

Electronic Integrated Disease Surveillance and Response eIDSR implementation in Tanzania

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Introduction

eIDSR implemented to address

- The challenges with manual IDSR
- The challenges of timeliness of reporting and data quality
- Lack of proper analysis tool and data sharing mechanism

Outline

- Development of eIDSR
- Pilot and rolling out of eIDSR
- Training Methodology
- Changes to the System before Scale Up
- Visualizations, Data analysis and Feedback in DHIS2
- Challenges and Successes of eIDSR implementation
- Take away messages



Development of eIDSR

eIDSR uses USSD mobile technology

Why USSD?

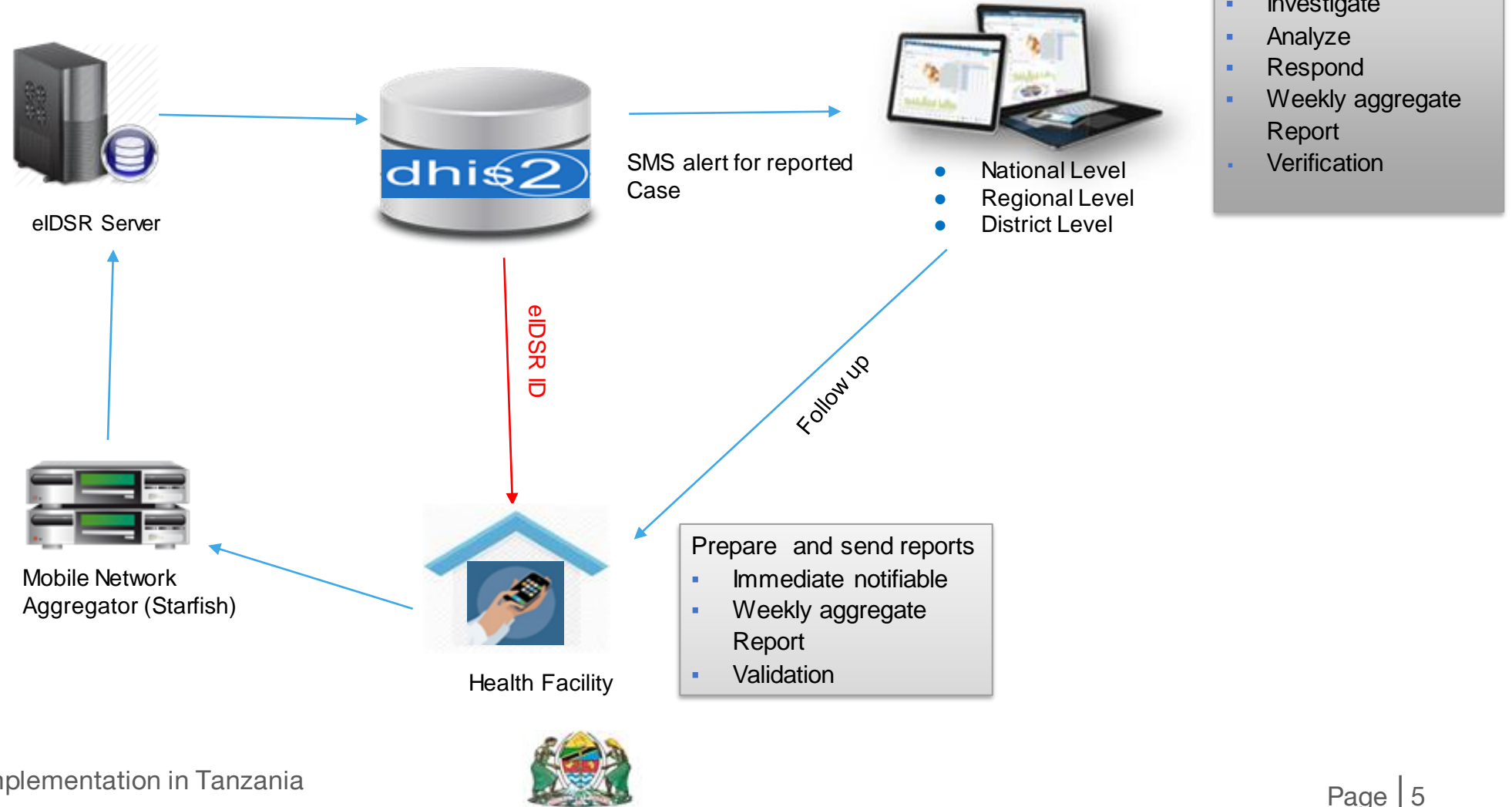
- Does not require Internet connectivity
- It works in any mobile phone
- Quick alerts and notifications to responsible people

USSD Code for eIDSR in Tanzania is *152*05*01#



Development of eIDSR cont....

eidsr- dhis2 linkage



Pilot and rolling out of eIDSR

Rollout was done in phases depend on

- Availability of funds
- Donor support
- System improvement



eIDSR Participants in Mwanza Region April 2015



Training Methodology



eIDSR Training session in Shinyanga Region July 2018

- Conduct ToT at National, Regional and District level
- Training steps used to send Weekly and immediate outbreak report
- Share experiences from the facilities which performing very well



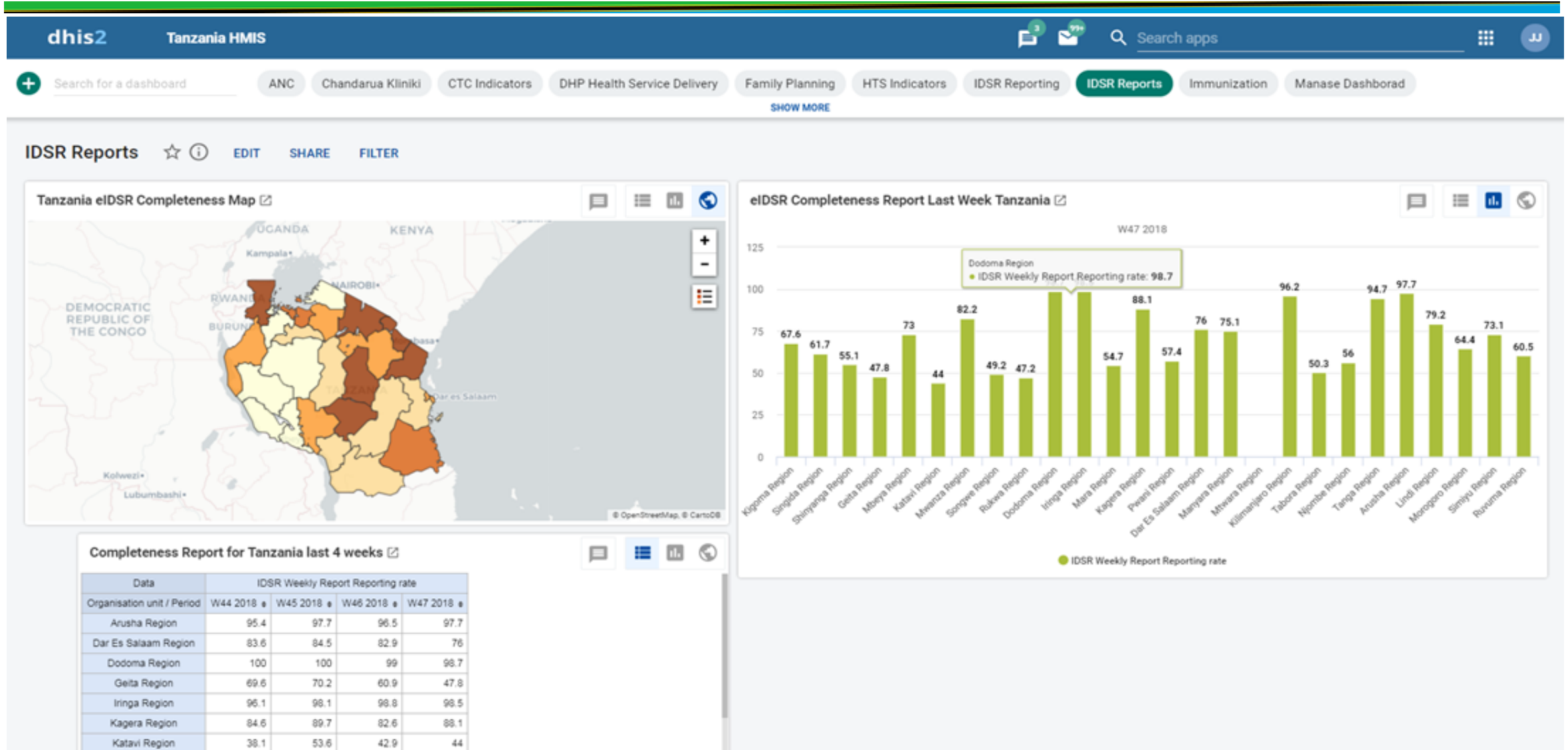
Changes to the System before Scale Up

Gathering feedback from users during supportive supervision, through structured questionnaire and interview

