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Superbugs: evolving enemies from hospitals in Ghana**Isawumi Abiola¹, Samuel Duodu¹, Miguel Valvano² and Lydia Mosi¹**¹University of Ghana, Ghana²Queen's University Belfast, UK

The magnitude of antimicrobial resistance (AMR), especially in Gram negative bacteria associated with hospital acquired infections (HAIs) is a growing burden to public health. Members of the genus *Enterobacter*, which include various human pathogens, thrive successfully in hospital environments. As opportunistic pathogens, they have been implicated in various HAIs including sepsis, wound infections, bacteremia, UTIs, upper and lower respiratory tract infections. Here, we report for the first time, a new heteroresistant strain of *Enterobacter cloacae* complex (ECC) with significantly high level of resistance to conventional antibiotics and last resort antibiotic peptides (polymyxin B and colistin E). This ECC strain was highly virulent (multiplicity of infection, 10³ CFU/larvae) causing mortality in less than 24 hours post-infection in a *Galleria* infection model. The level of resistance to cationic antimicrobial peptides (CAMPs) in *Galleria* was also observed to be high at low concentrations of purified LPS (with polymeric o-antigen and Lipid A components). Overall, our findings demonstrate high virulence of ECC *in vivo*. The extreme antimicrobial peptides resistance are driven and influenced by its membrane bound LPS profiles. This strain may be a potential 'superbug' with evolving antimicrobial resistance mechanisms, making it recalcitrant to antibiotic treatment options.

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