



COVID 19 AND THE ADOPTION OF EMERGING TECHNOLOGIES

INTERNET GOVERNANCE FORUM

BICC

31/05/2022

Maganizo Monawe

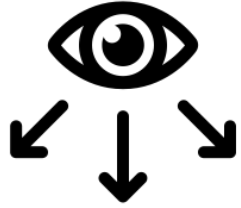
Senior Digital Health Technical Advisor

Ministry of Health

Introduction

Disruptive technologies—like AI, blockchain, robotics, and 3D printing—are playing a key role in supporting the COVID-19 response and recovery efforts

Three Key Areas of Intervention



Digital Case-Based Surveillance

Deploy a clinical monitoring application for COVID case management.

Deploy a Vaccination Management and Monitoring Platform



Data Analytics

Integrate other data sources for preparedness and response.

Refine models and visual access points/tools.



Knowledge Transition & Support

Build COVID website for public communication and a HCWs Job Aid app for distributing official guidelines, policies, etc.

Key Digital Tools for COVID 19 SUPPORT

1. One Health Surveillance Platform
2. A combo/set of community applications based on SMS End User App, USSD End User App, WhatsApp Chatbot & End User Mobile Application
3. COVID 19 Dashboard
4. Emergency Operations Center/EOC Dashboards
5. COVID 19 Modelling
6. eVaccination Platform



Malawi COVID Response Digital Solutions/Services Architecture

Version 1, 7.April.2020

RESPONSE MEASURE SECTIONS

A. CENTRAL COORDINATION

B. SURVEILLANCE

C. LABORATORY

D. CLINICAL CARE & TREATMENT AND IPC

E. COMMUNICATION AND COMMUNITY MOBILIZATION

MAJOR RESPONSE ACTIVITIES

A.1 Public Health Emergency Operation Centre (PHEOC)

B.1 Port of Entry Surveillance

B.2 Traveler quarantine surveillance

B.3 Case-Base Surveillance

B.4 Confirmed-case Contacts surveillance

B.5 (Nearly) Real-time syndromic and community surveillance (both facility and community based)

C.1 Receiving COVID Sample

C.2 Process COVID sample (tests)

C.3 Release COVID test results

D.1 COVID case management

D.2 Infection prevention control (IPC)

D.3 COVID case treatment outcomes

E.1 Risk communication and public education

DIGITAL SOLUTIONS/SERVICES

A.1.1 Admin / Finance Digital Support

A.1.2 Operation Digital Support

A.1.3 Planning Digital Support

A.1.4 Logistics Digital Support

B.1.1 DHIS2/OHS P App: 4.0 COVID-19 Point of Entry Tracker

B.2.1 DHIS2/OHS P App: 5.0 COVID-19 Contact Registration & Follow-Up

B.3.1 DHIS2/OHS P App: 6.0 COVID-19 Case-Based Surveillance

B.4.1 DHIS2/OHS P App: 5.0 COVID-19 Contact Registration & Follow-Up

B.5.1 Integrated Community Health Information System
B.5.2 EMR/facility Syndromic Surveillance
B.5.3 MNO data for population surveillance

C.1.1 DHIS2/OHS P App: 6.0 COVID-19 Case-Based Surveillance

C.2.1 LIMS to support tests

C.3.1 DHIS2/OHS P App: 6.0 COVID-19 Case-Based Surveillance

D.1.1 HIS/EMR/OPD Module
D.1.2 eRegister solution

D.2.1 OpenLMIS
D.2.2 HIS

D.3.1 DHIS2/OHS P App: 6.0 COVID-19 Case-Based Surveillance
D.3.2 eDRS

E.1.1 Public COVID dashboard /portal

E.1.2 Pull and push information - Chat Bot
E.1.3 CCPF

ADDITIONAL DIGITAL SUPPORTS/FUNCTIONS

Infrastructure / functional structure / operating procedures

IMS, Hotline for EOC operation

Analytic, epi modeling, policy suggestion

LMIS, transports, PPE, medicine inventories

Monitoring all entered travelers (source: immigration, airline, bus, MNO)

SMS/USSD alerts to people under quarantine
Monitoring all people under quarantine

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Monitoring all people under quarantine

