

COVID-19 Surveillance Webinar Series - June 8, 2020

Electronic Data Tools for COVID-19 Surveillance

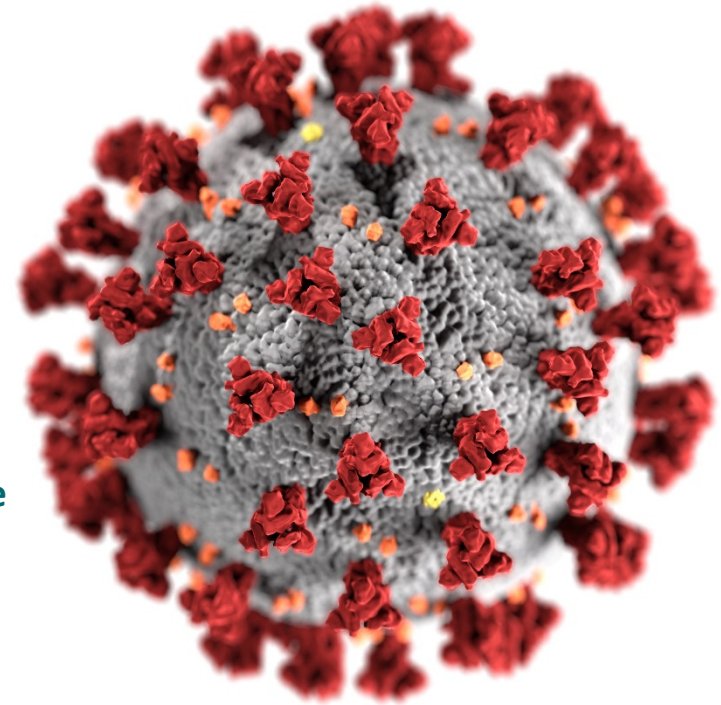
Michelle Sloan, Division of Global Health Protection

Carl Kinkade, Division of Global Health Protection

José Aponte, Division of Health Informatics and Surveillance

Joel Adegoke, Global Immunization Division

James Fuller, Division of Global Health Protection



cdc.gov/coronavirus

Using Electronic Tools for Health Systems Strengthening

- Understand the surveillance goals and objectives
- Encourage use of electronic tools currently available in country
- Consider resources and skills in country
- Leverage available partnerships for implementation and resource sharing
- Pick the right tool for the job
- Focus on sustainability





Benefits of Electronic Data Tools

- Timely reporting and communication
- Reliable and concise record keeping
- Availability of data at multiple health system levels
- Completeness of data
- Standardized data collection
- Faster and improved analysis
- Hypothesis generation



Choose a Tool that Meets the Surveillance Objectives



Note: These are examples of tools that can be used for surveillance. There are many others not included in this presentation, and CDC does not endorse one tool over another.



Use of trade names is for identification only and does not imply endorsement by the Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.

District Health Information Software (DHIS2)

COVID-19 Package



Carl Kinkade
Epidemiology, Informatics, Surveillance, and Lab Branch
Division of Global Health Protection

DHIS2 Overview

- World's largest health management information system (HMIS) platform, used by 72 low and middle-income countries covering 2.3 billion people
- Built and maintained by the University of Oslo's Department of Informatics
- Used across CDC Division work for President's Malaria Initiative (PMI), President's Emergency Plan for AIDS Relief (PEPFAR), Global Health Security Agenda (GHSA) for Integrated Disease Surveillance and Response (IDSR) and electronic IDSR, Global Immunization Division/GAVI/WHO for Vaccine Preventable Diseases (VPD), and routine surveillance via the HMIS across the globe



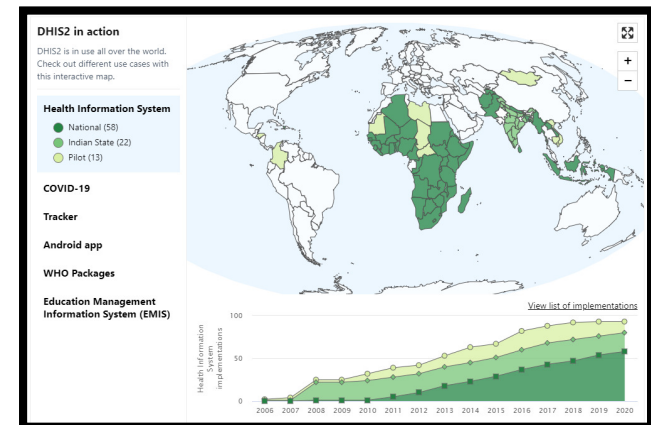
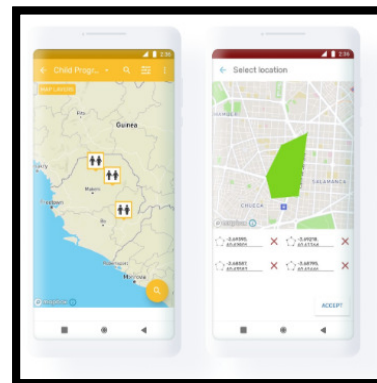
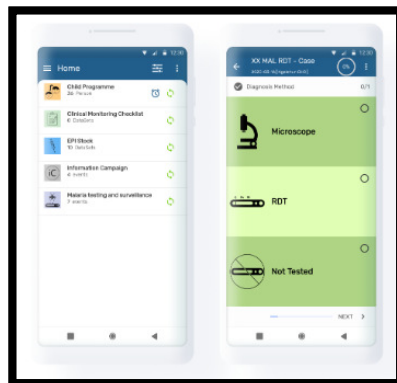
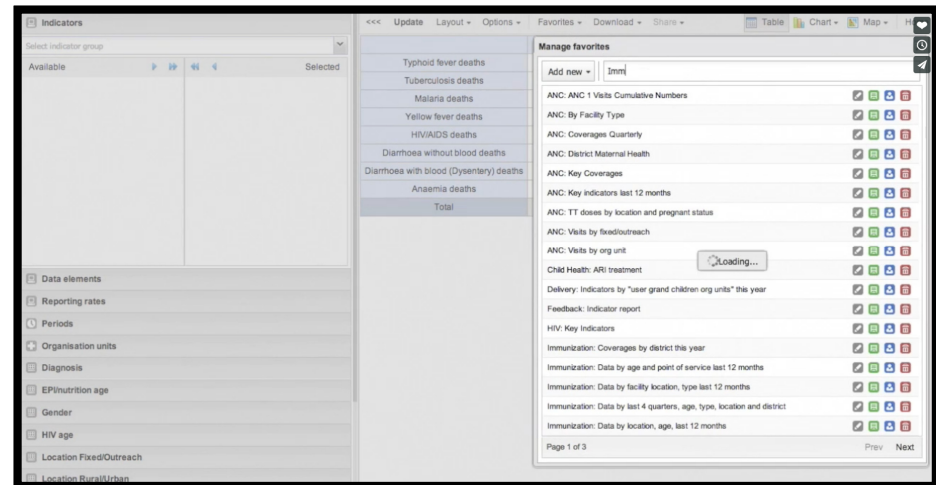
DHIS2 Overview

- Free and open source
- Real-time analysis and visualization
- Integrated SMS and Android data collection
- Established partner network in both the Health Information System Partners (HISP), implementing partners, and expert community of practice to provide support to countries
- Provides an online and in-person DHIS2 Academy to build capacity