- Adding 2 more mobile network providers
- Have at least two users registered per facility



Visualizations, Data analysis and feedback in DHIS2



Challenges of eIDSR implementation

- Donor dependence to pay monthly fee to the mobile aggregator (Starfish) and system maintenance including sms bundle ,and overall system maintenance
- Inadequate of IT personnel at ministry to support the system
- Poor network connectivity
- Staff turnover especially in private facilities

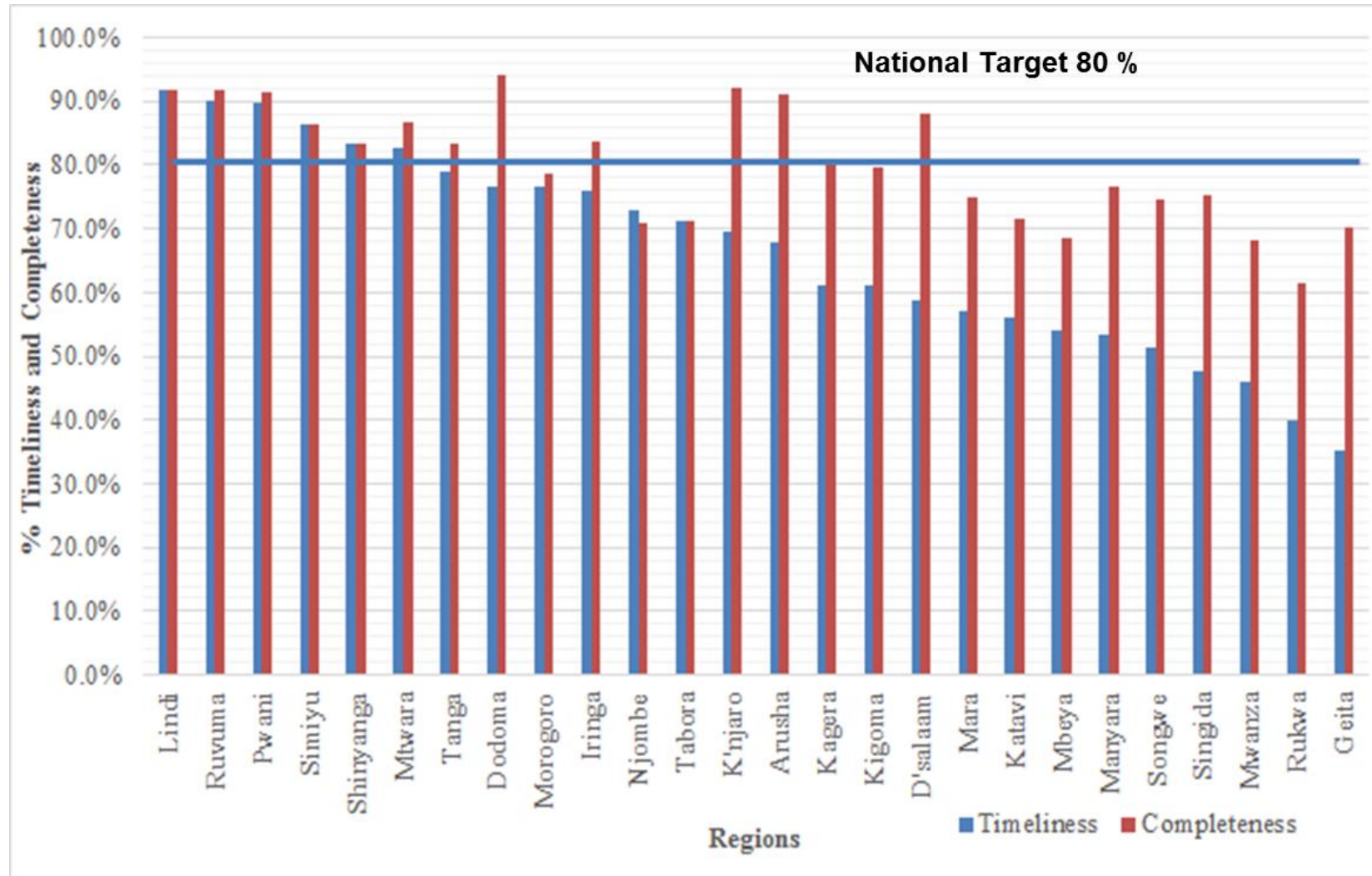


Success of eIDSR

- Improved timeliness, completeness
- Improved the quality of IDSR data, through the validation process before sending to the DHIS2.
- early notification of outbreaks
 - Example the cases of cholera outbreak occurred 2015 in Tanzania, the alert and notification was sent to the national and sub level through eIDSR.
- Dedicated partners and IDSR focal persons at national and sub-national levels
- Coverage of IDSR is 96.8% countrywide , 7182 / 7419 facilities
- Developed a platform for providing help desk support to end user in Tanzania we developed eIDSR Panel, a platform for supporting end user



Percentage of Timely and Complete Reports by Regions W31,2018



Take away message

- Involvement of diverse stakeholders
- Select appropriate technology and training methodology
- Regular supportive supervision
- Sharing feedback among key stakeholders
 - Share analyzed data i.e. number of out break cases reported if any.
 - Weekly summary report.
- Data quality assessment field visit
- Regular System maintenance i.e. DHIS2 upgrade
- Facilitate training for new eIDSR user, on job and refresher training



Thank you



December 11, 2018

Establishing a mobile Emergency Operating Center for Ebola response in the Democratic Republic of the Congo (DRC) and Digital tool in the outbreak (DHIS2)

Dr Ousmane Ly,
Digital Health Advisor
PATH/MoH DRC



Learning Objectives

In this presentation I would like to talk about :

1. EOC and Mobile EOC implementation challenges
2. Digital Health Tools use challenges

Background

- May 2018 Democratic Republic of Congo (DRC) declares its 9th Ebola Virus Disease (EVD) outbreak
- Since 1976, this disease has recurred in the DRC
- In 2014, West Africa recorded the most complicated and deadliest epidemic ever, with more than 11,000 deaths
- Inter-human transmission is very easy, the measures of struggles are based on a set of interventions:
 - case management,
 - infection prevention and control measures,
 - monitoring and search of contacts,
 - quality laboratory services,
 - safe and dignified burials and social mobilization

DRC Emergency Operating Center (EOC)

- An emergency operations center (EOC) is a physical location for the coordination of information and resources to support incident management activities. Such a center may be a temporary facility or may be established in a permanent location.
- The coordination of response activities by the DRC Ministry of Health and its partners from the EOC in Mbandaka/Kinshasa enabled the rapid control of the ninth epidemic of EVD in the province of Ecuador.
- EOC Kinshasa has enabled the creation of an epidemiological data visualization dashboard for real-time monitoring on the DHIS2 platform. This integration has contributed to the interoperability and interconnectivity of epidemiological surveillance data with the National Health Information System (NHIS).

