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Epidemiology of SARS-CoV-2 infections in Ghana: A Cross-Sectional Study from April to June 2022 in Kumasi

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Introduction: Data on COVID-19 is still lacking in many parts of Africa. To bridge these gaps, we studied the epidemiology of SARS-CoV-2 in Kumasi, Ghana from April to June 2022.
Methods: We sampled individuals visiting the Kwadaso SDA hospital COVID-19 Testing Center, Kumasi and collected data on socio-demography, clinical symptoms and vaccination status from 83 people. Nasopharyngeal swabs and sera were obtained. Viral RNA was extracted and tested with a pan-Sarbecovirus real-time RT-PCR. Samples with Ct ≤ 30 were sequenced. Serum samples were tested for antibodies against spike (S) and nucleocapsid (N) proteins by ELISA.
Results: Participants comprised patients (47%), hospital staff (20.5%) and international travelers (32.5%) who were aged 31-40 years and mostly males (67.5 %). Vaccination rate was 72.5% and RNA positivity was 42.2 %. We could not demonstrate that vaccination prevented infection (OR = 1.38, CI: 0.48 − 4.01, p = 0.553). Four BA.4 (22A) and one BA.5 (22B) Omicron variant sequences were obtained. Antibody positivity was 65% for S only and 35% for both S and N.
Conclusion: The high vaccination rate observed, compared to 57.3% for Ghana may be due to the composition of healthcare workers and international travelers. BA4 and BA5 were co-circulating relatively early compared to many countries in Europe and the lack of vaccine effectiveness for symptomatic infection reflects their immune escape properties. Protection against severe infection could not be assessed.

Keywords

Omicron, Vaccination, RT-PCR, Kumasi, SARS-CoV-2

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Professional Status of the Speaker

PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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