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Antimicrobial resistance profiles in the paediatric burns unit at Chris Hani Baragwanath Academic Hospital

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ABSTRACT

Background
There has been a global concern regarding increasing colonization and/or infection of paediatric burns patients with multi-drug-resistant organisms, especially in Africa. Surveillance of antimicrobial resistance patterns enables clinicians to opt for the most appropriate empiric antimicrobial agent according to their pathogen profile.

Objective
This study sought to compile unit-specific antibiograms by comparing the frequency of organisms and resistance trends at the paediatric burns unit at Chris Hani Baragwanath Academic Hospital (CHBAH) from January 2015 to December 2019.

Methods
A retrospective, laboratory-based review was conducted of bacterial and fungal isolates including antimicrobial susceptibility testing (AST) data from blood cultures and tissue samples for the study period. We analysed the frequency of Enterobacterales, non-fermenters, Gram-positive organisms, and yeasts as a percentage of total positive blood cultures. A comparative analysis of resistance trends was performed between 2015, 2017, and 2019 for extended-spectrum beta-lactamases (ESBLs), carbapenem-resistant Enterobacterales (CRE), extreme drug-resistant (XDR) *Acinetobacter baumannii*, and methicillin-resistant *Staphylococcus aureus* (MRSA).

Results
For blood culture isolates, a statistically significant decrease in ESBL was noted with a rise in CREs. Majority of *A.baumannii* were XDR despite an appreciably decrease. A notable decrease in *S.aureus* and MRSA isolates with an increase in *C.auris* was observed.

Conclusion
The results of this study encourage review of current antimicrobial choices in the unit for empiric antibacterial cover. Due to low numbers of yeasts, we cannot comment on institution of early antifungal strategies. We support reinforced infection prevention and control practices as well as antimicrobial stewardship initiatives.