

CLIMADE AFRICA WORKING GROUP MEETING MINUTES – WEEK 13

Host: Centre for Epidemic Response and Innovation (CERI)

Date: May 23, 2023

Time: 12:00 – 13:00 p.m. (SAST)

Facilitators: Dr Eduan Wilkinson, Dr Monika Moir

Attendance/ No. of Participants: 58

Start time: 12:01p.m. (SAST)

Purpose of the meeting

Genomic Analysis of *Vibrio Cholera*

Agenda Items

1. Welcome
2. Presentation on the Workflow for Genomic Analysis of *V.Cholera* by Wonderful T. Choga
3. Questions and Discussion

Discussion points and questions

1. The Presentation on workflow for the genomic analysis of *V.Cholera* outbreak highlighted and discussed:
 - A brief introduction on the etiology and environmental suitability of Cholera
 - Classification and Morphology
 - A brief outline on the mode of infection, signaling pathways and symptoms.
 - Clinical manifestations
 - Current vaccines and treatment
 - Literature background
 - Application and importance of genomics to track and understand the cholera pandemic.
 - A brief recap on the sequencing protocol prior to bioinformatic analysis.

- An overview of sequencing to analysis to producing a whole genome.
- Detailed explanation of the bioinformatic workflow.
 - Generation of raw read data for the illumine sequencing platforms (fastq files)
 - QC performed using fastqc and multiqc
 - QC and quality trimming using Fastp
 - Checking read data (should be 100-150bp)
 - Snippy for base calling and a good sequence assembly tool which uses a reference genome.
 - chromosomes are combined (fasta core alignment).
 - Core alignment is then used for phylogenetic analysis and an export and import analysis.
 - FastBAPS – performs genome clustering.
 - Recombination analysis using Gubbins (computationally intensive).
 - Optimization of workflow to reduce turnaround and analysis time.
 - Currently creating a Nextflow automated workflow.
 - Summary of the workflow.

5. Snippy and Genome Detective has produced similar results but has not been compared to other tools. Snippy has the ability to detect small indels and can take different input files.

6. Export and import analysis looks at the phylogeography of cholera to determine the origin and spread.

7. Request for comments and Wishlist's for the Nextflow automated workflow can be sent to the CERi team.

Adjournment and Closing points.

1. Dr Monika Moir adjourned the meeting at 12:55 p.m. (SAST).

Next Meeting

Tuesday, May 30, 2023, at 12:00 – 13:00 p.m. (SAST) – Meeting with CLIMADE Africa funders.

Submitted by: Yajna Ramphal

Approved By: Monika Moir