ILI, SARI information from community

ILI, SARI information from facilities

Population density and movement information

LIMS provide sample registration

LIMS provide machine linkage

LIMS provide result release

Detailed clinical records in digital format

PPE Inventory

Detailed clinical records with final outcome

Security control

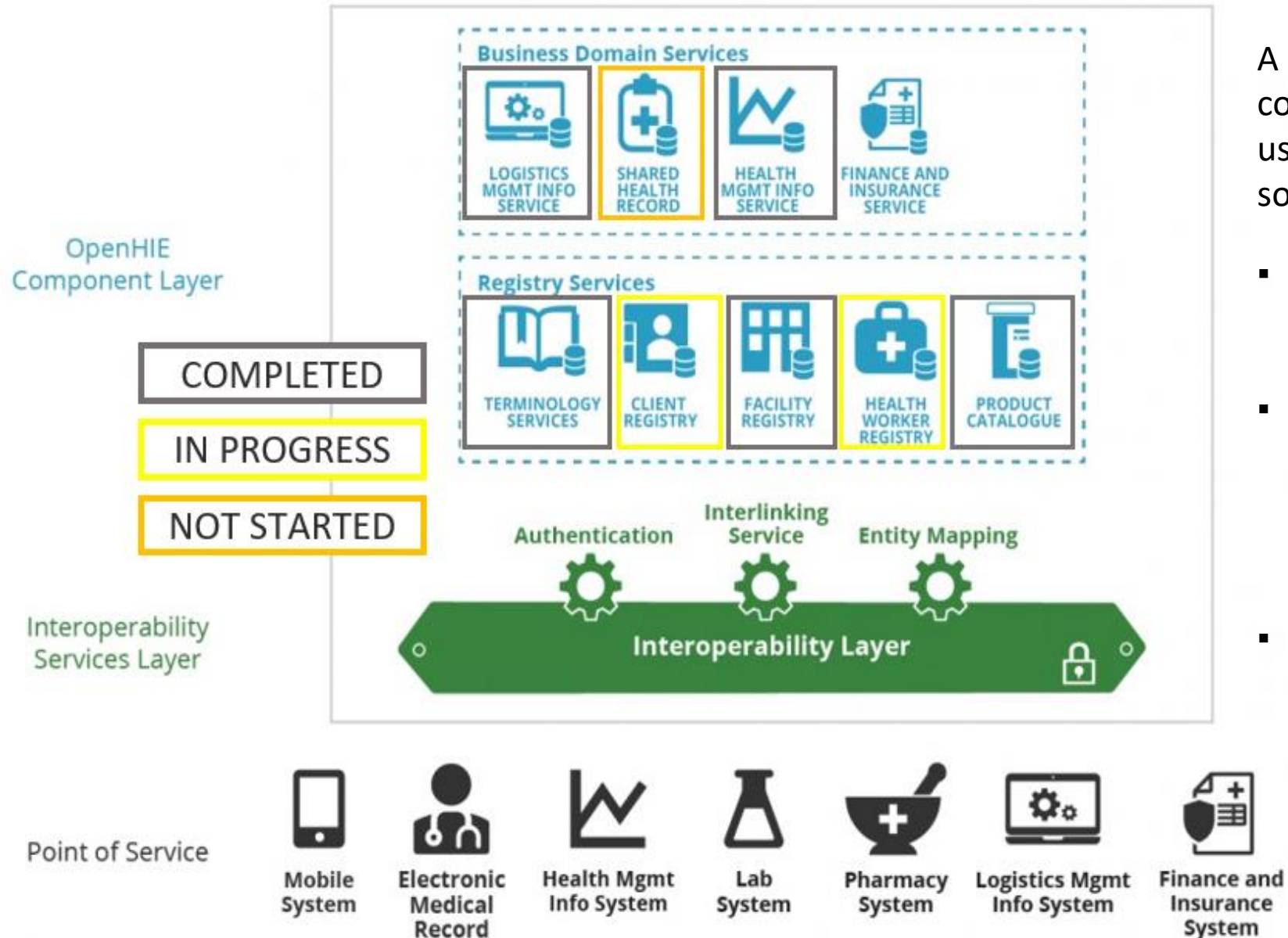
Data integration to EOC

FOUNDATION OF DIGITAL SUPPORTS

CONNECTIVITY: reliable network connection for all services

DATA HOSTING: Container-type data centers

DIGITAL HEALTH INTEROPERABILITY ARCHITECTURE



A roadmap to full interoperability consistent with international standards using locally developed open-source software:

