1277. Colonization Rates for Antimicrobial-resistant Bacteria in Kenya: An Antibiotic Resistance in Communities and Hospitals (ARCH) Study

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Background. Characterization of antimicrobial-resistant organism (ARO) colonization is critical to understand transmission dynamics and infection risk, however data in resource-limited settings is scarce. We estimated the prevalence of Enterobacteriaceae colonization with extended-spectrum cephalosporin-resistance (ESCE), carbapenem-resistance (CRE) and methicillin-resistant Staphylococcus aureus (MRSA) among community residents and hospitalized patients in rural (Siaya County) and urban (Kibera) Kenya.

Methods. Community-dwelling adults and children were enrolled via cluster random sampling. Islands of all ages were enrolled by simple random sampling. Stool, rectal and nasal swabs were collected and screened for ESCE, CRE and MRSA, respectively, using HardyChrom™ media. Vitek2 was used for isolate confirmation and antibiotic susceptibility testing. Fisher’s exact tests were used to compare prevalence of AROs.

Results. The prevalence of ESCE was higher for the urban hospital (69.8%, 263/377) compared to rural hospitals (62.7%, 298/475, P=0.04); a similar pattern was evident for CRE (16.7%, 63/377 and 6.5%, 31/475, respectively, P= 0.01). The prevalence of MRSA was 3.2% for both urban and rural hospitals (P=0.99). For adults, the prevalence of ESCE was higher in Kibera households (51.4%, 346/673) compared to Siaya (44.6%, 283/634, P=0.02) while the prevalence of both CRE and MRSA was < 3% for both areas and did not differ significantly (CRE, P=0.13, MRSA, P=0.14). There was no significant ethnic difference between urban and rural children for ESCE (47.7%, 74/155 and 53.4%, 135/253, P=0.31); both CRE and MRSA were rarely detected (<2%) with no difference across settings (CRE, P=1.0, MRSA, P=0.42). Among Enterobacteriaceae recovered, Escherichia coli and Klebsiella spp. predominated.

Conclusion. Colonization with AROs were widespread in households and hospitals in urban and rural areas. Hospitals with elevated prevalence of highly transmissible AROs should consider whether implementation of colonization screening can be incorporated as part of their infection prevention and control programs. Risk factors for ARO colonization should be elucidated to identify novel prevention strategies.

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1279. Risk Factors for Colistin Resistance Among Carbapenem-Resistant Klebsiella pneumoniae (CRKP) in a Network of Long-term Acute Care Hospitals (LTACHs)

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Background. Colistin resistance in CRKP presents a serious clinical challenge for patients of LTACHs. However, risk factors for colistin-resistant CRKP have not been previously characterized in this population. Here, we determined risk factors for colistin resistance among CRKP isolates from a network of LTACHs.

Methods. CRKP clinical cultures were collected from 21 Kindred Healthcare LTACHs in 4 US states (California, Texas, Florida, Kentucky) from 8/1/14-7/25/15. Cultures collected within 30 days of a prior CRKP culture from the same patient were excluded. Colistin resistance (minimum inhibitory concentration ≥4) was determined using a custom Sensititre™ broth microdilution assay (ThermoFisher Scientific, Waltham, MA). Multivariable logistic regression was performed to evaluate candidate risk factors of age, sex, cirrhosis, chronic kidney disease, culture source, length of stay, indwelling line or tracheostomy, and antibiotic exposure (colistin, fluoroquinolones, 3rd, 4th generation cephalosporins, piperacillin-tazobactam, carbapenems, and aminoglycosides) for ≥48 hours in the prior 30 days.

Results. Among 430 CRKP cultures (237 respiratory, 145 urine, 38 blood, 10 sputum) from 375 patients, 144 (33.5%) were colistin-resistant. In multivariable analysis,