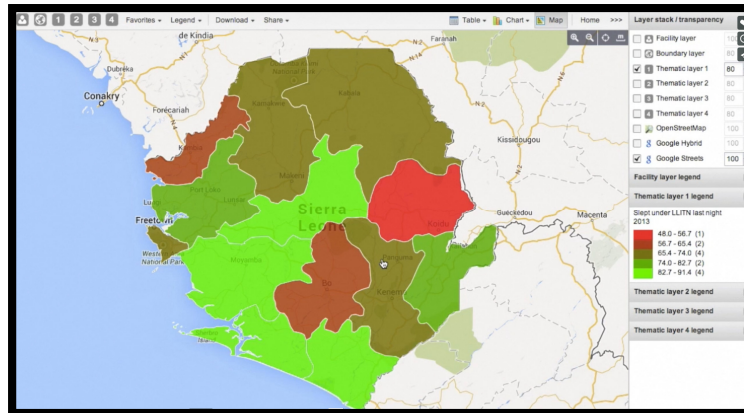
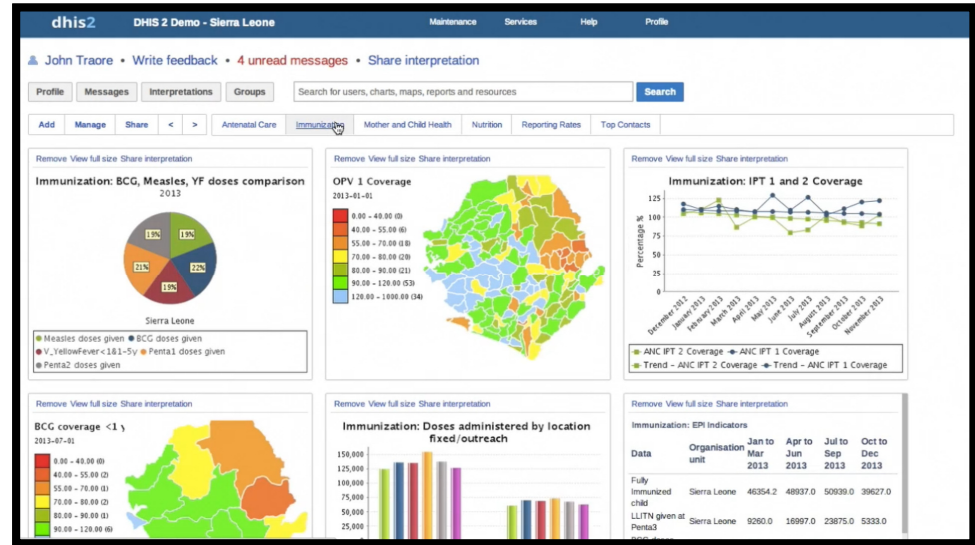
DHIS2 Overview

- Aggregate reporting from the facility
- Case-based reporting using tracker
- Multilingual
- Android collection tool
- Integrated SMS



DHIS2 Overview

- GIS
- Analysis and data management
- OpenHIE compliant and interoperable with many other health Information systems (HIS)
- On premise or in the cloud
- Scorecards

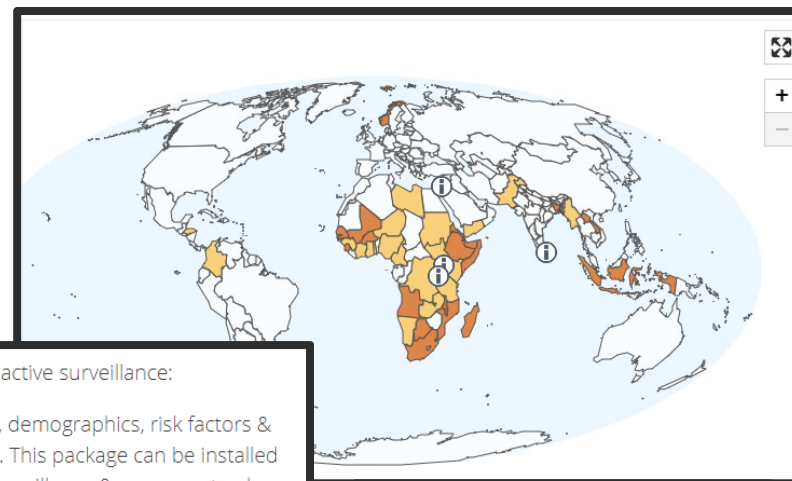


The screenshot shows the DHIS2 data table interface. It displays a grid of data points for various indicators and locations. The table has columns for 'Year' (2010-2013) and 'Month' (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec). The rows represent different indicators and locations, such as 'Sierra Leone', 'Boma', 'Laheria', and 'Freetown'. The data points are color-coded based on their values, with a legend on the right side.



DHIS2 COVID-19 Package

- Operational in 27 countries
- In development in 23 countries



The packages support surveillance workflows and automated analysis for key components of routine and active surveillance:

- **COVID-19 Case-based surveillance [tracker]:** enrolls & tracks suspected cases; captures symptoms, demographics, risk factors & exposures; creates lab requests; links confirmed cases with contacts; and monitors patient outcomes. This package can be installed as a standalone COVID-19 package or can be integrated into a country's existing integrated disease surveillance & response tracker.
- **Contact registration & follow-up program [tracker]:** strengthens active case detection through contact tracing activities, such as identification and follow-up of contacts of a suspected or confirmed COVID-19 case.
- **Ports of Entry screening & follow-up program [tracker]:** enrolls travelers who have visited high-risk locations at Ports of Entry for 14-day monitoring and follow-up.
- **COVID-19 Surveillance Event Program [event]:** a simplified line-list that captures a subset of minimum critical data points to facilitate rapid analysis & response, particularly useful when caseloads or burden of reporting exceeds capacity for case-based surveillance tracker
- **COVID-19 Aggregate Surveillance [aggregate]:** an aggregate reporting dataset that captures minimum necessary data points for daily or weekly reporting

All digital data packages are optimized for Android data collection with the DHIS2 Capture App, which is free to download on the Google Play store.

DHIS2 in action

DHIS2 is in use all over the world. Check out different use cases with this interactive map.

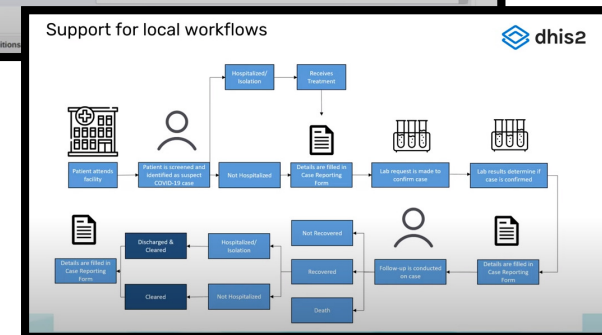
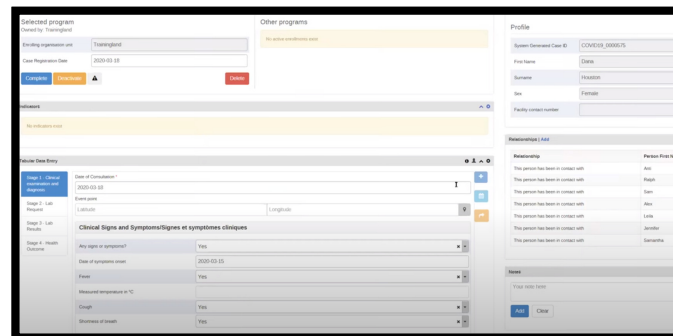
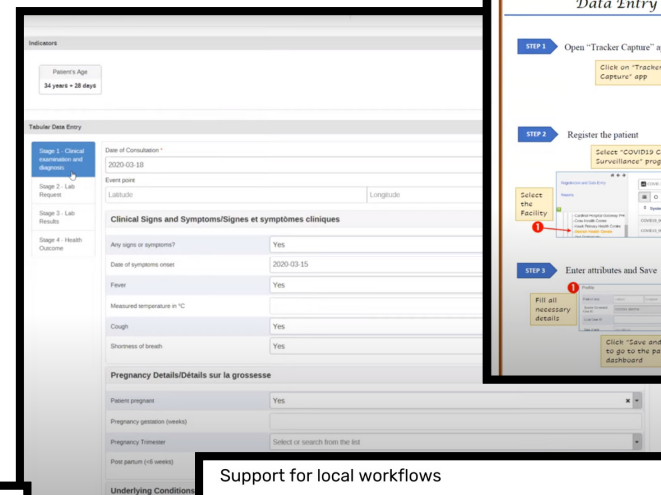
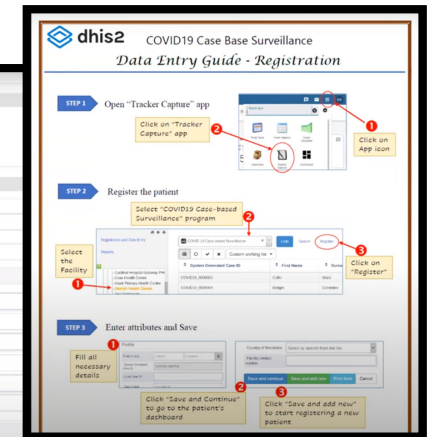
Health Information System