EOC Operational Modes

Watch Mode

- EOC Manager
- Watch Staff
- Core EOC Staff (other sections)
- Event Based Surveillance

Alert Mode

- Staff from Watch Mode +
- Subject Matter Experts Alerted and Available
- Surveillance Enhanced
- Mission Analysis Conducted
- Coordination with other Ministries Initiated
- IAP Development Initiated
- Deployment Preparation Initiated

Response Mode

- Staff from Alert Mode +
- Incident Manager Appointed
- IMS Staff Recalled
- Subject Matter Experts Recalled
- Liaison with other Ministries Established
- EOC Activated
- IAP Developed
- Resources Deployed

➤ Situational Awareness Conducted

Critical Information Requirements

ted

An EOC may operate in all three modes simultaneously.

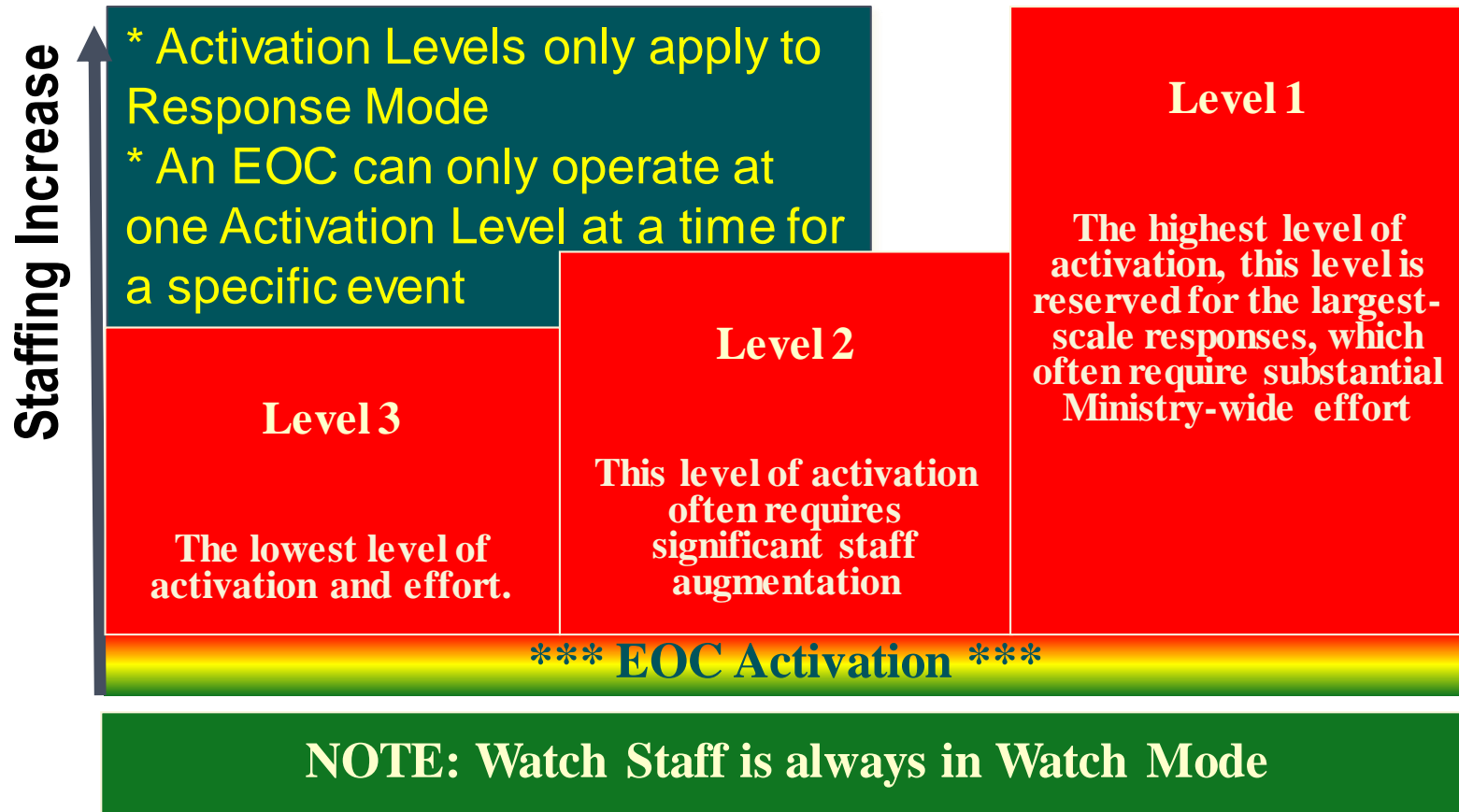
Source CDC Basic PHEM Module 6

Mobile EOC at Mbandaka: quick response under MoH leadership

- Deployment of investigators within 48 hours
- Minister Ilunga activated EOC for Bikoro outbreak and naming an interim EOC coordinator
- Kinshasa EOC was initially planned for use as data management and visualization center, but its function was focused on data visualization as WHO and MoH moved operational management to Bikoro and Mbandaka.
- At instruction of Minister Ilunga, extension of Kinshasa EOC was established in Mbandaka named Mobile EOC in coordination with WHO and OCHA



EOC Activation Levels



Source: CDC Basic PHEM Module 6

Mobile EOC tools&facilities

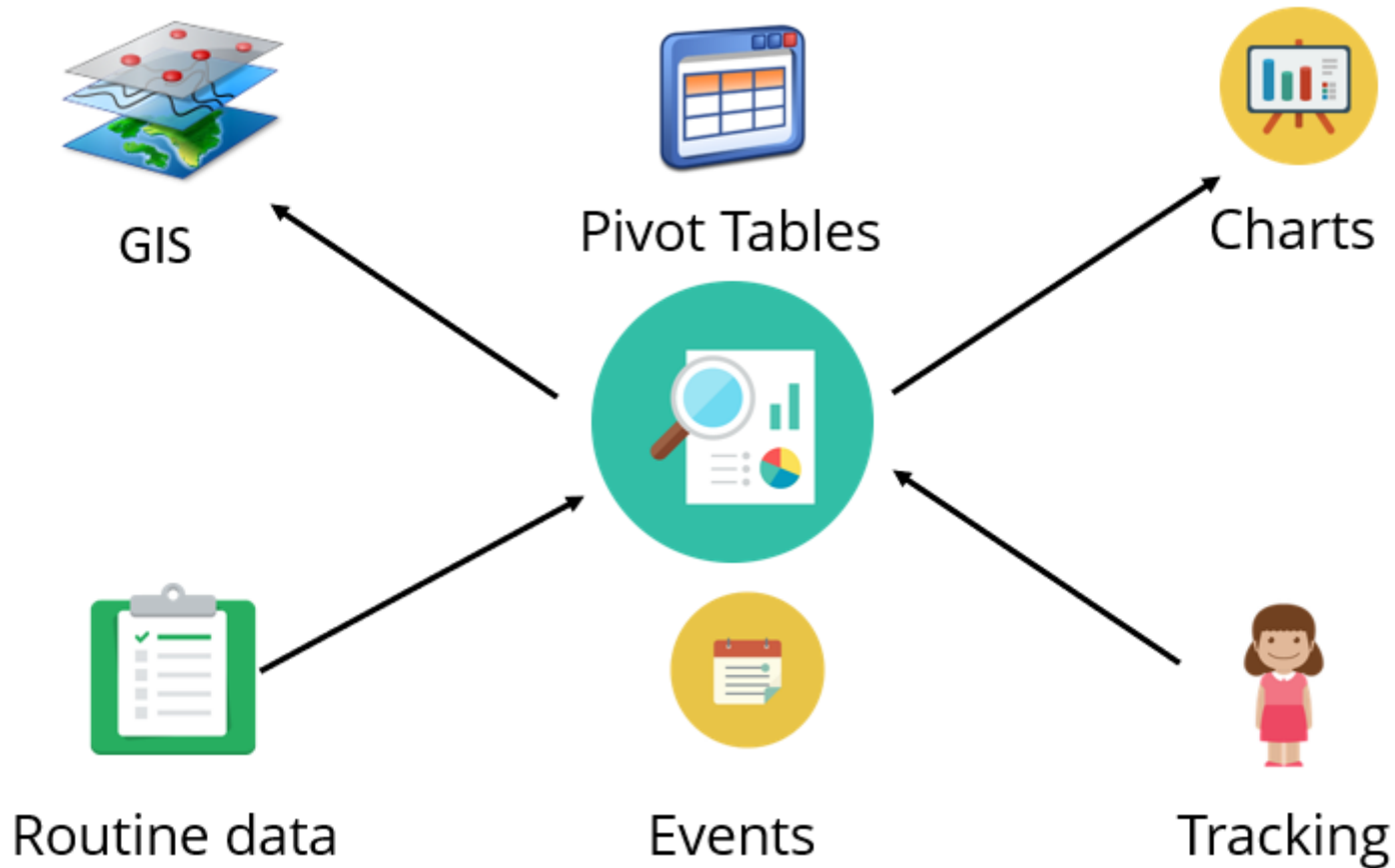
- ArcGIS and ArcGIS online mapping software
- DHIS2 Data Warehouse Software
- EWARS Alert Notification Software
- Mobile Application DHIS2 Tracker
- ANDROID Smartphone and Tablets
- Common Geographic Reference of DRC
- OpenStreet Map DRC
- Vsat and telco's network for Internet and communication access
- Operating room with visualization facilities



