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# Antibiotic resistance profile among Gram-negative bacterial pathogens from a teaching hospital in Ghana

**Nicholas Agyepong**
University of Kwa-Zulu Natal, South Africa

Infections caused by antibiotic resistant Gram-negative bacteria have become the major challenges to healthcare delivery in Ghana. Production of beta-lactamase mediated-hydrolytic enzymes such as extended spectrum beta lactamases (ESBLs) or combination with other mechanisms confer resistant to beta-lactam antibiotics (penicillins, cephalosporins carbapenems) as well as non-beta lactams in Gram-negative bacteria. The study aimed to assess the prevalence of antibiotic resistance among Gram-negative bacteria in the Komfo Anokye Teaching Hospital in the Ashanti region of Ghana. Bacterial cultures were collected and identified using standard microbiological techniques and Vitek-2 automated systems. Of 200 isolates collected, 192 (96%) showed resistant to multiple antibiotics classes tested. The isolates (*Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa* and *Enterobacter spp., E. coli, Citrobacter koseri, Pantoea spp., Serratia marcescen, Providencia rettgeri* and *Sphingomonas paucimobilis*) showed high resistance to Ampicillin (95%), Trimethoprim/Sulfamethoxazole (84%), Cefuroxime/Axetil (82%), Cefuroxime (81%), Cefotaxime (73.5%), Amoxicillin/Clavulanic acid (52.50), Ciprofloxacin (41.0%) and Piperacillin-Tazobactam (13.00%), but highly sensitive to Ertapenem (98.48%), Meropenem (96.98%), Imipenem (96.5%), Amikacin (87%) and Colistin (81.9%). The high resistance to beta-lactam/beta-lactamases inhibitor combination antibiotic therapy and aminoglycosides and fluoro-quinolones, poses serious the healthcare threat in Ghana, due to their usage as empirical antibiotic of choice for treatment of common infections. This study revealed high prevalence of multidrug resistant pathogens in Komfo Anokye Teaching Hospital, is rife and wakeup call for constant review of antibiotic guideline protocol for treatment is recommended. Finally the outcome of the study provides a baseline for further and extensive research into the underlying molecular factors of the evolving resistance in Ghana.

## Biography

Nicholas Agyepong is currently pursuing his Doctoral degree from the University of Kwa-Zulu Natal, South Africa. He researches on molecular profile of ESKAPE Gram-negative pathogens from Komfo Teaching Hospital in Ghana, under the supervision of Professor Sabiha Y Essacks (Director of Antimicrobial Resistance Unit). He has received his MSc Medical Biotechnology and MPhil Pharmaceutical Microbiology, both from Kwame Nkrumah University of Science and Technology (KNUST) in Ghana. He was Research Assistant in the Parasitology Unit, Noguchi Memorial Institute of Medical Research and later became Assistant Lecturer in the Department of Pharmaceutics, KNUST.

agyanicho33@yahoo.com