COVID-19

- Operational (27)
- In development (23)

COVID-19 Package: Case-based and Aggregate Surveillance

- Supports local data flows and international OpenHIE standards for integration in other health information systems
- Multilingual
- Aggregate and case-based case surveillance tools
- Real-time field data collection into surveillance system
- Data entry guides for end users



COVID-19 Package: Mobile Data Collection

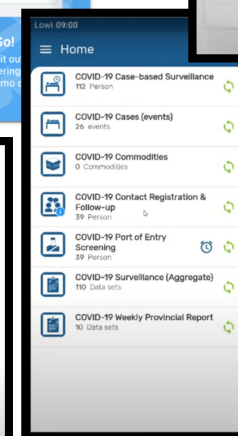
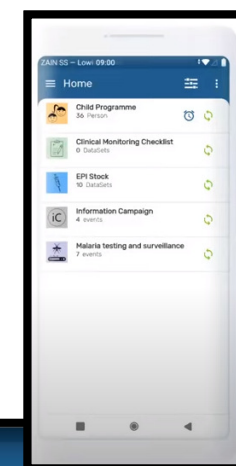
- Android case management and contact tracing tool
- Android tools link to cases, contacts, commodities, ports of entry, aggregate reports, and weekly reports
- Real-time synchronization with Android data collection
- DHIS2 Android app in Google Play Store

Try out the DHIS2 Android App with our COVID-19 Demo

Download and install the DHIS2 Android Capture App from Google Play

Log In and select your activity
URL: <https://covid19.dhis2.org/demo>
USER: android
PSW: District1#

Go! Test it out registering your own demo.



Natively Integrated with DHIS2 Android App

Truly open source
Worldwide community

Can be self-hosted
Full ownership of data

DHIS2 integration
DHIS2 mobile client

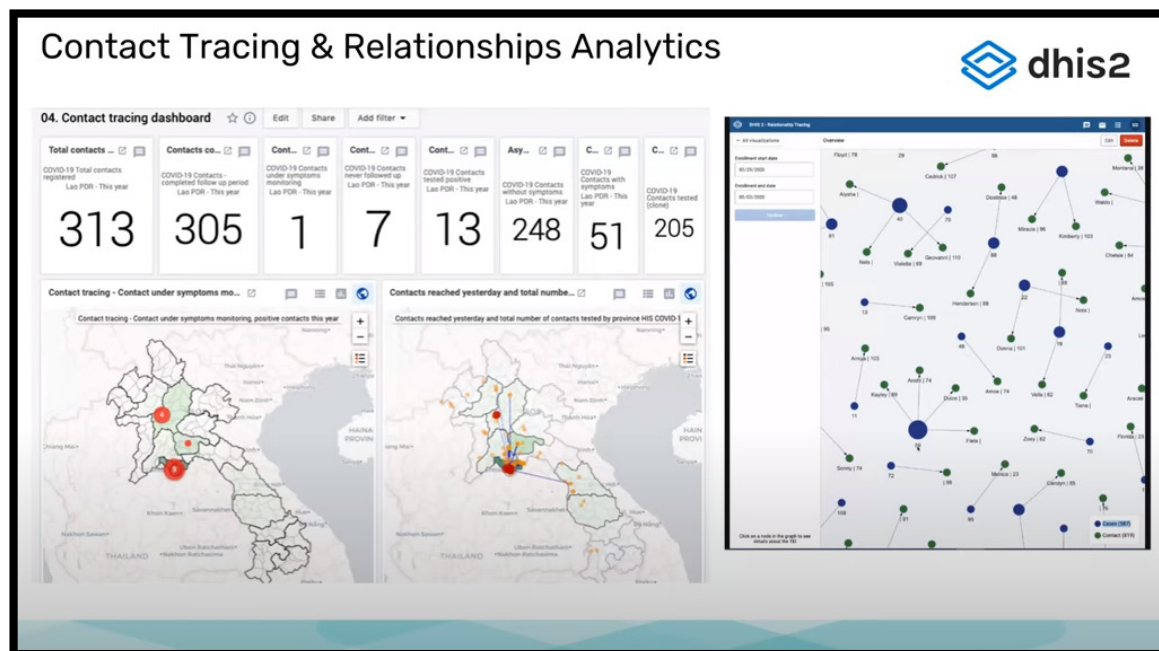
Full Offline Support
Integrated SMS reporting

Intuitive and Easy To Use
Health Activity based
User Experience



COVID-19 Package

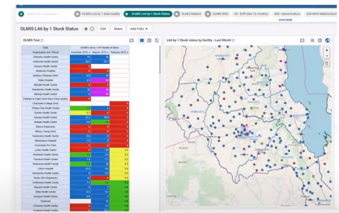
- Contact tracing visualization
- Integrated SMS
- GIS
- Analysis and data management



COVID-19 Package

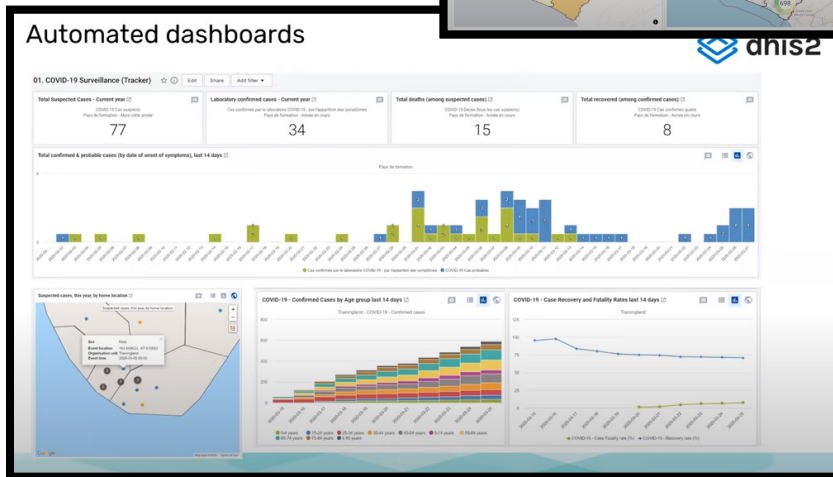
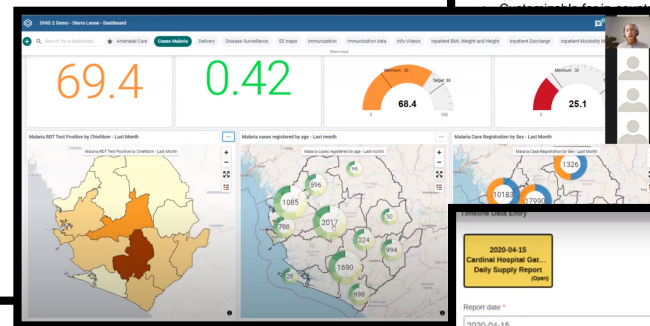
- Supply chain tracking
- Commodities
- On premise or in the cloud
- Customizable dashboards