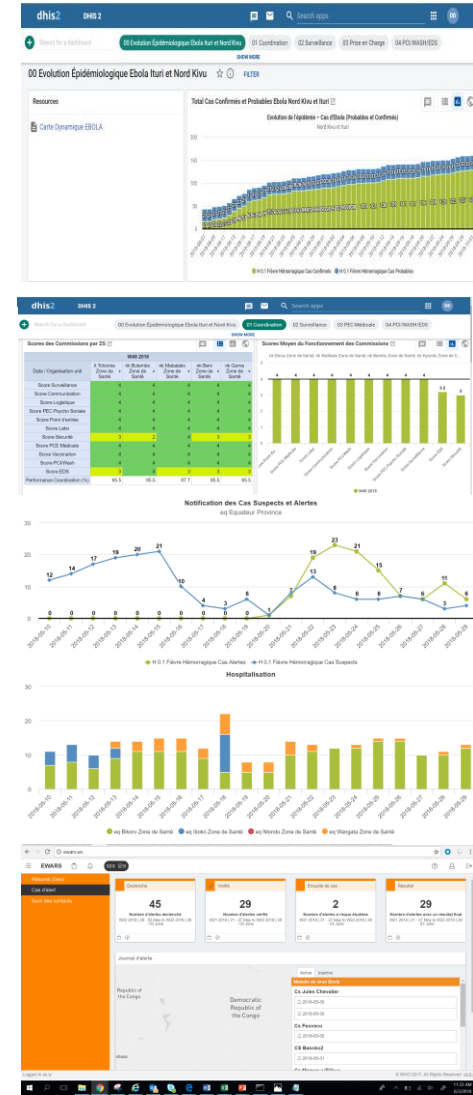
Mobile EOC activities

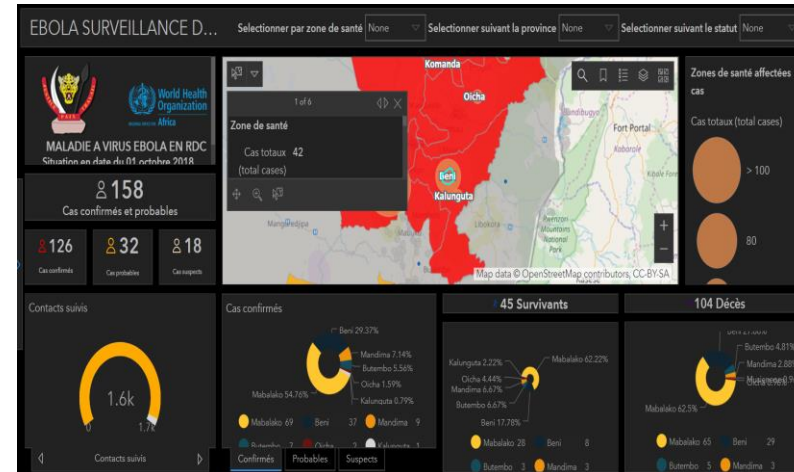
- From May 13, 2018 to July 15, 2018, 64 digital map were produced every day
- A dynamic cartographic visualization dashboard was created with ArcGIS online
- A dynamic dashboard for monitoring the epidemic was carried out on DHIS2
- Mobile applications for Alerts and notifications platform was deployed
- Mobile applications for contact tracking and case notifications were set up but could not be deployed
- Several meetings of the DRC's Common Geographical Referential were held to correct the maps, district boundaries and exact geographic coordinates of the health structures with the participation of UCLA
- OpenStreet Map community of the DRC, work strongly for the correction of cartographic data.

DHIS2 National Health Information System implementation features for all outbreak decision's makers

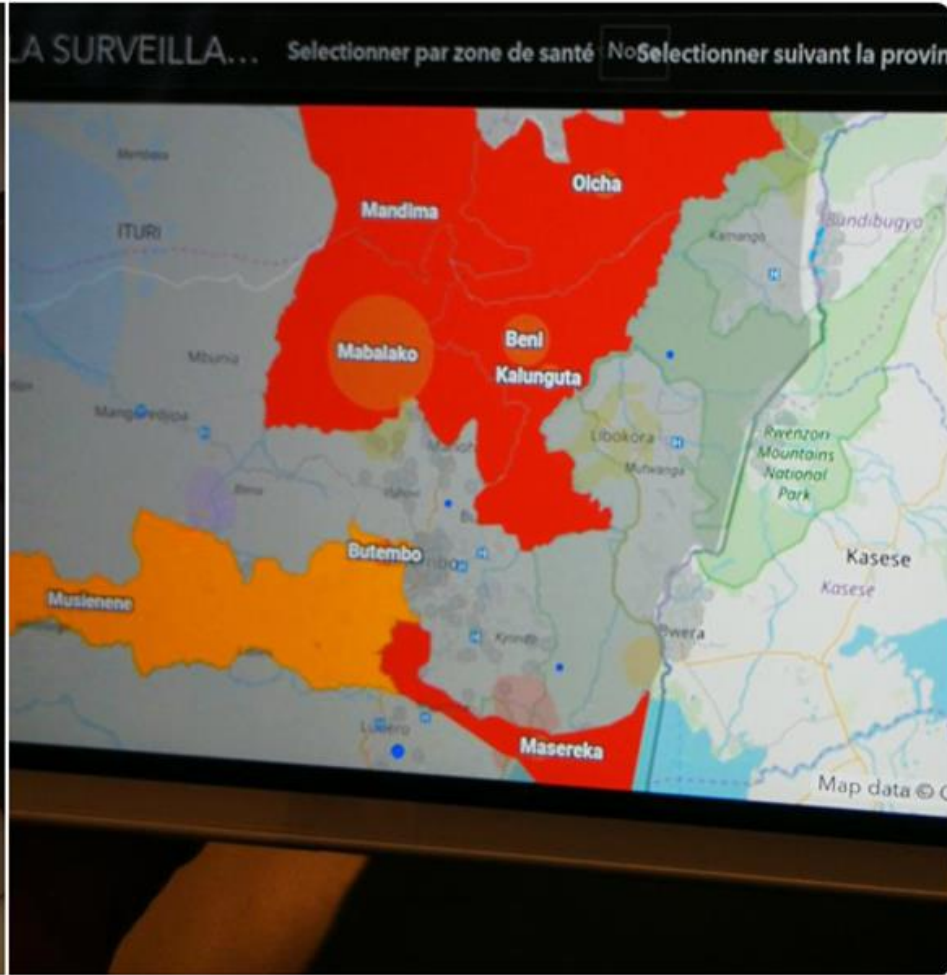
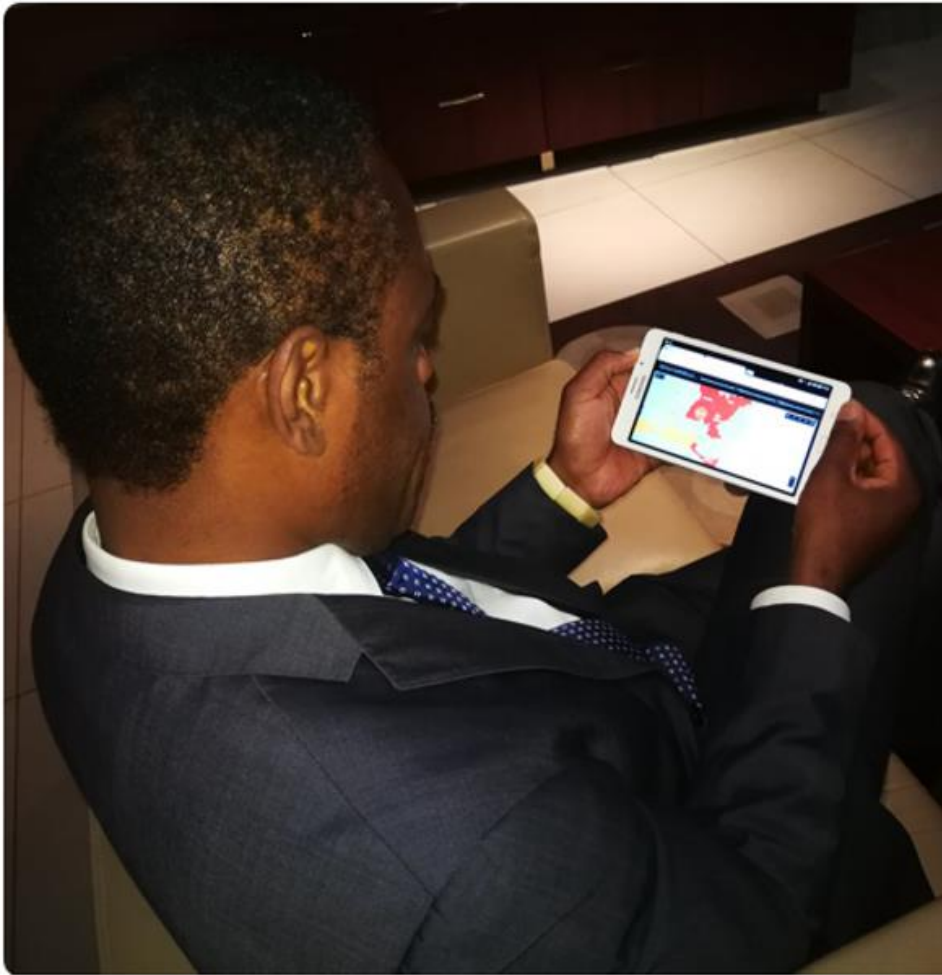