- Sustainability and value depend on this structure
- Functioning data exchange between systems = data are related and used in new, meaningful ways for HIV programming
- **This architecture allowed us to rapidly deploy digital health tools for COVID-19 response**



Malawi Government

COVID19 VACCINATION CERTIFICATE

Name:

Date Of Birth:

1972-12-24

DOSE 1

VACCINATION DATE: 27-07-2021

Name: **astrazeneca** Type: **ChAdOx nCov-19**
Batch: **210161** Site: **Thyolo District Hospital**
Batch Expiration Date: **2021-11-30**

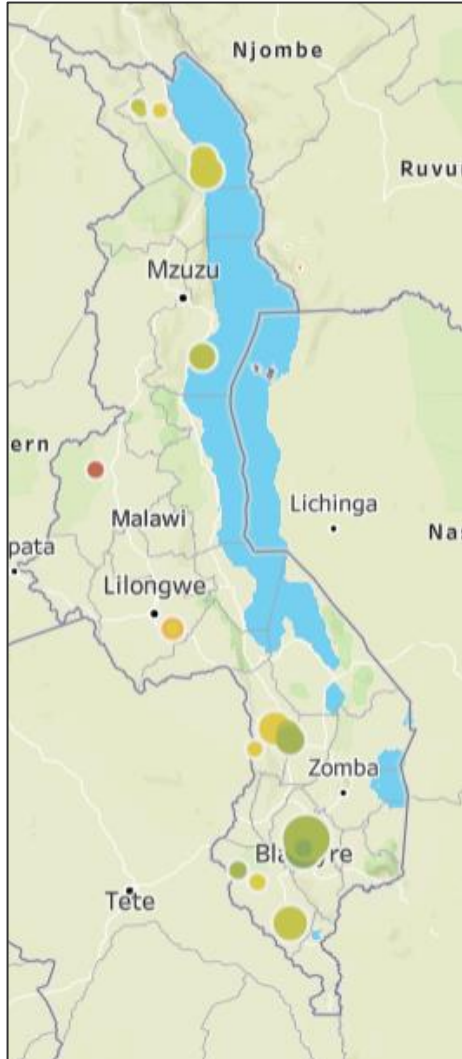
DOSE 2

VACCINATION DATE: 20-05-2022

Name: **astrazeneca** Type: **ChAdOx nCov-19**
Batch: **N044A** Site: **Thyolo District Hospital**
Batch Expiration Date: **2022-06-02**



