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Antibiotic Therapy in Patients with Bacteremia/Bloodstream Infections due to Escherichia coli or Staphylococcus aureus

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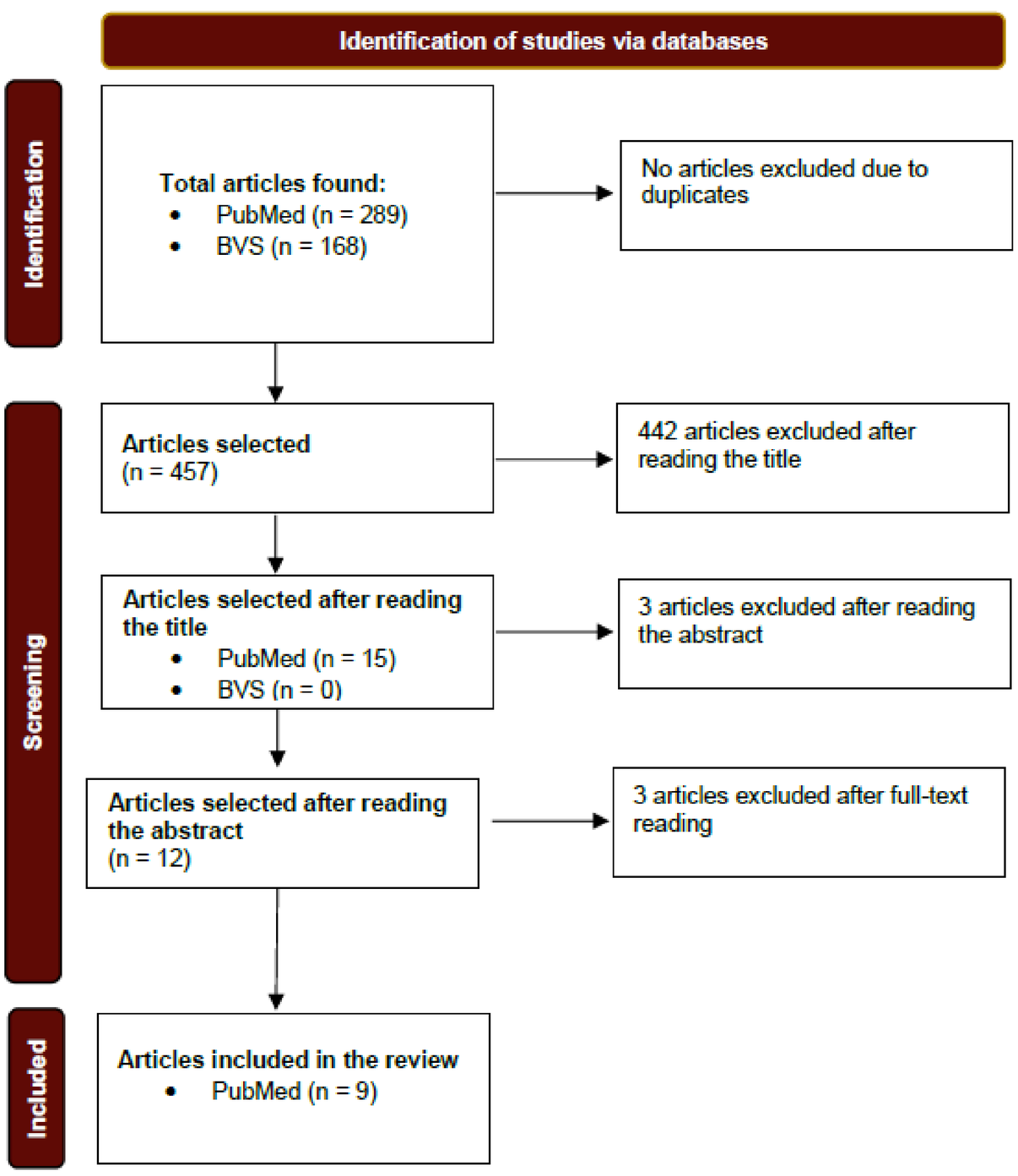
INTRODUCTION & AIM

Bloodstream infections are a major public health concern, potentially progressing from transient bacteremia to severe sepsis, often with fatal outcomes. Among the most frequent pathogens, *Staphylococcus aureus* and *Escherichia coli* stand out due to their virulence and increasing antimicrobial resistance. This resistance challenges the effectiveness of available treatments and highlights the need for updated therapeutic approaches.

This study aims to evaluate the clinical management of bacteremia caused by *S. aureus* and *E. coli*, focusing on antibiotic strategies and current evidence.

METHOD



RESULTS & DISCUSSION

Staphylococcus aureus

MSSA: Treated effectively with semisynthetic penicillins (e.g., nafcillin), first-generation cephalosporins (e.g., cefazolin), or daptomycin. These agents show strong efficacy and are well supported in clinical guidelines.

MRSA: Vancomycin is first-line. Daptomycin is an alternative, and adding fosfomycin may improve outcomes (12% higher success), though without statistical significance. Ceftobiprole showed similar efficacy to daptomycin (69.8% success), emerging as a valid alternative.

Escherichia coli

ESBL-producing strains: Carbapenems (e.g., meropenem) remain the standard treatment due to their strong activity against resistant strains.

Alternative agents: Fosfomycin showed potential but no superiority to meropenem. Piperacillin-tazobactam had similar efficacy, provided OXA-1 co-production is rare.

CONCLUSION

Effective management of *S. aureus* and *E. coli* bacteremia requires tailored antibiotic therapy based on resistance profiles. Continuous monitoring of resistance trends and therapeutic efficacy is essential. The growing resistance highlights the urgent need for new treatment strategies and better clinical guidelines.

FUTURE WORK / REFERENCES

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Harris, P. N. A. *et al*. Effect of piperacillin-tazobactam vs meropenem on 30-day mortality for patients with E coli or Klebsiella pneumoniae bloodstream infection and ceftriaxone resistance: A randomized clinical trial. JAMA: the journal of the American Medical Association, v. 320, n. 10, p. 984, 2018.

Liu, C. *et al*. Clinical practice guidelines by the Infectious Diseases Society of America for the treatment of methicillin-resistant Staphylococcus aureus infections in adults and children. Clinical infectious diseases: an official publication of the Infectious Diseases Society of America, v. 52, n. 3, p. e18–e55, 2011.