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SARS-CoV-2 Genomic Variation - African perspective

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Cancer Research and M...



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Protocol status: Working

We use this protocol and it's working

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Abstract

This protocol outlines the methodology for the acquisition and analysis of SARS-CoV-2 genomic sequences.

Attachments



SARS-CoV-2 Genomic

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Data Acquisition

- 1 Mine and analyze SARS-CoV-2 genomic sequences from the Global Initiative on Sharing All Influenza Data (GISAID) database ([epicov.org](https://www.epicov.org)). Use sequences filtered as "high coverage only, Homo sapiens, complete, all clades and low coverage excl", with patient's status, "Africa". 
- 2 Obtain the patient's age of all the sequences to determine the age distribution of the infected patients. 
- 3 Obtain country data of the number of confirmed cases, recoveries, reported deaths due to COVID-19 from Worldometer ([worldometers.info](https://www.worldometers.info)) and WHO database (covid19.who.int). 
- 4 Obtain the number of tests done per country and each nation's population from the Worldometer database. 
- 5 Obtain the age distribution of countries with the highest prevalence of COVID-19 cases from the World Factbook (www.cia.gov). 

Sequence and Mutational Analysis

- 6 Use the mined SARS-CoV-2 viral sequences to analyze the genomic variability since the index case of the COVID-19 pandemic in Africa in February 2020 to identify the frequency and spread of mutations in the African population. 
- 7 Assess and evaluate the evolution of the COVID-19 outbreak with respect to the transmission in the mutational hotspots on the GISAID web interface (www.epicov.org). Focus on recurrent mutations observed as they are likely to confer viral-host structure-function relationship promoting higher transmission rate. 

Determination of Testing, Fatality and Recovery Rate

- 8 Determine the testing rate for each African country as a percentage of the total test done from the country's population. 

Note

Testing Rate (%) =
(Total COVID-19 tests done/Country's population) x 100



- 9 Determine the fatality rate as a percentage of total reported deaths due to COVID-19 from each country's number of confirmed cases.



Note

Fatality Rate (%) =
(Total number of COVID-19 deaths reported/Number of confirmed cases) x 100

- 10 Determine the recovery rate as a percentage of the number of infectious patients who recovered from all reported confirmed cases in each country.



Note

Recovery Rate (%) =
(Total number of COVID-19 infected patients who recovered/Number of confirmed cases)
x 100