COVID-19 Commodities Tracking (in progress)



Daily tracking of key commodities (PPE, testing supplies, etc) & logistics indicators

- Stock status by facility
 - Adequate stock, overstock, understock, stockout
- Average consumption, by facility/by commodity
- Stock needed by facility, by commodity type



2020-04-15
Confirmed Hospital Gas...
Daily Supply Report (Cases)

Report date: 2020-04-15

PPE - Face Shields and Masks

MASK, SURGICAL, reusable Stock on Hand	10
MASK, SURGICAL, reusable Consumed	5
MASK, SURGICAL, reusable Resupplied	10
MASK, SURGICAL, reusable Needed	20
FACE SHIELD, single use,elastic headband Stock on Hand	80
FACE SHIELD, single use,elastic headband Consumed	50
FACE SHIELD, single use,elastic headband Resupplied	30
FACE SHIELD, single use,elastic headband Needed	100

PPE - Gloves

GLOVE,SURGICAL,DOUBLE,size 7under&outer glove per pt. s.s Stock on Hand	300
GLOVE,SURGICAL,DOUBLE,size 7under&outer glove per pt. s.s Consumed	200
GLOVE,SURGICAL,DOUBLE,size 7under&outer glove per pt. s.s Resupplied	100
GLOVE,SURGICAL,DOUBLE,size 7under&outer glove	200



SORMAS[®] - Surveillance Outbreak Response Management and Analysis System



Oluwasegun Adegoke (Joel)
Strategic Information and Workforce Branch
Global Immunization Division

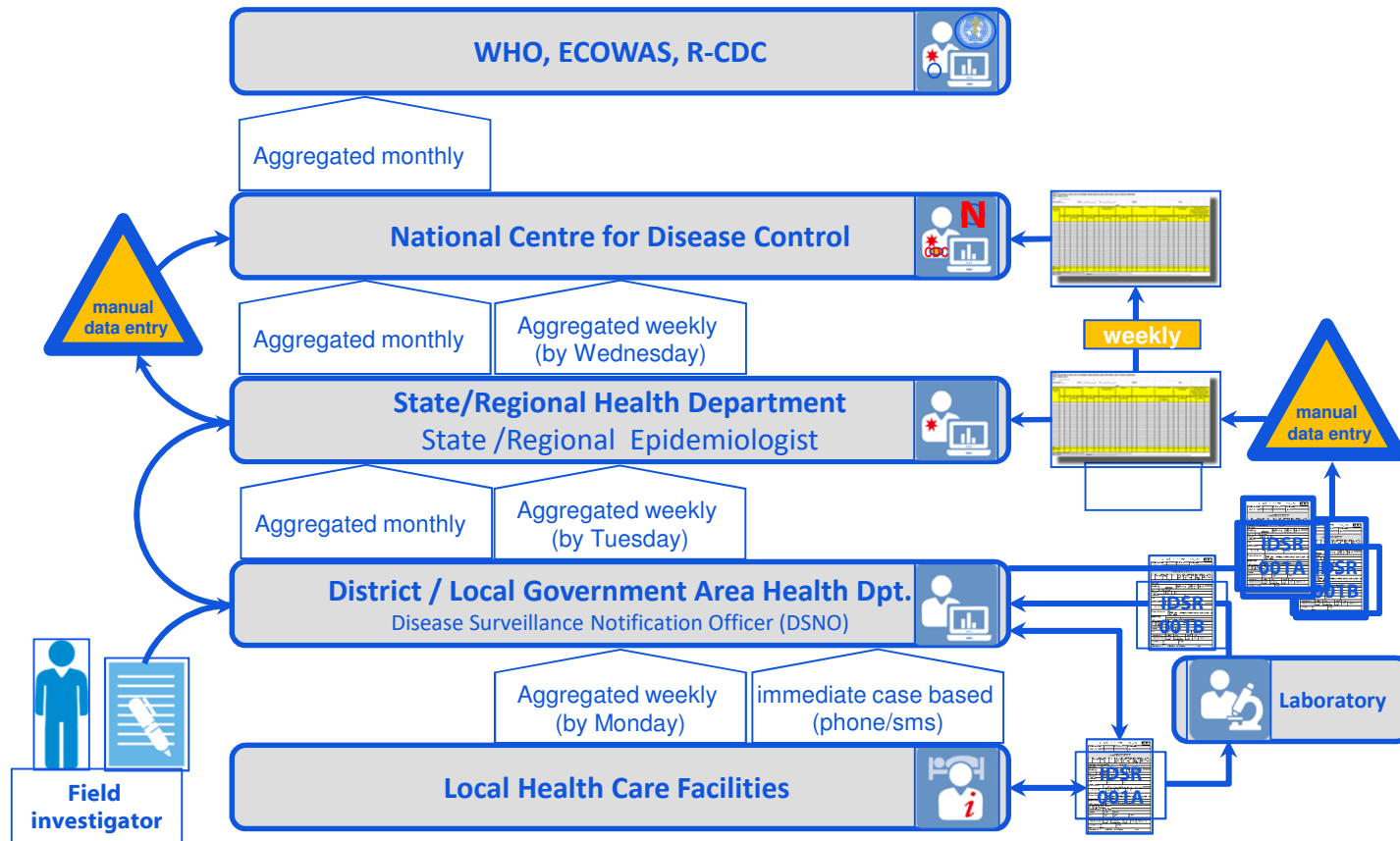
What is SORMAS?

- Digital implementation of Integrated Disease Surveillance and Response (IDSR)
- Outbreak response management and case based surveillance
- Event-base surveillance
- Real-time data processing
- Interactive task management (including contact tracing, laboratory)
- Fully digital
- Fully mobile in offline conditions
- Free and open source
- Mobile device management integrated into SORMAS