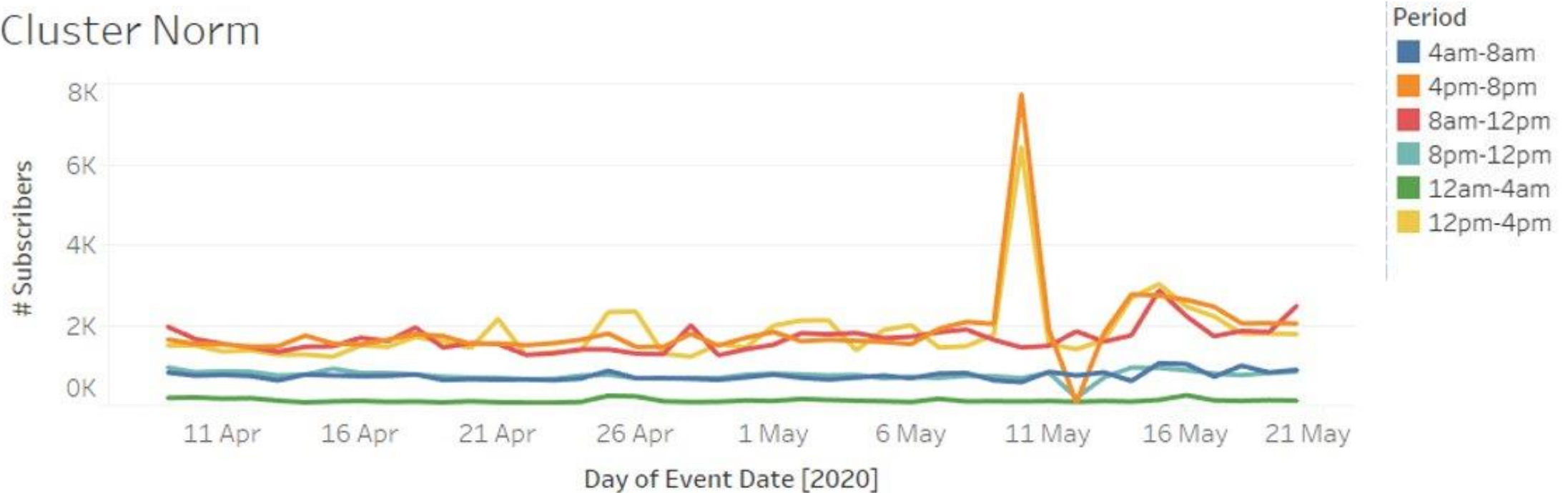
Mass Event Dashboard



- Shows locations where a lot more people than normal gathered at the same time
- Refreshed daily, showing 25 most anomalous events
- Tracks where people at the event came from and went to the same day
- Answers two questions:
 - Where might a mass infection event have occurred yesterday?*
 - What other areas are at risk because of it?*

Detecting a Mass Event

Cluster Norm



- Event at Mzuzu Stadium on 10 May
- Shows clear spike in population in an area that normally has little variation
- Risk profile reflects one-off event
- Can be discovered and responded to quickly

WhatsApp Chatbot Screen Shot

Chatbot Test Number

Type **0** to cancel (lembani **0** kuti mutuluke) 1:28 PM

1 1:28 PM ✓✓

! IMPORTANT TO NOTE

This is being used for testing purpose only and the data is not real. Do not use this for any circulation and publication of information. Get information from Ministry of Health

Welcome to the official Malawi Government's Coronavirus (COVID-19) Helpdesk. This service provides the up to date information on the status of COVID-19 in Malawi. I'm **Thandizo**, your virtual assistant

Give me your first name so that next time I should remember you 1:28 PM

Maganizo 1:29 PM ✓✓

🎉🎊 Congratulations **Maganizo**, I have registered you successfully

The following are the options available for COVID-19:

- A. National status 📊
- B. More about COVID-19 📖
- C. Register as a patient 🏥
- D. Submit your status 📄
- E. Get help ? 🙋
- F. World statistics 🌍
- G. Share this service 📢
- H. Change language 🗣️
- I. Exit self-service 🚪

💡 Tip: You can type **A, B, C, D** to make a selection of the menu options. 1:29 PM

3. COVID 19 Dashboard

- [Covid19.health.gov.mw](https://covid19.health.gov.mw)
- Daily updated statistics of COVID 19 Situation in Malawi and Globally



