

# Mpox response: Use of digital and analytical tools webinar

24 September 2024

## Presentations highlights



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### Global mpox epidemiological update

- From January 1<sup>st</sup> to August 31<sup>st</sup>, 2024, a total of 106 310 laboratory-confirmed cases and 234 confirmed deaths were reported from 123 countries.
- In 2024 alone, there were 11 095 confirmed cases and 50 deaths during the same period.
- There are two identified monkeypox virus clades 1) Clade I (Central Africa): subclades Ia and Ib; 2) Clade II (West Africa): subclades IIa and IIb.
- The new Clade I strain was first detected in the eastern part of the Democratic Republic of the Congo (South Kivu), presenting APOBEC3-type mutations indicating sustained human-to-human transmission.
- The proposed name for this strain is Clade Ib, given its similar human-to-human transmission to Clade IIb, which emerged in Nigeria in 2017.



**Ms Maurine Espinoza**

Officer for Communicable Disease  
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### Responding to mpox: Chile's use of Go.Data for outbreak investigation and contact tracing

- Go.Data played a key role in facilitating the investigation of cases, contact and people exposed to mpox, Avian Influenza, and Measles in Chile. It has complemented the national surveillance system (Epivigila), which has been implemented nationwide across all 16 regions.
- In relation to the mpox outbreak, Go.Data allowed for immediate notification and investigation of cases since October 2022. Furthermore, it has facilitated the follow up of identified contacts, the establishment of outbreaks, and the creation of relationships between cases, events and contacts.
- Go.Data's flexibility facilitated the seamless creation of real-time investigation forms, dashboards, and detailed outbreak reports, which helped identify the risk profile of the emerging disease and take timely public health measures to control the outbreak.
- Chile's national surveillance system (Epivigila) was interoperated with Go.Data, which enabled real-time monitoring and prompt decision-making. This interoperability solution integrates multiple data sources, such as laboratory, vaccine, school, and prison records, to support outbreak analysis within key institutions.
- Go.Data ensured scalability and long-term adaptability for multiple diseases, future outbreaks, and public health responses.



**Ms Maria Jose Castro**

Go.Data Chile team, Consultant at  
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**Mr Felipe Vasconcelos**

Consultant at Health Emergency Program,  
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### Responding to mpox: Brazil's use of Go.Data for outbreak investigation and contact tracing

- Brazil currently has 20 Go.Data servers. All states have undergone training, and we have established an emergency focal point.
- During the mpox response, Go.Data provided real-time access to data, enabling timely decision-making. Its user-friendly interface ensured that even those with minimal technical expertise can use the tool effectively.
- The software also allowed the national team to customize contact follow-ups, enabling personalized tracking and management of contacts.
- Additionally, geographical restrictions were applied to grant different levels of access based on a user's role in the response, ensuring that sensitive data is only available to authorized personnel, thus maintaining operational security and efficiency.
- It is crucial to emphasize the importance of establishing a national server to standardize investigations and allow interested states to access it. Furthermore, having focal points in all states is of utmost importance.



**Dr Julia Fitzner**

Unit Head, insights & analytics,  
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### Collaboratory: a laboratory for pandemic and epidemic intelligence

- The Collaboratory is an initiative of the WHO Hub for Pandemic and Epidemic Intelligence. One of the primary goals of the Collaboratory is to establish a digital environment that enables collaboration, connection, knowledge exchange and joint analytics across the pandemic and epidemic intelligence community.
- Using the convening power of WHO, the Collaboratory has been connecting, building and strengthening communities in a number of fields, including mpox and influenza.
- To date, there has been substantial activity and knowledge sharing in the mpox analytics community. This includes the forthcoming development of a modelling framework for analysis, in light of the limited data available.
- The mpox community has also been linked up to other existing Communities within the Collaboratory, such as the Epi Parameter Community of Practice and the International Pathogen Surveillance Network (ISPN) mpox genomic surveillance community.



**Prof Sebastian Funk**

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### Software tools for addressing common analytics tasks: the example of the 2024 mpox outbreak

- The epidemiological modeling R tools ecosystem encompasses a wide range of tools. Initiatives that aim to improve this ecosystem include epiverse-TRACE, epiforecasts and epinowcast.
- Data cleaning is at the beginning of any analytical work. Examples for packages that facilitate this task are the *cleanepi*, *linelist* and *numberize* packages.
- Nowcasting, or correcting for reporting delays, can be done, for example, using the *EpiNow2* and *epinowcast* packages, which can also be used to estimate reproduction numbers and produce forecasts that can be assessed with the *scoringutils* package.
- Individual variation in transmission can be analysed and simulated with the *epichains* and *superspreading* packages.
- Epidemiological parameters can be estimated from observations using the *epidist* package or, where primary observations are not available, sourced from the literature using the *epiparameter* package.
- For long term scenarios one can use the *epidemics* or *finalsize* packages, using social mixing data obtained from the *socialmixr* package.



**Dr. Chloe Rice**

Consultant, WHO Hub for Pandemic  
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### Epidemiological parameters for modelling and analysis: Collaboratory API

- Going into further detail on the Epi Parameters Community of Practice and GREP, a demonstration of the GREP mpox API was provided.
- In this product, important epidemiological parameters such as reproduction numbers, and human delay variables such as the serial interval have been made available. These parameters are open for public use to support modelling, analysis and decision making.
- The API can be accessed in R software [here](#). Please note that this is an experimental product that is in active development.
- While simple in execution, the GREP is a powerful product in the sense that it can bring together large amounts of disparate data and studies. These parameters can be summarized across countries, settings, parameter types and more.
- If you would like to contribute to this initiative, or be involved in future meetings, please sign up to our [Collaboratory site](#) or alternatively email us at [Collaboratory@who.int](mailto:Collaboratory@who.int).