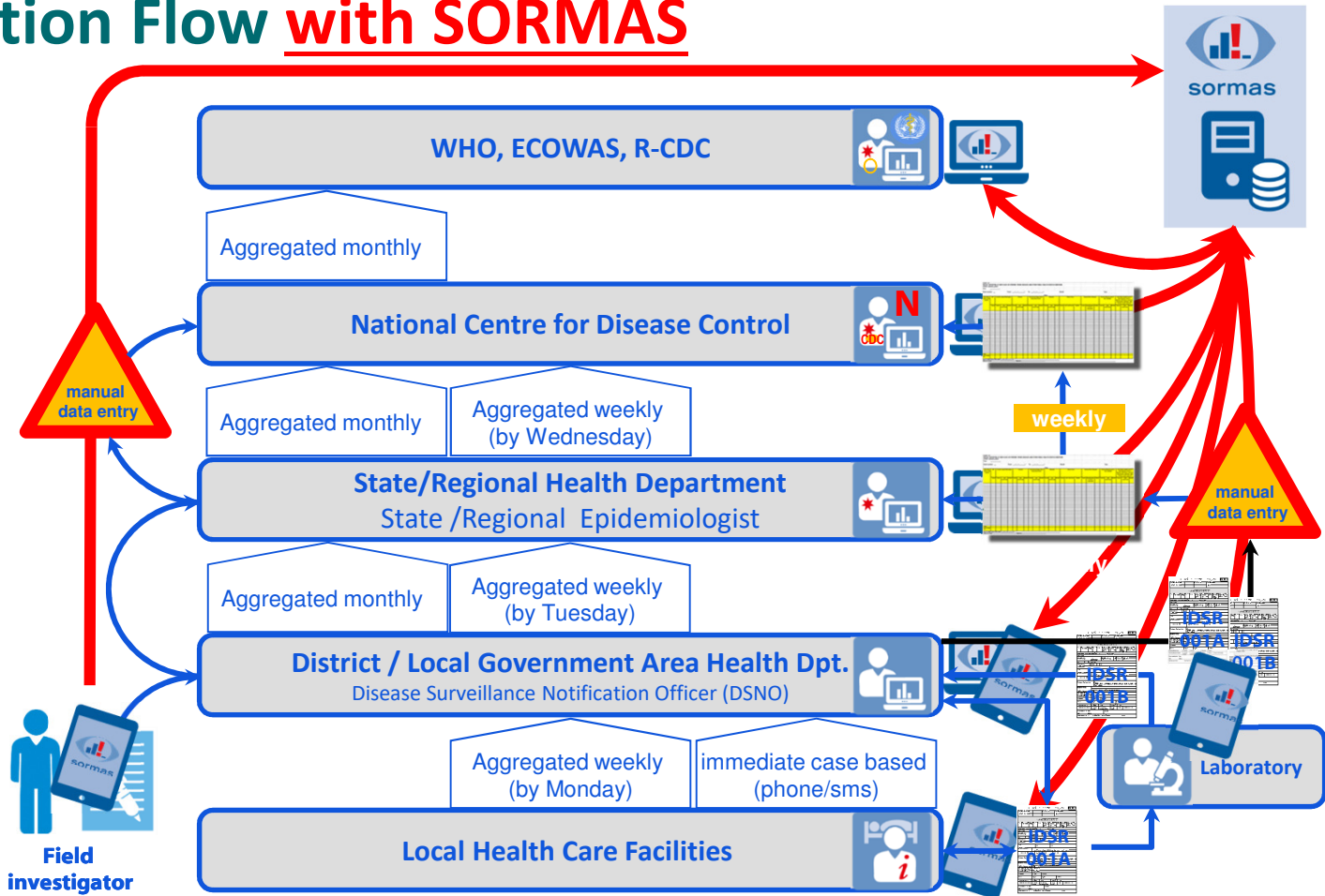


Integrated Disease Surveillance and Response System

Conventional Information Flow



Integrated Disease Surveillance and Response System Information Flow **with SORMAS**



Personas / Users of SORMAS

Detect
notification, screening

Investigate
validation, analysis

Control
treatment, containment



Community Informant
refers suspect cases
in community to hospital
informant



Hospital Informant
Notifies suspect cases



Point of Entry Officer
Notifies suspect cases at
airports, ports and border
crossing



Rumour Officer
State DSNO
Receives calls on events
from general population



Surveillance Officer
LGA-DSNO
Investigates case, identifies
contact persons



Surveillance Supervisor
State epidemiologist
Coordinates surveillance
officers



Laboratory Officer
Documents and reports
laboratory results



National CDC
Incident Command Centre
Assesses risk, coordinates
national response



Supranational Centre
Regional CDC, WAHO, WHO
International coordination



Case Officer
Executes case based control
measures (e.g., isolation)



Case Supervisor
MD, head of isolation facility
Coordinates case based
control measures



Contact Officer
Assistant LGA-DSNO
Conducts follow-up of contact
persons



Contact Supervisor
State epidemiologist
Coordinates follow- up of
contact persons



User-Centered Design














Prototype Development and Acceptability



Culture-Sensitive Design

Please mark the three (3) logos that you like best Comments:

		<input type="radio"/>	_____
		<input type="radio"/>	_____
		<input type="radio"/>	_____
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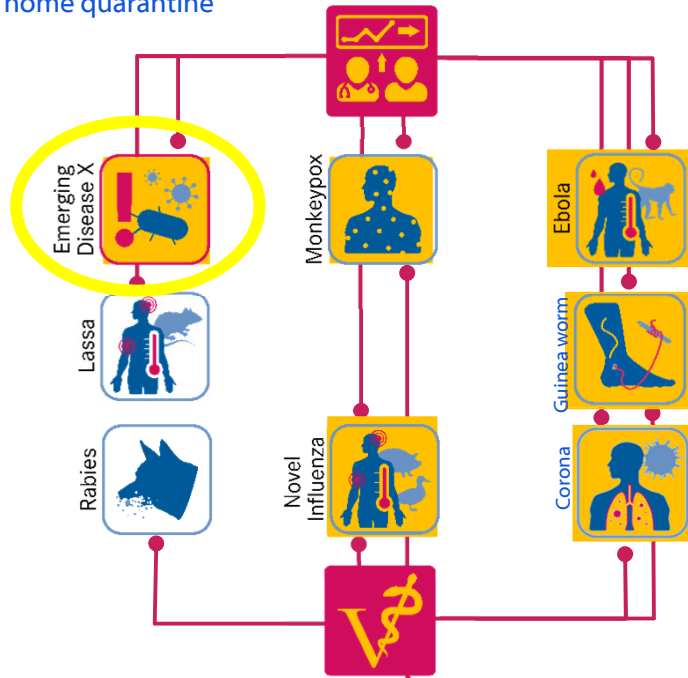
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Process Models for Disease-Specific Control Measures

- 🔍 search of contact persons
- 🔍 symptom monitoring
- 🔍 home quarantine

CONTACT FOLLOW-UP



VETERINARY HEALTH

- 🔍 animal surveillance
- 🔍 veterinary diagnostics
- 🔍 culling

PREVENTIVE TREATMENT

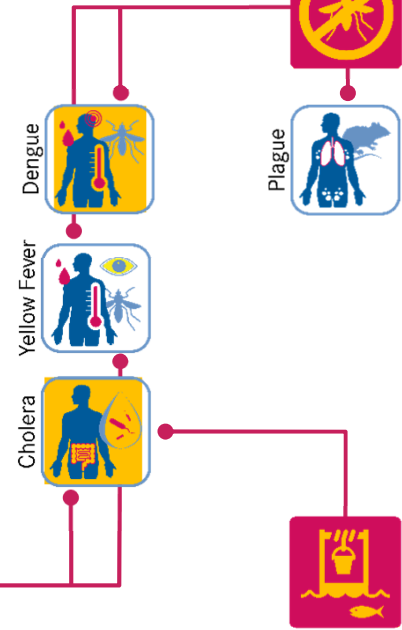


VACCINATION

- 🔍 coverage survey
- 🔍 catch-up vaccination
- 🔍 ring vaccination

- 🔍 search of contact persons
- 🔍 preventive treatment
- 🔍 symptom monitoring

VECTOR CONTROL



ENVIRONMENTAL SANITATION

- 🔍 environmental samples
- 🔍 alternative supply
- 🔍 access control or recall

- 🔍 vector traps
- 🔍 treatment of breeding sites
- 🔍 residential spraying



Coronavirus Module (mobile offline/ web online)

The image displays the SORMAS Coronavirus Module interface, which is accessible both online via a desktop browser and offline via a mobile emulator.