Suspected

583,336

Confirmed

85,973

Deaths

2,640

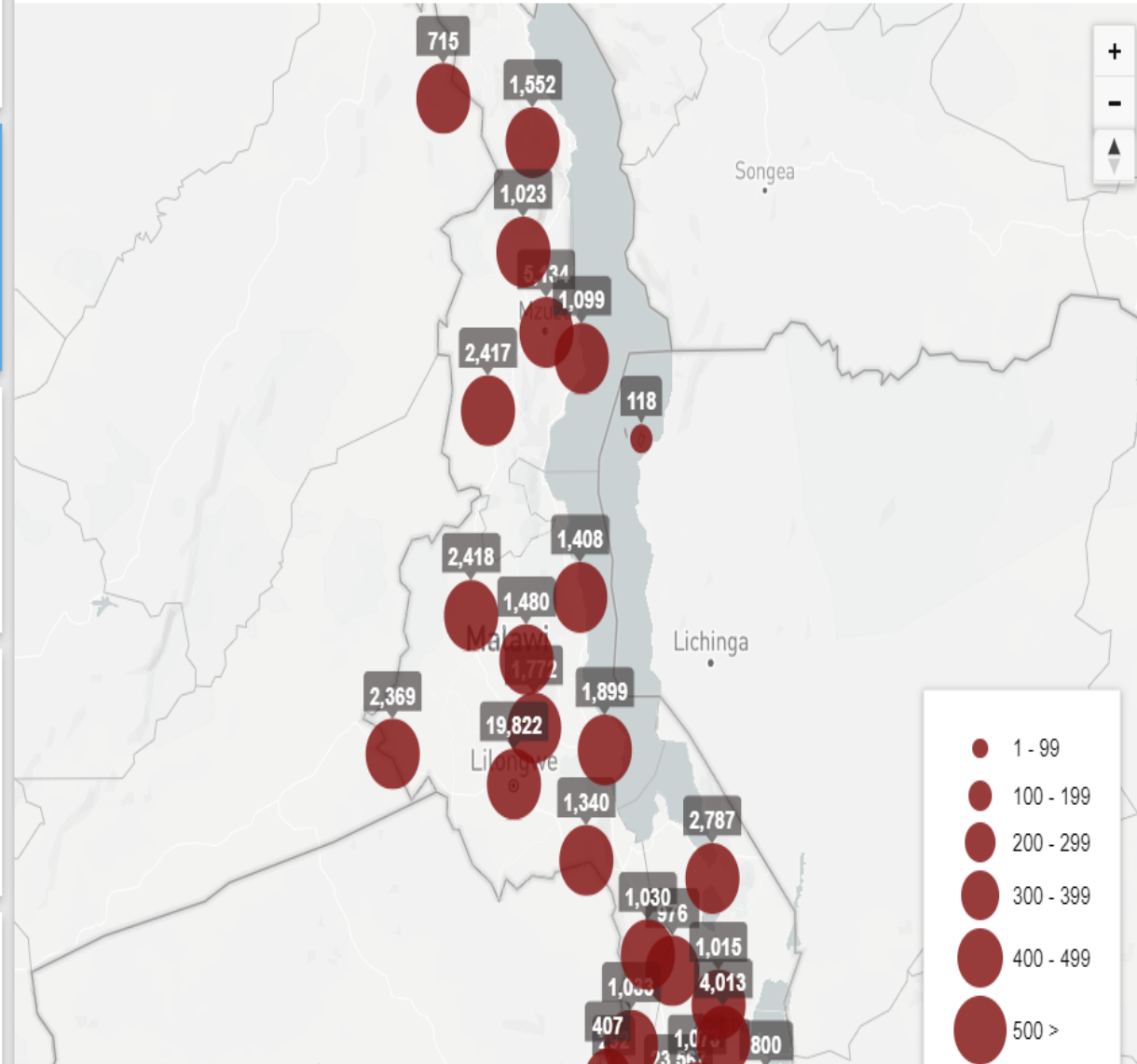
Recovered

82,860

Active Cases

241

Confirmed Cases Nationwide



Total Samples Received

583,336

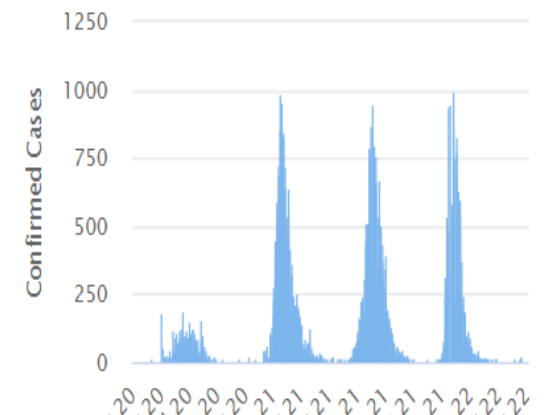
Total Samples Tested

583,336

MW Districts With Confirmed Cases

28

Cases Per Day



4. Emergency Operations Center

- Support with setup for the EOC located at PHIM
- Support for data analytics, integration and visualization through the EOC Dashboards



6. Other Technologies

- Already communicated through Health Education Unit

- Facebook

www.health.gov.mw/https://www.facebook.com/malawimoh/

- Twitter

https://twitter.com/health_malawi

THANK YOU FOR YOUR ATTENTION