Source DHIS2 Manual of DRC





SEM Oly Ilunga use he's tablet for decision making



Challenges

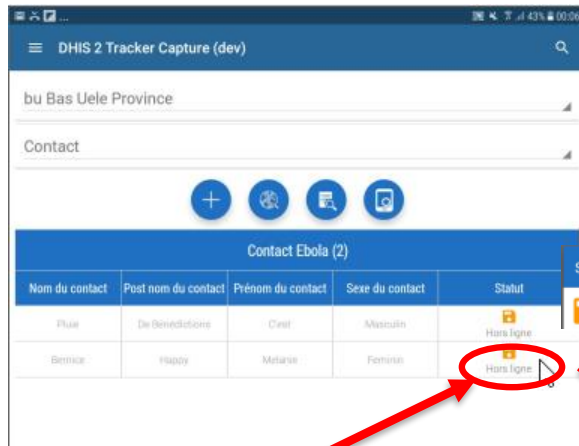
Global challenge

- Logistics issues working in the middle of the forest
 - Travelling 16 Km take 3 hours in certain health zones
- Social behavior communication with the host community including pygmy population
- Coordination among multiple partners
 - Very lack coordination between NGO and International agency
- Data-driven decision management
 - Need to consolidated database and standardized tools using data from multiple sources : MoH-DHIS2 vs WHO-EWARS
- Need to have Key performance indicators data,
- Data discrepancies among coordination levels
- Late decision establishing some sub-coordination like Itipo (one big epicenter)

EOC challenge

- Logistics issues
 - IT Equipements, local provider have not a good quality, and cost is very higher
- Communication Issues:
 - Vsat not functional some time, and very expensive
 - Telco's network don't give sufficient internet bandwidth
- Coordination among multiple partners
 - Very lack coordination between MoH, NGO and International agency (some player
- Digital tools
 - Need to consolidated database and standardized tools using data from multiple sources : MoH-DHIS2 vs WHO-EWARS vs OCHA-TABLEAU etc...
 - Don't use any toll if it is not mature: like DHIS2 Android tracker app on mobile phone

Failed to use DHIS2 ANDROID Tracker application: BUG OF THE MOBILE APP

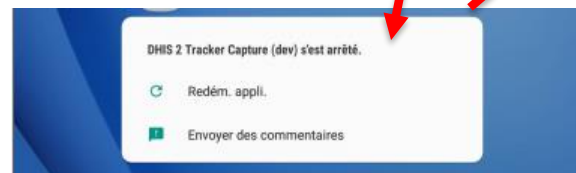


Click for manual synchronization

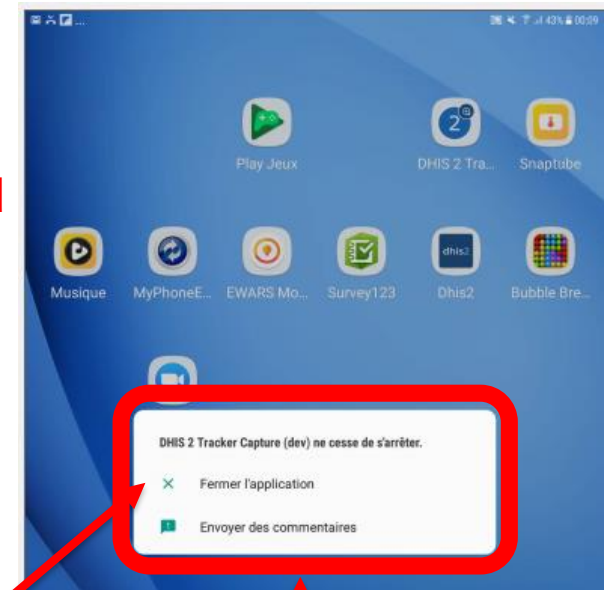
Attempt to download to the server

Téléchargement des données au serveur

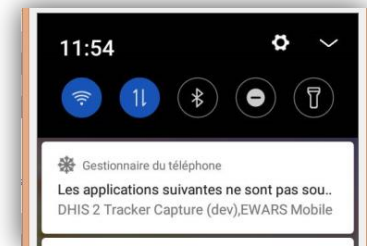
STATUT
Cet élément n'a pas encore été synchronisé avec le serveur.