Desktop View (Case Information):

- Navigation:** Dashboard, Tasks, Cases, mSERS, Contacts, Events, Samples, Reports, Statistics, Users, Configuration, About.
- Case Information Form:**
 - Case ID:** VKFSOU-RFKNEG-RU42RR-SYP2LEI
 - DATE OF REPORT:** 15/01/2020
 - REPORTING USER:** ad MIN - Admin, National User
 - CASE CLASSIFICATION:** NOT YET CLASSIFIED, SUSPECT CASE, PROBABLE CASE, CONFIRMED CASE, NOT A CASE.
 - DATE OF CLASSIFICATION:** 20/01/2020
 - INVESTIGATION STATUS:** INVESTIGATION PENDING, INVESTIGATION DONE, INVESTIGATION DISCARDED.
 - EPID NUMBER:** NIE-ABS-EZA-20-004
 - DISEASE:** Coronavirus (CoV)
 - OUTCOME OF CASE:** NO OUTCOME YET, DECEASED, RECOVERED, UNKNOWN.
 - SEQUELAE:** YES, NO, UNKNOWN.
 - CASE ORIGIN:** In-Country
 - STATE:** Abia
 - LGA:** Aba North
 - WARD:** Asa-Okpular Ward
 - HEALTH FACILITY:** Asa-Okpular II Health Centre
 - RESPONSIBLE SURVEILLANCE OFFICER:** Sanaa OBASANJO - Surveillance Officer
 - NAME OF RESPONSIBLE CLINICIAN:**
 - PHONE NUMBER OF RESPONSIBLE CLINICIAN:**
 - EMAIL ADDRESS OF RESPONSIBLE CLINICIAN:**
 - Reception dates of paper form:** DATE RECEIVED AT LGA LEVEL (15/01/2020), DATE RECEIVED AT STATE LEVEL, DATE RECEIVED AT NATION.

Mobile View 1 (Read Sample):

- Navigation:** Read Sample, Edit Pathogen Test.
- EDIT PATHOGEN TEST:**
 - TYPE OF TEST:** PCR / RT-PCR
 - SPECIFY TEST DETAILS:** Specify test details
 - TESTED DISEASE:** Coronavirus (CoV)
 - DATE AND TIME OF RESULT:** 28/01/20
 - LABORATORY:** ISTH - Irrua Specialist Teach
 - TEST RESULT:** Negative

Mobile View 2 (Read Sample):

- Navigation:** Read Sample.
- SAMPLE INFORMATION:** SHIPPED
- CORRESPONDING PERSON:** Virgil WEDNESDAY
- DISEASE:** Coronavirus (CoV)
- DATE SAMPLE WAS COLLECTED:** 28/01/2020 00:00
- PURPOSE:** External lab testing
- TYPE OF SAMPLE:** Endotracheal aspirate
- LABORATORY:** LUTH - Lagos University Teaching Hospital
- FINAL LABORATORY RESULT:** Not answered
- COMMENT:** Not answered
- SENT/DISPACHED:** 28/01/20 (Status: Success)
- RECEIVED:** No (Status: Failure)



SORMAS Analytics

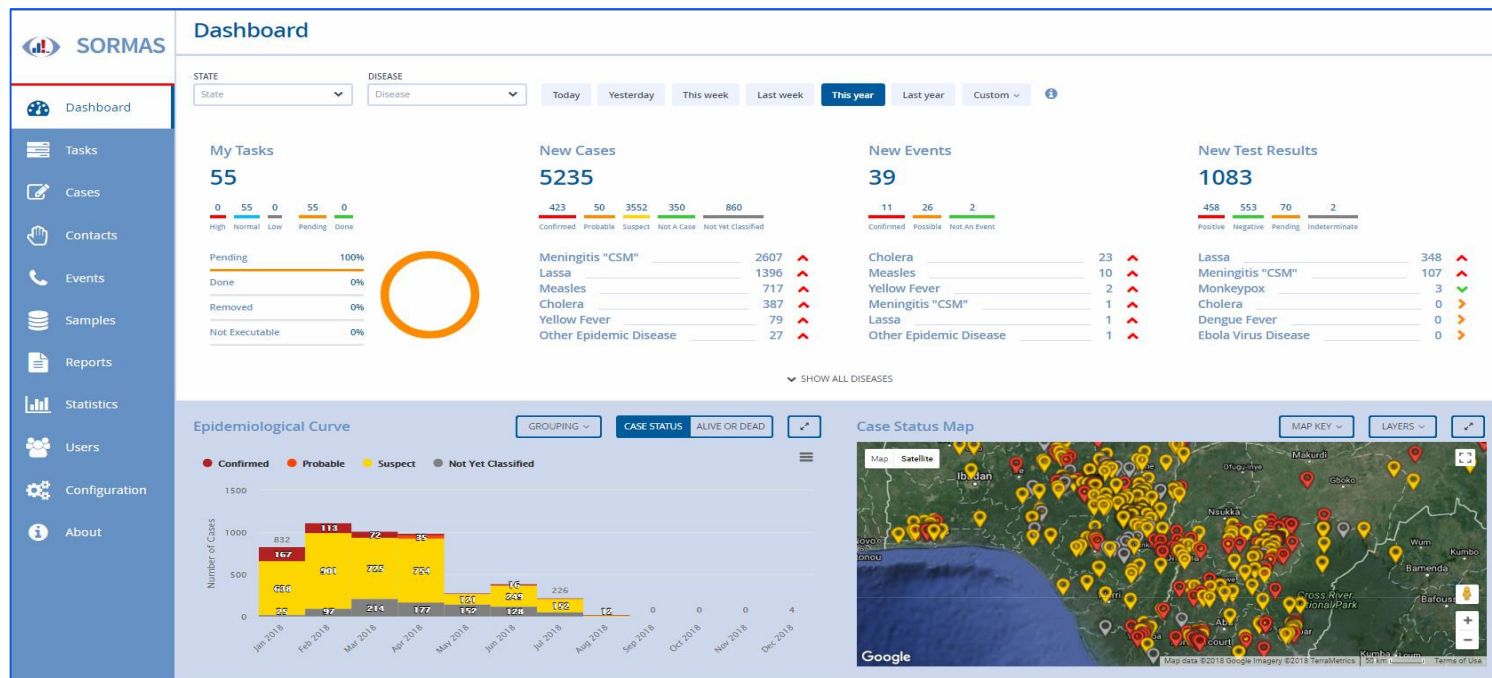
The screenshot displays the SORMAS Analytics interface. On the left is a vertical navigation menu with the following items: Dashboard, Tasks, Cases, mSERS, Contacts, Events, Samples, Reports, Statistics (highlighted), Configuration, About, and Settings. The main content area is titled "Statistics" and contains several sections:

- STATISTICS**: A header section.
- Filters**: A section with the text "Add filters to restrict the aggregated data. If you use multiple filters, only cases that pass all restrictions will be aggregated." Below this text are two buttons: "+ ADD FILTER" and "RESET FILTERS".
- Visualization**: A section with three sub-sections: "TYPE" (containing buttons for TABLE, MAP, and CHART), "ROWS" (containing a dropdown menu set to "Don't group rows"), and "COLUMNS" (containing a dropdown menu set to "Don't group columns").
- Options**: A section with the sub-section "DATA DISPLAYED" containing two buttons: "CASE COUNT" and "CASE INCIDENCE", followed by a checkbox labeled "Show zero values" which is currently unchecked.
- GENERATE**: A prominent blue button.
- Results**: A section with the text "Click the 'Generate' button to create a new table, map or chart."

At the bottom of the main content area, there is an information icon followed by the text: "All statistics on this page are aggregated data of the whole country. This includes cases you might not have read and write access to and therefore are not visible in the case directory."



