CLIMADE AFRICA WORKING GROUP MEETING MINUTES – MEETING 3

Host: Centre for Epidemic Response and Innovation (CERI)

Date: March 26, 2024

Time: 12:00 – 13:00 p.m. (SAST)

Facilitators: Dr Houriiyah Tegally

Attendance/ No. of Participants: 48

Start time: 12:00 p.m. (SAST)

Purpose of the meeting

Dynamics of Dengue

Agenda Items

1. Welcome
2. Presentation by Jenicca Poongavanan titled: Dynamics of Dengue: Unravelling Introduction Suitability in Africa through Risk Flow Modeling
3. Discussion and feedback

Presentation Overview

- Welcome and brief introduction by Dr Houriiyah Tegally
- Jenicca Poongavanan presentation on 'Dynamics of Dengue: Unravelling Introduction Suitability in Africa through Risk Flow Modeling'

- Risk of Importation of Dengue in Africa (Background)
    - Dengue in Africa
    - Risks and Connectivity
    - Study Objectives
- Dengue Case Data
    - List of countries of high Dengue incidence (ECDC)

- Travel Flux
    - Monthly passenger volumes
    - Airport to airport data

- Dengue Case Data Resolution
    - Suspected underreporting

- Using modelled transmission suitability as a proxy for Dengue incidence
    - Mean P index (timing and amplitude of transmission)
    - Index P threshold of 1.0 – aligns with basic population rate.

- Correlation between Dengue cases, Mean index P and Population
    - Transmission potential adjusted with 1-month lag.

- t_1 = Transmission Potential * Population Density
    - Risk flow metric
    - Risk of origin state towards a specific airport in Africa

- Temporal distribution of the risk against transmission potential
- Discussion of results/graphs produced.

- Conclusions

    - Results generally point in the right direction.
    - Preliminary findings from phylodynamic reconstruction show high numbers of introductions of Asia as well as viral movements in Africa.
- Limitations
- Future works
    - Open Dengue, build a high-resolution map using dengue case data in South America and Asia on a finer scale.
    - Disaggregation technique for countries that have good temporal and spatial data.
    - Predict Dengue Cases in Africa looking at the relationship across the different abiotic factors that could affect the distribution of Dengue

Questions and discussion points

Domouyo – Does the transmission risk model factor in population naivety i.e., does it incorporate seroprevalence data? Also, does the model incorporate vector density? Lastly, is it possible to model serotype-specific importation risk for DENV?

Eric – Did you use transmission potential for the risk/model … what specific computations did you do to get to conclusions?

Adugna – do you think mosquito importations can cause outbreaks via other access routes i.e. harbors/ports?

Eduan – from an African perspective, how do we get the message across to public health officials?

Bernard – There is need for deeper insight into the transmission dynamics as there remains a huge gap in many African countries.

Adjournment and Closing points.

1. The meeting was adjourned at 12.55 p.m. (SAST).
2. Climade meeting will be held every last Tuesday of the month.

Next Meeting

Will be confirmed via email for April 30, 2024, at 12.00 p.m. (SAST).

Submitted by: Akhil Maharaj

Approved By: Monika Moir