The application stops and asks to be restarted



DHIS2 Tracker keeps stopping



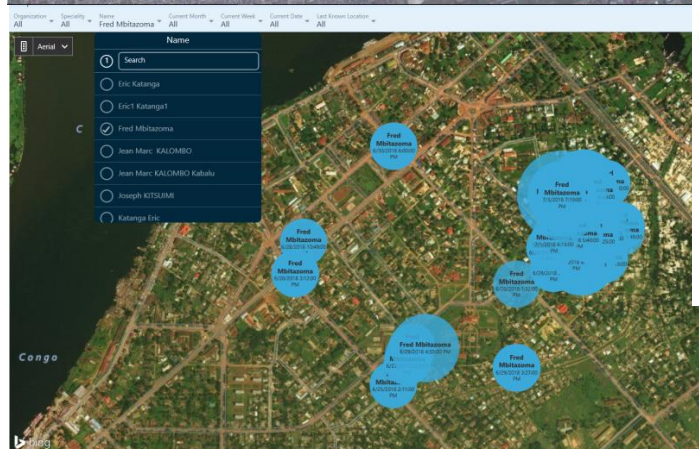
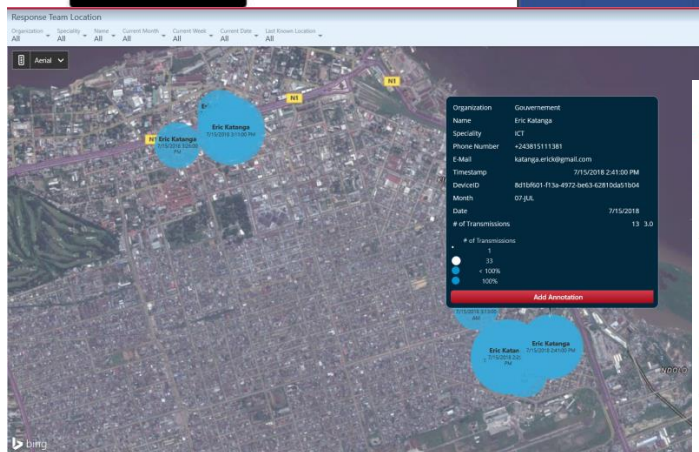
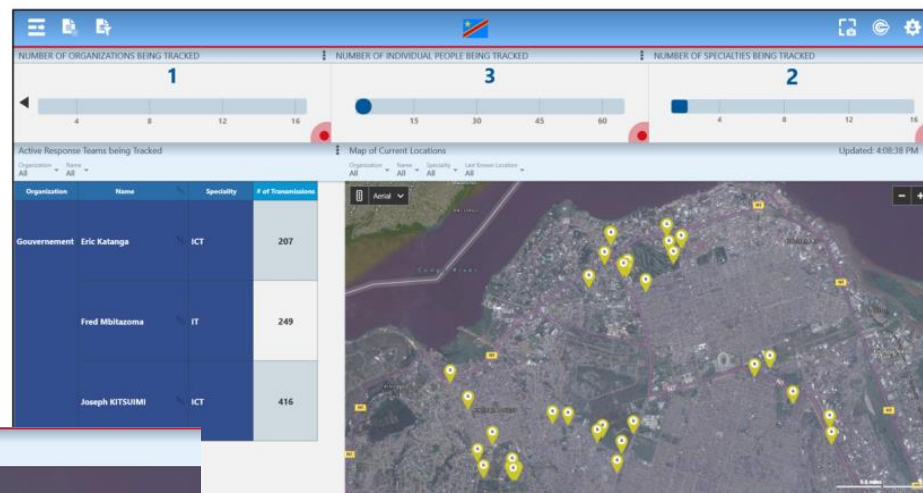
Message from the phone

**Next step Mobile App for
EOC with AfricaCDC:
automatical record of
contact tracer GPS
information**

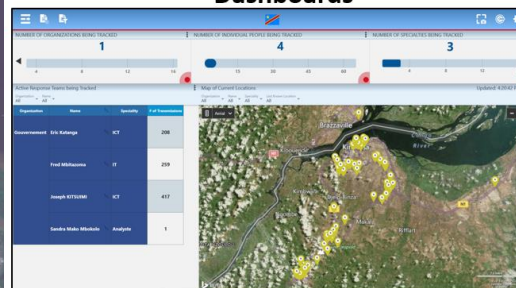
Automatic Tracking Every 15 Minutes



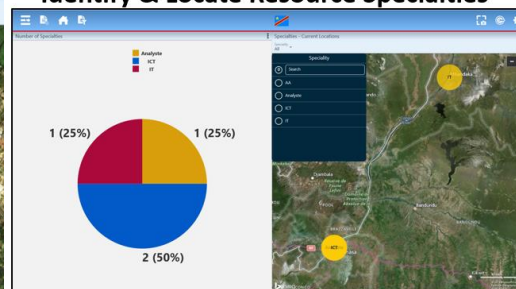
Transmits Data
From all responders



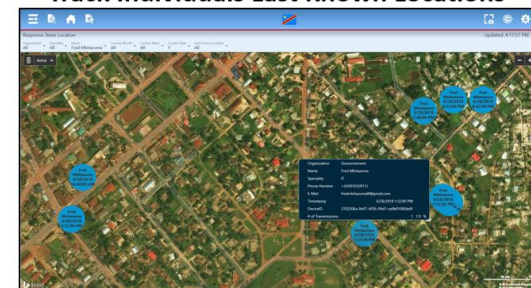
Dashboards



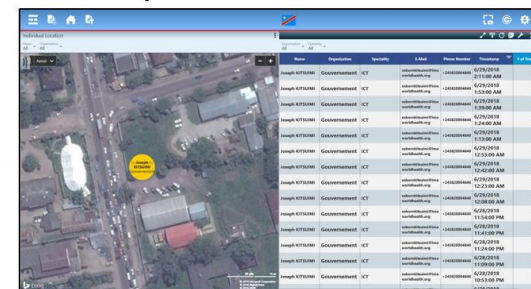
Identify & Locate Resource Specialties



Track Individuals Last Known Locations



Audit Response Team Members in the Field



Fully interoperable with DHIS2

Conclusion

- Collaboration, sharing, inclusion of all stakeholder is the key of success and sustainability
- Integration and interoperability of digital health tool in eIDSR is very important
- DHIS2 is mature for visualisation of IDSR data but the majority mobile app is not mature
- Time is countdown: the next outbreak is her, and need good DHIS2 mobile app :
 - Unfortunately the country facing the 10th Ebola outbreak in North Kivu province since 1st august, only one week after the end of the 9th outbreak in Equator province (24 July)
 - Fighting zone with wave of rebel attacks is the big challenge



Thank You!



Progress and Challenges in Implementing DHIS 2 for Disease Surveillance in Guinea

Global Digital Health Forum, December 11, 2018

Eileen Reynolds



*Photo credit:
Patrick Adams*

Outline

- Why invest in disease surveillance/DHIS 2?
- Background
- DHIS 2 in Guinea 2015-2018
- Next steps
- Lessons learned
- Challenges
- Opportunities



Map of Guinea with neighboring countries, Perry-Castañeda Library Map Collection, University of Texas at Austin

Why invest in disease surveillance /DHIS 2?



Triage training, Guinea, Photo credit: Patrick Adams

- A case of an unknown disease started in a village in Guinea in Dec 2013, Ebola not confirmed until March 2014...
- Soon the disease spread to Conakry, the capital and to Sierra Leone and Liberia
- 28,652 cases, 11,325 deaths from West Africa Ebola outbreak
- Weak capacity in data management cited as contributing factor
- Lack of integrated data collection, timely aggregation, analysis and sharing of data hampered the response

Background

- 2015-2019: CDC, Global Health Security Agenda
- Real-Time Surveillance Action Package:
 - “improved country.. capacity to analyze and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems.”



