

INCIDENCE AND CLUSTER ANALYSIS OF SARS-COV-2 VARIANTS OF CONCERN, BELIZE, AUGUST 2021 – JULY 2022

RESUMEN

Introduction. Variants of Concern (VOC) of the SARS-CoV-2 virus challenged prevention and control measures against COVID-19 especially as Omicron became the dominant VOC globally. The VOC behavior has not been studied in Belize. Our objective was to describe the incidence and high-risk clusters of VOC.

Population and Methods. An ecologic study. We described the incidence and high-risk clusters of VOC circulating in Belize. These were defined as per the US Centers for Disease Control and Prevention. The Central Medical Laboratory of Belize provided the database. Prevalence rates were estimated by sex, age, district, and VOC. Space-time analysis identified high risk community clusters using SaTScan with a Discrete Poisson probability model. The Autoregressive Integrated Moving Average (ARIMA) model was applied in XLSTAT to describe and predict the temporal behavior of VOC for one year.

Results. Of 645 confirmed cases of COVID-19, 0.2%, 31.2% 0.5% and 68.2% were Alpha, Delta, Gamma, and Omicron, respectively. The median age of the cases was 33 years. Highest prevalence rates (cases per 10,000 persons) were reported in: females – 16.6 (95% CI: 14.9-18.3); age group of ≥ 60 years – 33.7 (95% CI: 27.2-41.2), and Omicron – 10.2 (95% CI: 9.3-11.2). The 12-month cumulative incidence was 15.0 cases/10,000 persons (95% CI: 13.9-16.2). Of four clusters identified, the fourth (Caye Caulker) had the highest relative risk (67.8). The ARIMA analysis indicated infections would gradually decrease but would continue to occur.

Discussion. Females, elderly persons, and the Cayo district were most affected. Omicron predominated. Sample sequencing criteria possibly introduced selection bias. Sustained surveillance of VOC is vital for early detection and public health response. Bivalent vaccines should be promoted. The study period needs to be extended.

Keywords: incidence, SARS-CoV-2, clustering, time series, Belize.

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