SORMAS National Dashboard on Lassa Fever

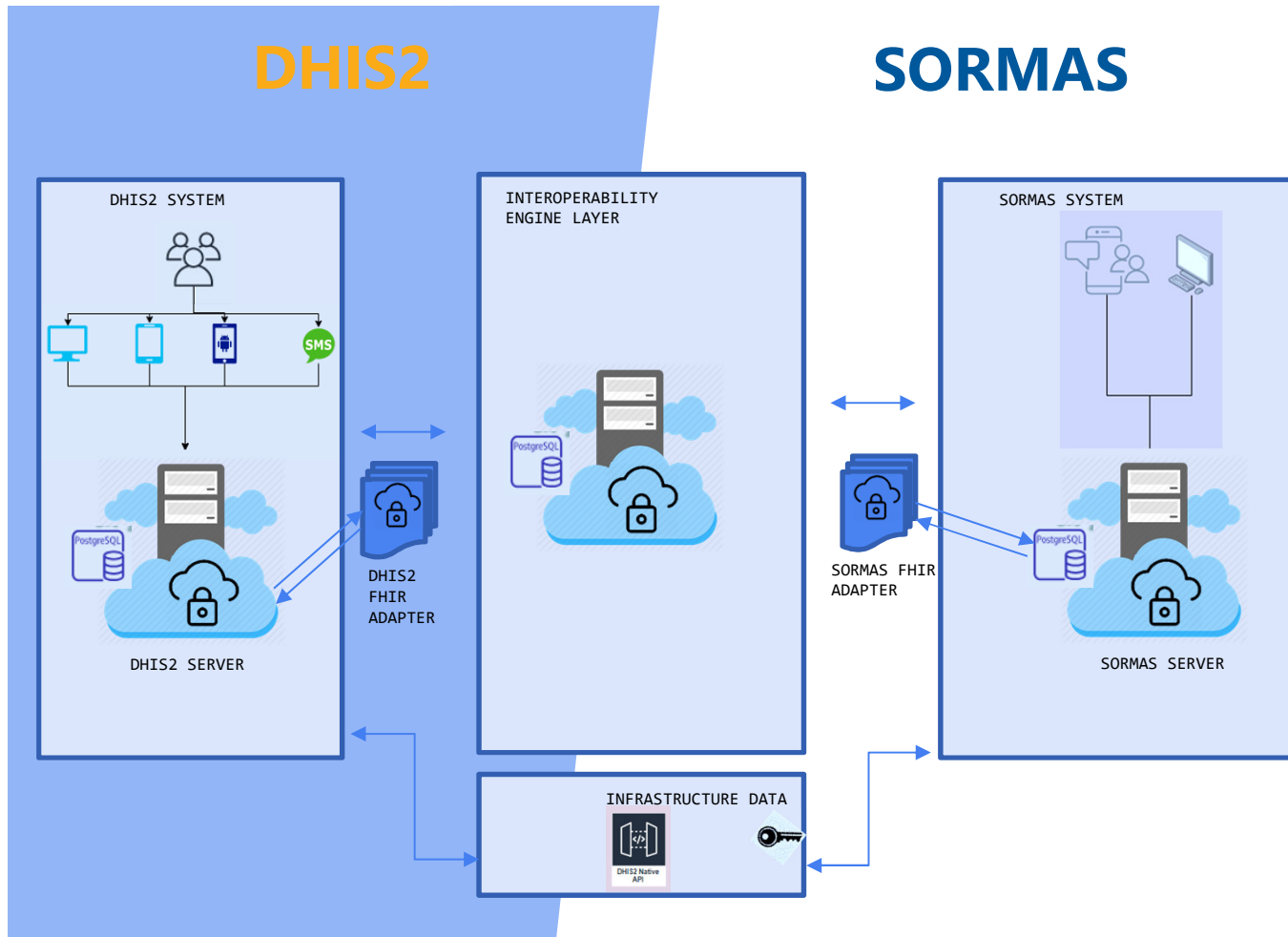


SORMAS dashboard on Lassa fever 2018 at incident command center of the Nigerian Center for Disease Control



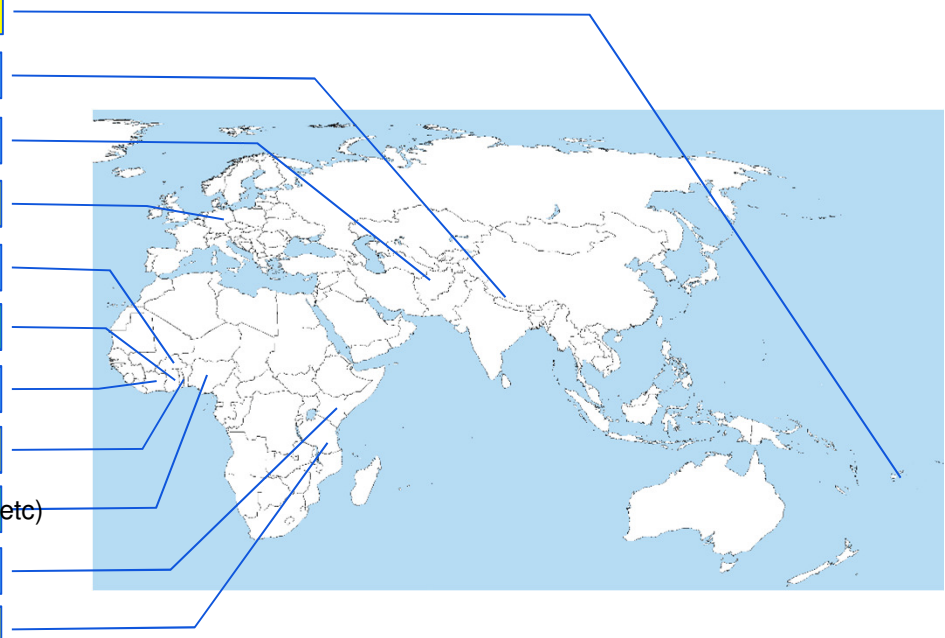
DHIS2

SORMAS



Countries expected to Use SORMAS by End of 2020 (or doing so already)

- Fiji**
- Nepal**, start May 2020 (CORESMA, EU Horizon 2020)
- Afghanistan**, start 2020, (only Polio vaccine) (US-CDC)
- Germany**, start March 2020, (only COVID contact tracing)
- Burkina Faso**, start 2020 (BMBF & CFR)
- Ghana**, since 2019 (BMBF & EU via GIZ)
- Ivory Coast**, start May 2020 (CORESMA, EU Horizon 2020)
- Togo** (BMBF & EU)
- Nigeria**, since 2017 (World Bank, BMBF, BMZ, GIZ, EU, B&MGF, US-CDC etc)
- Kenya**, planned 2020 (B&MGF via digital square)
- Tanzania** (PANDORA-ID-NET)



Use and funding ongoing
Funding promised or in negotiations
Funding announced



Acknowledgements to all Partners, Sponsors, Advisors and Contractors

Partners

African Field Epidemiology Network (AFENET)
 Centers for Disease Control and Prevention (CDC)
 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
 Digital Square
 Ghana Community Network Services Limited (GCNET)
 Ghana Health Service (GHS)
 Helmholtz Center for Infection Research (HZI) [lead]
 Nigerian Centre for Disease Control (NCDC)
 University College London (UCL)
 University of Maryland Baltimore, Nigeria (UMB)

Sponsors

Basic Healthcare Provision Fund Nigeria (BHCF)
 Bill and Melinda Gates Foundation (BMG)
 Centers for Disease Control and Prevention (CDC)
 Centre for Infection Research (DZIF)
 European Union (EU)
 German Federal Ministry for Economic Cooperation and Development (BMZ)
 German Federal Ministry for Education and Research (BMBF)
 Helmholtz Center for Infection Research (HZI)
 Helmholtz Association (HGF)
 WHO-Country Office Nigeria
 World Bank



Advisors

Africa Centers for Disease Control (Africa CDC)
 Centers for Disease Control and Prevention
 DHIS2 Design Lab, University of Oslo
 Hasso Plattner Institute (HPI)
 Kreditanstalt für Wiederaufbau (KfW)
 Robert Koch Institute (RKI)
 University Braunschweig (TU)
 West African Health Organization (WAHO)
 World Health Organization (WHO-HQ)

Contractors

Symeda
 Scigraphix
 Crowcode
 Mirabilia
 Elektro- & Datentechnik

Epi Info™ - Statistical Software for Public Health

José Aponte
Informatics Services Branch
Division of Health Informatics and Surveillance
CSELS



WHAT IS EPI INFO™?