RTI FETP Mentor with program participants

Scenario in 2015

- Ebola outbreak ongoing
- For other diseases/events:
 - Pieces of information held by different stakeholders
 - Difficult to track cases
- Is DHIS 2 feasible for routine HIS *and* disease surveillance?
- USAID, Global Fund support for routine HIS
- Validation of DHIS 2 by MOH



Guinea delegation (RTI and MOH) at DHIS2 Academy, Togo, 2015

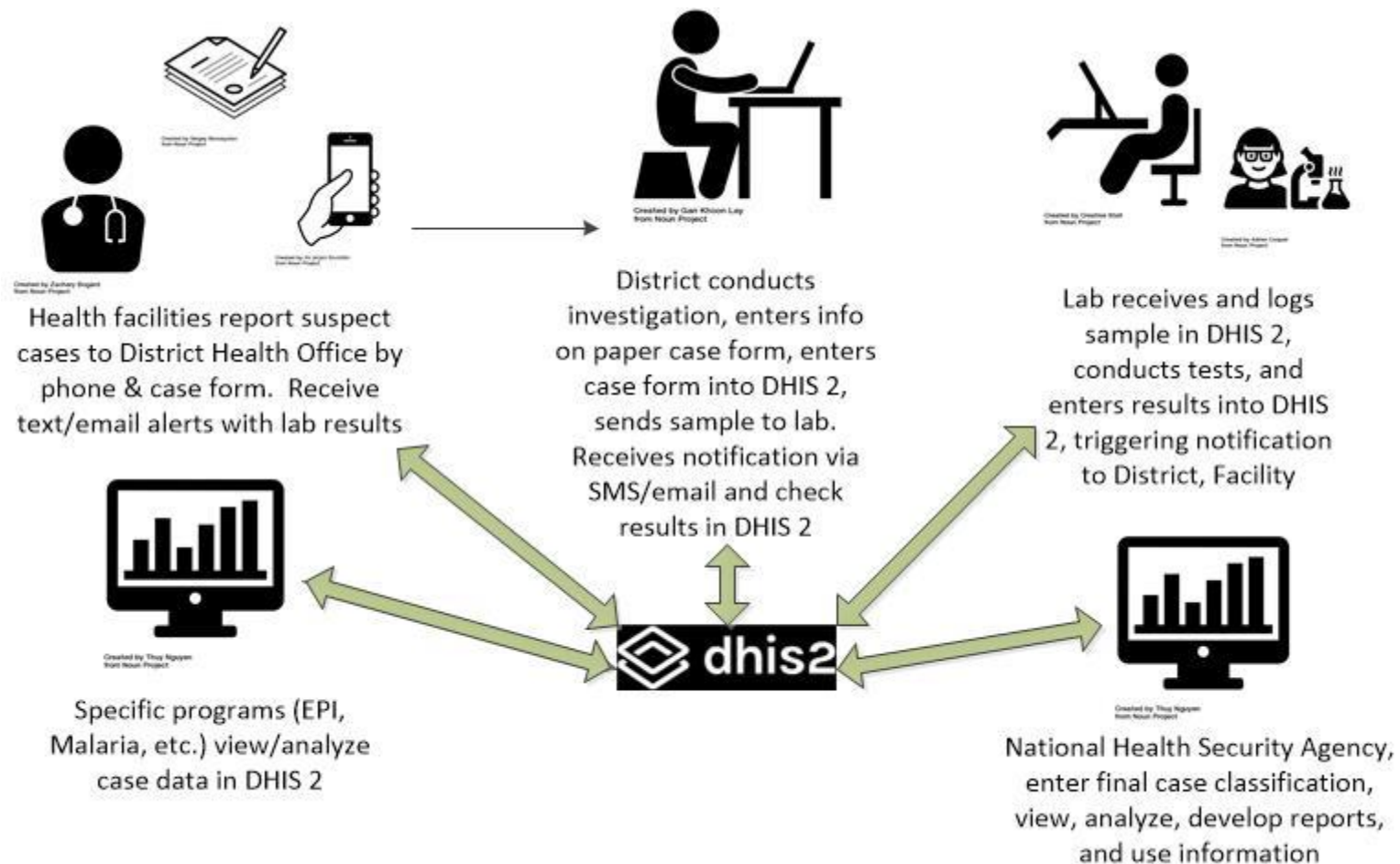
2016: DHIS 2 Scaled up for Routine HIS

- Configure, pilot test and roll out DHIS 2 for routine HIS
- Requirements gathering and workshop for disease surveillance
- Roadmap to add disease surveillance to DHIS 2:
 - Aggregate + Individual Cases (Tracker)
- No changes to data collected



DHIS 2 Training Workshop, 2016

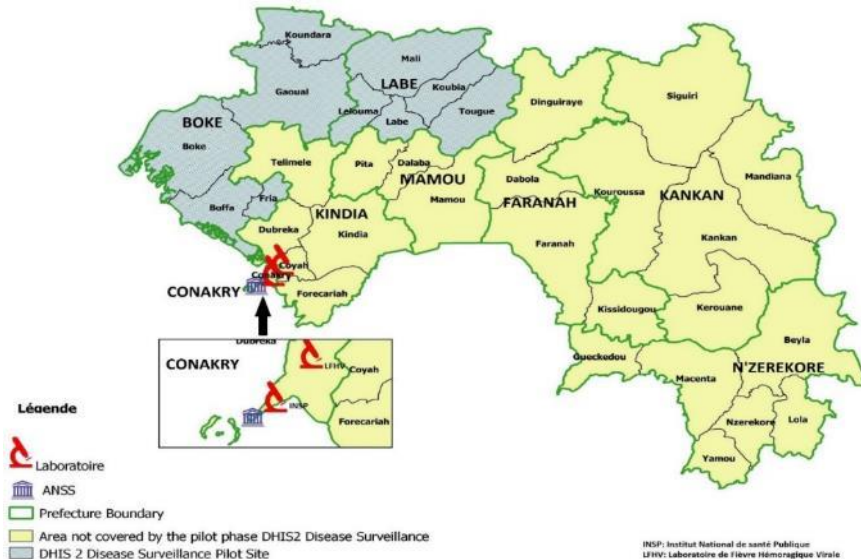
Individual Case Notifications in DHIS 2 Tracker



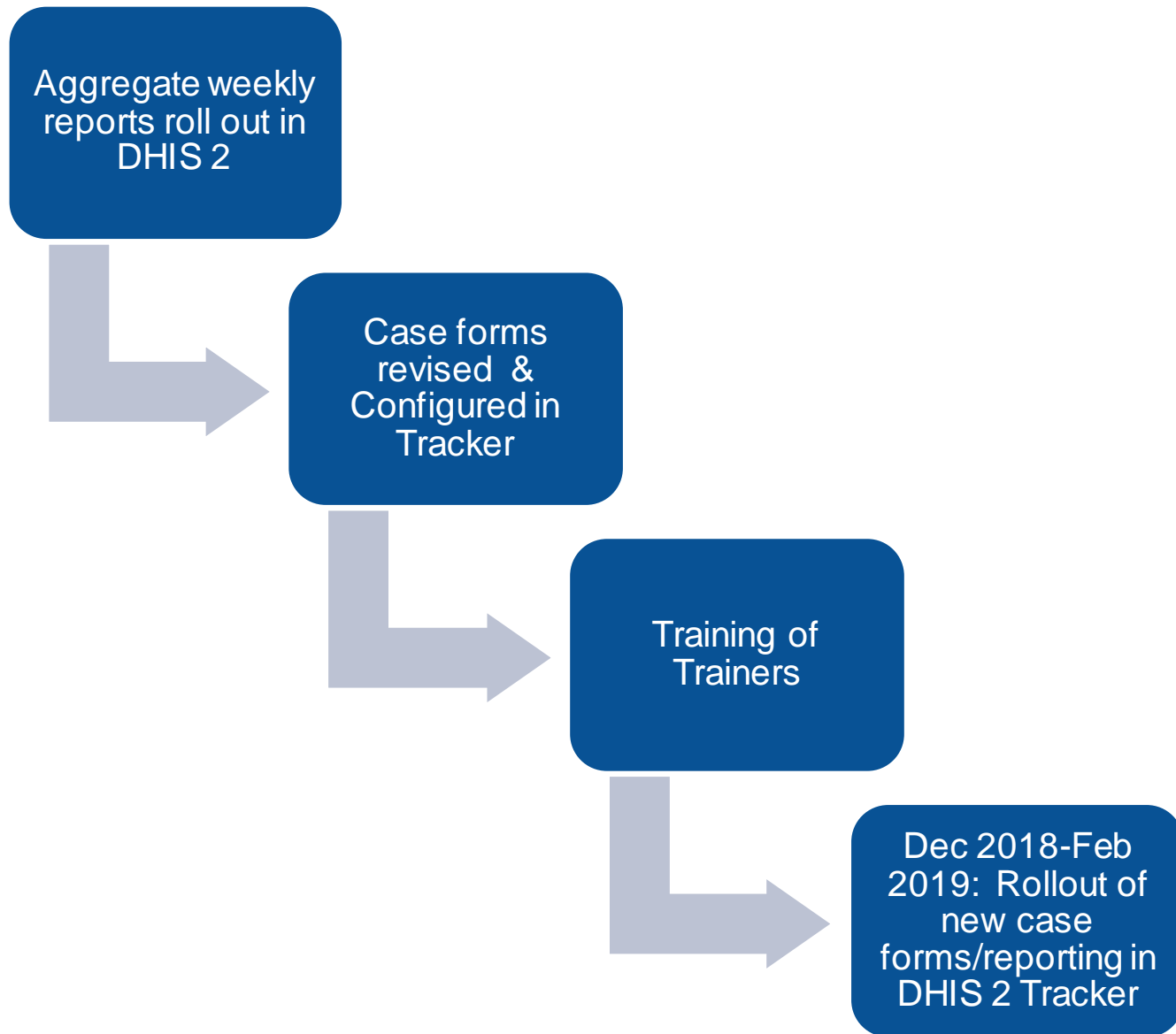
2017: Pilot DHIS 2 for Disease Surveillance

