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Temporal dynamics of enterobacteriaceae antimicrobial resistance at the human-pig interface in Peri-Urban Kampala

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Antimicrobial resistance (AMR) leads to increased mortality, morbidity and health expenditure. Globally, there is an increasing concern over AMR which is claiming 700,000 people every year and this is projected to 10,000,000 people by 2050. The recently documented AMR rates paint an increasingly alarming scenario for Uganda, and if strategic measures are not taken to halt and reverse the trends, treatment options for infectious diseases will always become more limited to many financially constrained Ugandans

A longitudinal study of linked human-pig pairs in Kampala and Wakiso Peri Urban setting was carried out to determine antimicrobial sensitivity profile of Enterobacteriaceae at the human-pig interface within a six months period. Purposive sampling was done to select pig farmers to be included in the study based on type of pigs kept. I selected farmers who had breeding sows or boars that were to be kept for more than one year. Here, we visited 35 pairs (human and pigs) for every two months, and for six months, we collected approximately 220 fecal samples. In addition, metadata i.e. house hold demographics Nutrition, Pig management, disease occurrences and antibiotic use by using a mobile deployed questionnaire was collected.

I found a 72% mono resistance prevalence for all isolates recovered, predominated by resistance to trimethoprim/sulfur, tetracycline and amoxicillin. 45.1% of the isolates were resistant to more than one antibiotic (multidrug resistant), dominated by *E.coli* (60%) and *Klebsiella* (36%). We observe evidence of AMR phenotype exchange/sharing in one among six pig farmers in Kampala, which reaffirms the occupational risk they represent to the general population. These findings taken together indicate that a highly dynamics flux in resistance prevalence generally increased over the six months period at the human-pig interface. In the short term, further investigation using granular molecular methods are needed to understand the observed dynamics. In the medium and long term, we need to understand behavioral drivers of antibiotic usage in order to limit the irrational use that is driving the observed resistance profiles. From a public health point of view, farmers are likely to be the source of animal generated resistance for the general

population, therefore, occupational health experts need to focus on identifying critical control for transmissions arising from this group.