing.

ANTIMICROBIAL RESISTANCE



Single-study values; not pooled European estimates.

04 CONCLUSIONS

MRSP is a veterinary antimicrobial-resistance concern because many isolates are multidrug-resistant. Reported proportions depend on study populations and diagnostic methods and are not national prevalence estimates. Accurate identification, appropriate oxacillin testing, molecular confirmation of methicillin resistance and susceptibility-guided treatment are essential. Further Romanian studies should include healthy and clinically affected dogs, additional regions and molecular typing. Harmonised surveillance, prudent antimicrobial use and infection-control measures are needed to protect canine and public health.