- 2 regions, 10 districts
- National labs + National Health Security Agency
- Evaluation Results:
 - Weekly aggregate reports: high completeness
 - Individual reports:
 - Lower individual case reports vs. aggregate
 - Lack of labs data
 - Lack of follow up
 - Move forward with aggregate reports

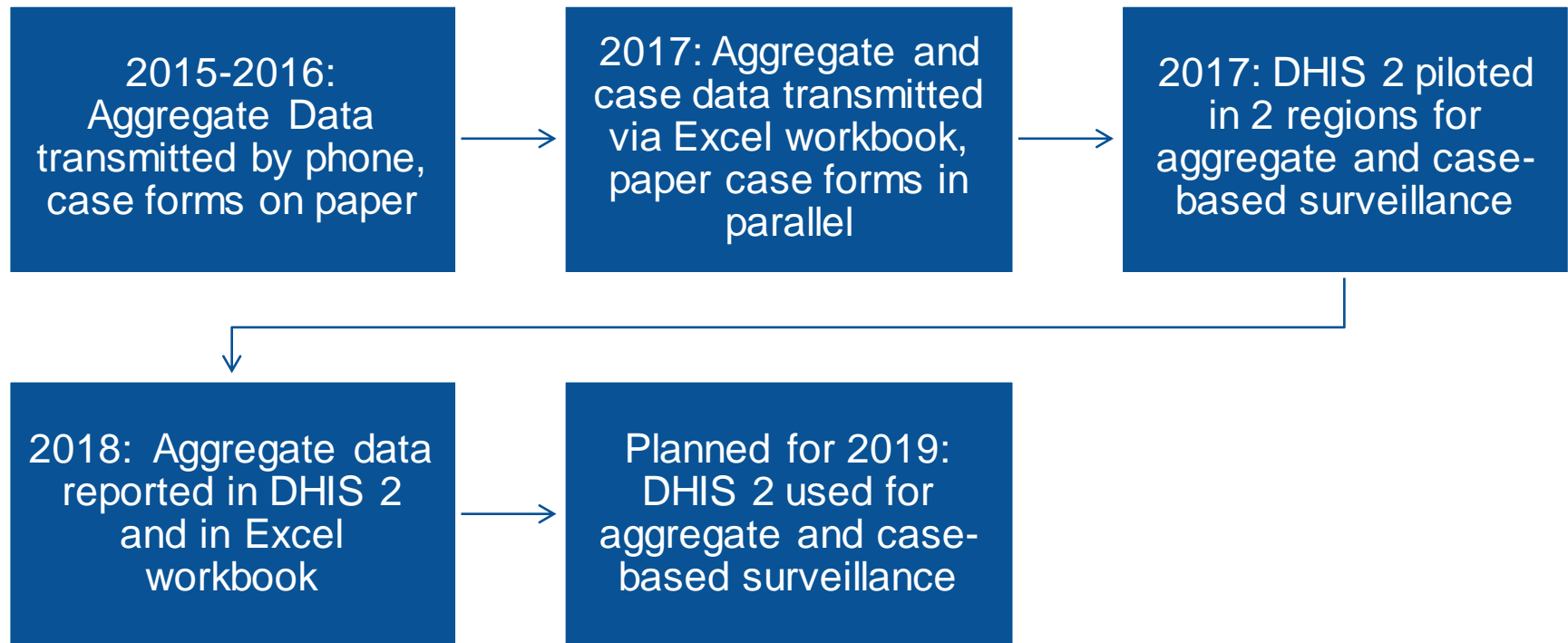
DHIS 2 DISEASE SURVEILLANCE PILOT SITES



2018: DHIS 2 Disease Surveillance Roll Out

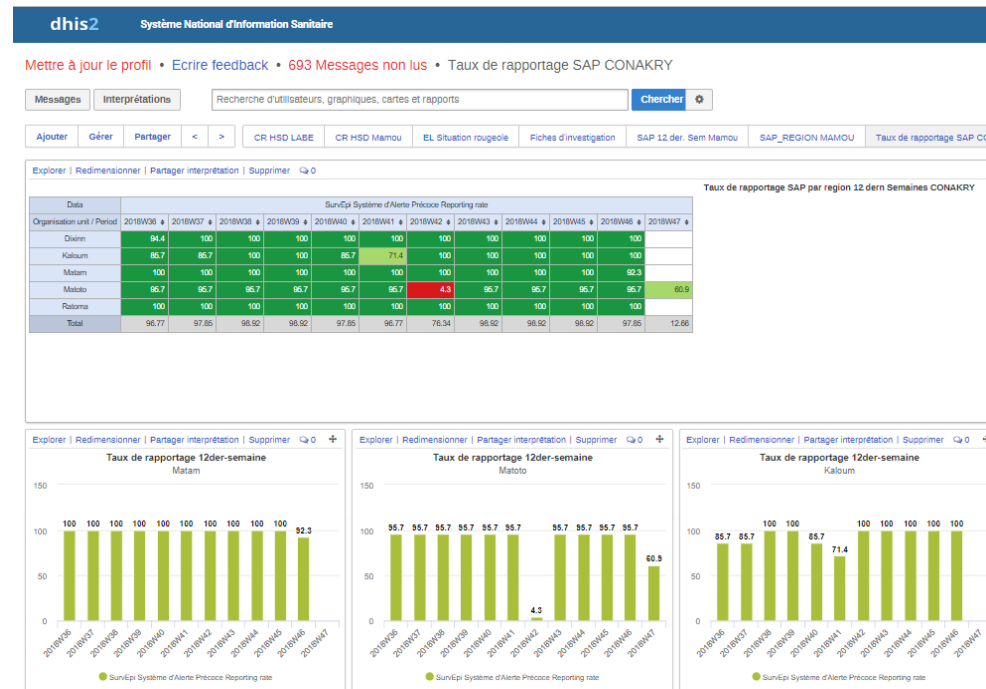


Evolution of national disease surveillance reporting in Guinea



Next Steps – 2019

- Transition from Excel to DHIS 2
- Transition management to MOH, Health Security Agency
- DHIS 2 sustainability planning
- Increase analysis and use of surveillance data
- DHIS 2 Android at health center level



Ministry of Health of Guinea, DHIS 2 Dashboard

Lessons Learned & Challenges

- Parallel reporting system
- Lack of supervision & response discouraged use
- Engagement and use of DHIS 2 at central level
- Change management strategy
- Basic computer skills training needed
- Weak data use
- Sustainability (internet, DHIS 2 tech support, hosting, etc.)



Health Center level health workers learning to use DHIS 2 Android on Tablets, December 2018

Opportunities



CDC, UGANC, and RTI Personnel, 2018

- DHIS 2 as global good means better chances of support beyond any one project
- Sources of tech support:
 - University computer sciences
 - MOH IT team
 - Local team
 - West Africa Health Informatics Team
- Sources of data use support:
 - Field Epidemiology Training Program
 - University MPH program
- Mobilize partners and advocate for resources to support the investments made

More Information

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