

## Abstract

Antibiotic resistance poses a grave global public health threat, exacerbated by widespread and often inappropriate antibiotic usage. Vigilant surveillance of antibiotic utilization and emergence of antimicrobial resistance (AMR) is essential. Of particular concern in the era of AMR is the persistent issue of chronic wound infections. To address this, we conducted a comprehensive evaluation of wound isolates from chronic wounds at Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) in Kenya, to identify relevant bacteria and assess their drug resistance patterns. Wound samples were collected and processed using standard microbiological methods. Bacterial isolates were identified and assessed for their susceptibility to a panel of antibiotics using the Kirby-Bauer disk diffusion method. A total of 103 bacterial isolates were obtained from the wound samples, with a higher prevalence in male patients (59%). *Staphylococcus aureus* (20.7%) emerged as the most predominant pathogen, followed by *Klebsiella* spp. (14.8%), *Pseudomonas aeruginosa* spp. (14.8%) and *Escherichia coli* (4.4%) in wound samples. High levels of antibiotic resistance were observed among the isolates, with the highest resistance rates reported for cotrimoxazole (48.1%), clindamycin (25.9%) and erythromycin (25.9%). Furthermore, among the isolates, 75% produced haemolysin and protease, while 50% produced lipase and phospholipase, factors that enhance virulence and survival. The findings of this study highlight the alarmingly high prevalence of antibiotic resistance among bacterial pathogens isolated from chronic wounds in Kenya. This poses a major challenge to the effective management of chronic wound infections. There is an urgent need to implement effective antimicrobial stewardship programs and develop new antibiotics to combat the growing threat of antibiotic resistance