# Emergence of Methicillin Resistant *S. epidermidis* Isolates Causing Blood Stream Infections in Pediatric Patients

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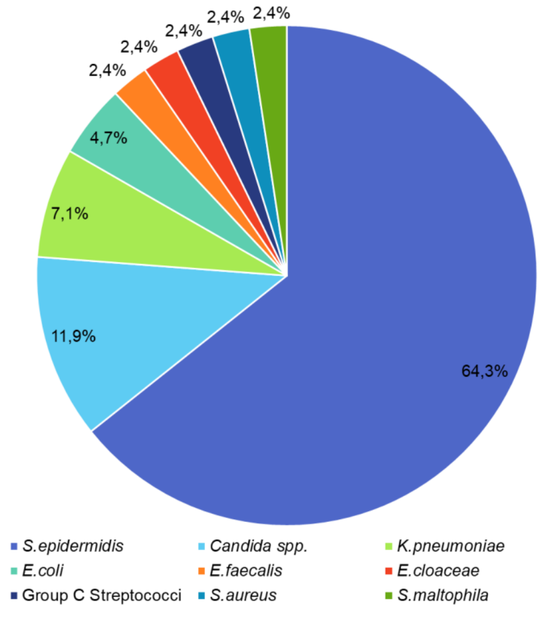
**Background:** Blood stream infection (BSI) is an important cause of morbidity and mortality in pediatric patients. Prompt and appropiate antimicrobial therapy can make the difference between cure and death or disability. Emergence of antimicrobial resistance, particularly methicillin resistance, in *S. epidermidis* is a serious problem. The aim of our study was to evaluate the causative agents of BSIs and antimicrobial susceptibility patterns of *S.epidermidis* strains , retrospectively.

**Materials & Methods:** Blood samples were collected from neonatal intensive care unit and pediatric services of Okan University Hospital from January-December 2017. Samples were evaluated with BacT / ALERT (Biomérieux, France) blood culture system. Catalase and coagulase tests (Plasmatec, England) were initially performed for the isolates associated with bacteremia. Vitek 2 Compact (Biomérieux, France) system was used to identifiy coagulase negative staphylococci and to determine their susceptibility to antimicrobials.

**Results:** Three hundered and ninty eight blood samples were sent for culture. Out of 398 samples, microbial growth was detected in 47 (11.8%). Forty two (89.4%) samples were considered to be associated with bacteremia, and 5 (10.6%) as contamination.
Of the 42 isolates, 23 (54.8%) were obtained from the pediatric service and 19(45.2%) from the neonatal intensive care unit. The most frequently isolated microorganism was *S.epidermidis* (27/42, 64.3%),followed by Candida spp. (5/42, 11.9%).

**Frequency of microorganisms isolated from blood samples of pediatric patients**

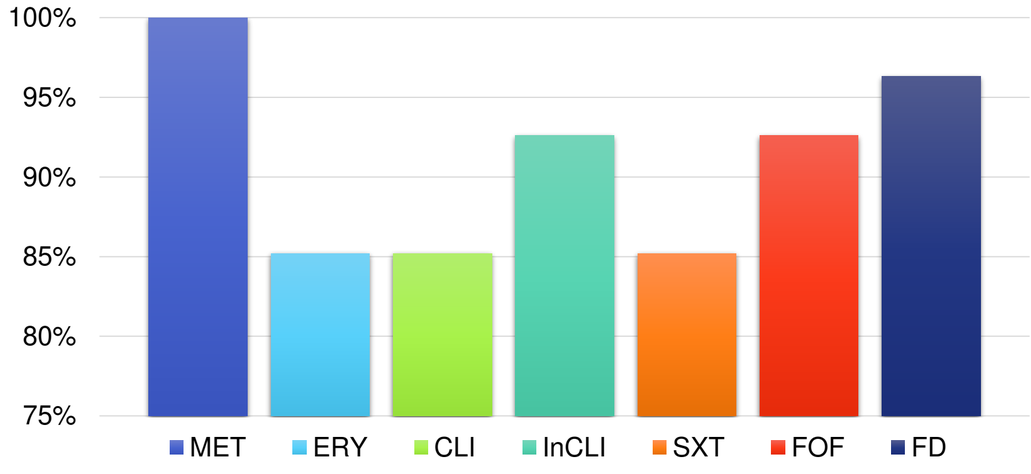



Other bacteria isolated from cultures were; *K.pneumoniae* (3/42, 7.1%), *E.coli* (2/42, 4.7%), *E.faecalis* (1/42, 2.4%), *E.cloacae* (1/42, 2.4%), Group C Streptococci (1/42, 2.4%) , *S. aureus* (1/42, 2.4%) and *S.maltophila* (1/42, 2.4%).
All 27 *S.epidermidis* isolates (100%) were resistant to methicillin (MET) and identified as MRSE and 10 of them (37%) were obtained from samples sent from neonatal intensive care unit.
Resistance rates of *S.epidermidis* strains to other antibiotics were as follows; erythromycin (ERY) 85.2%, clindamycin (CLI) 85.2%, inducible clindamycin (InCLI) 92.6%, phosphomicine (FOF) 92.6%, trimethoprim/sulfomethoxazole (SXT) 85.2% and fusidic acid (FD) 96.3%.

**Conclusions:** Rapid initiation of antimicrobial therapy is of high importance in bloodstream infections. Knowing the frequencies and susceptibility patterns of common microbial pathogens is crucial for selecting appropiate empiric therapy or prophylaxis. In our study high prevelance of methicillin and multi-drug resistance in *S.epidermidis* strains isolated from pediatric patients, emphasized the importance of continuous screening for antibiotic resistance in pediatric care units.

**Keywords:** Blood stream infection, *S. epidermidis,* antimicrobial resistance

**Resistance rates of *S. epidermidis* strains to antimicrobials**

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