- A suite of free data management, analysis, and visualization tools designed specifically for the public health community
- Features include:
 - Rapid electronic form creation and data entry
 - Statistical analysis
 - Mapping and visualization
- Used extensively throughout CDC, domestically and internationally



EPI INFO™ (circa 1990s)

Programs

- EPED Text editor
- ENTER Data entry
- ANALYSIS Data analysis
- CHECK Entry validation
- STATCALC Epi calculator
- CONVERT Export data
- IMPORT Import data

Resides in:

1. Lycoming
2. Fulton
3. Oswego
4. Pulaski
5. Other

Residence #

III? <Y>_

Food History (Mark Y or N)

- Baked Ham: <Y>
- Spinach: <Y>
- Mashed Potatoes: <Y>
- Cabbage Salad: <Y>
- Jello: <Y>
- Rolls: <Y>
- Brown Bread: <Y>
- Milk: <Y>
- Coffee: <Y>

REC	FIRSTNAME	LASTNAME	Output DATE	Screen AGE	SEX	RESIDENCE	ILL	ONSET	BAKEDHAM
29	LESLIA	WILLIAMS	07/06/92	37	F	.	Y	3	Y
30	JERRY	HEIDEMAN	07/07/92	17	M	1	N	.	N
31	JIM	BOBO	07/06/92	35	M	1	Y	1	Y
32	WILLIAM	COBB	07/06/92	15	M	1	Y	3	N
33	MATHEW	HEINEZ	07/07/92	50	F	1	Y	3	N
34	DAVID	NITCHELL	07/07/92	40	M	3	N	.	Y
35	QUALITY	TATE	07/06/92	35	F	1	N	.	Y
36	DEBBIE	WARE	07/06/92	35	F	2	Y	1	Y
37	BILL	JACKSON	07/06/92	36	M	1	N	.	Y
38	ANN	HIGH	07/06/92	57	F	1	Y	4	Y
39	BARLENE	KIDD	07/07/92	16	F	1	Y	3	N
40	JAMES	DOCK	07/07/92	60	M	.	Y	3	Y
41	CHRISTINE	HEITZ	07/07/92	54	F	5	N	.	Y
42	DOUG	MARTIN	07/06/92	77	M	4	Y	7	N

Single Table Analysis

Confidence limits for OR 5.07* < OR < 125.19*

*May be inaccurate

(ILL=+) for (VANILLA=+) 5.57

95% conf. limits for RR 1.94 < RR < 16.03



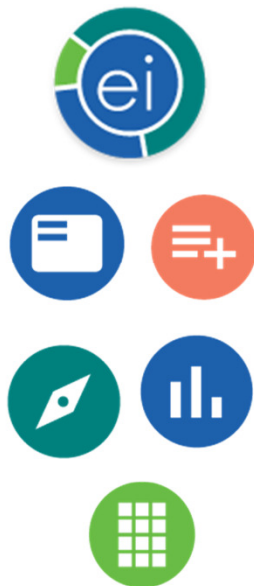
EPI INFO™ TODAY

- Public Health Impact - 2019
 - Directly supported 25+ public health conditions (from AIDS to Zika)
 - Responded to 18 training requests
 - Supported 42 domestic projects
 - Supported 14 CDC Centers and 18 State, Tribal, Local, or Territorial Jurisdictions (STLTs)



EPI INFO™ ECOSYSTEM

Epi Info For Windows



Epi Info Desktop

Epi Info for Web & Cloud



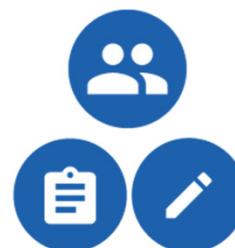
Cloud Analytics



Epi Info Web Survey



Cloud Analytics Lite



Cloud Data Capture

Epi Info for Mobile



Android Companion



iOS Companion





EPI INFO™ FOR WINDOWS

- Lightweight application that enables rapid data collection and analysis from your PC
- Ideal for small to medium size surveillance and response activities and special epidemiologic studies
- Download from <https://www.cdc.gov/epiinfo/pc.html>
- No admin rights required to download or install



EPI INFO™ FOR WINDOWS

Map - (4009017 85384869, -9773843.9)

Enter - [Legionellosis(CaseReport)]

File Edit View Tools Help

Open Form Save Print Find New Record 4 of 40 Delete Undo Line Listing Dashboard Map Edit Form Help

Pages

- CaseReport
- Page 1
- Page 2
- Page 3

Page 1

LEGIONELLOSIS CASE REPORT
(DISEASE CAUSED BY ANY LEGIONELLA SPECIES)

Patient Information

State Health Dept. Case No. Reporting State Case Number (CDC Use Only)

County of Residence State of Residence Occupation

Date of Birth Age Age Type Sex Ethnicity

Race

Possible Sources of Exposure
IN THE TWO WEEKS BEFORE ONSET, DID PATIENT:

Travel or stay overnight somewhere other than usual residence?
 If yes, give cities and lodging where available

City: Lodging:

City: Lodging:

City: Lodging:

* For suspected travel related cases, please contact CDC or pertinent state health departments immediately.

Have dental work? If Yes, name of dental office:

[Name:StateCaseID] [Type:Text] 7240 CAPS NUM

Min: 1 (13233)
Max: 1180 (13129)

Map Legend

- Missing / Excluded
- Less than 2
- 2 to 4
- 4 to 40
- 40 and above

POWERED BY esri





EPI INFO™ FOR WEB & CLOUD

- Web-based and cloud-optimized components for data collection, analysis and visualization
 - Web Survey
 - Cloud Data Capture
- Ideal for large-scale surveillance and response activities in locations with reliable network connectivity
- CDC-hosted environment is already live and being used extensively by the foodborne program



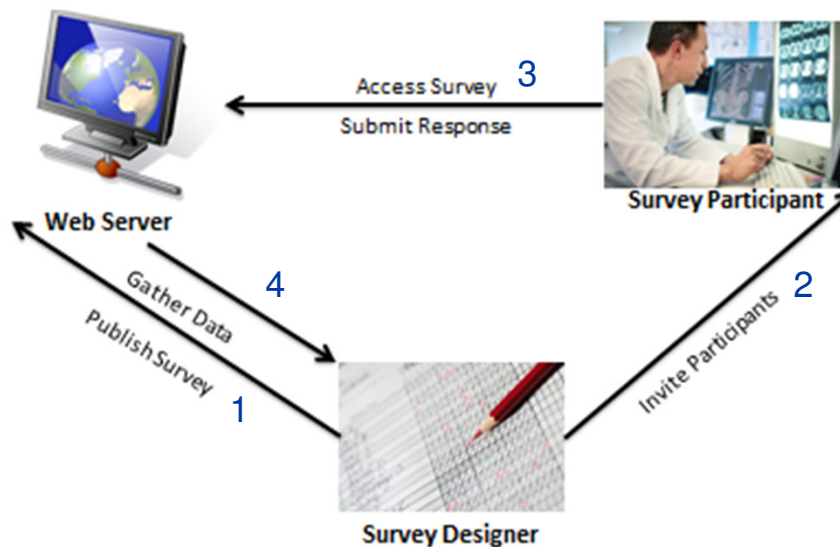


EPI INFO™ WEB SURVEY

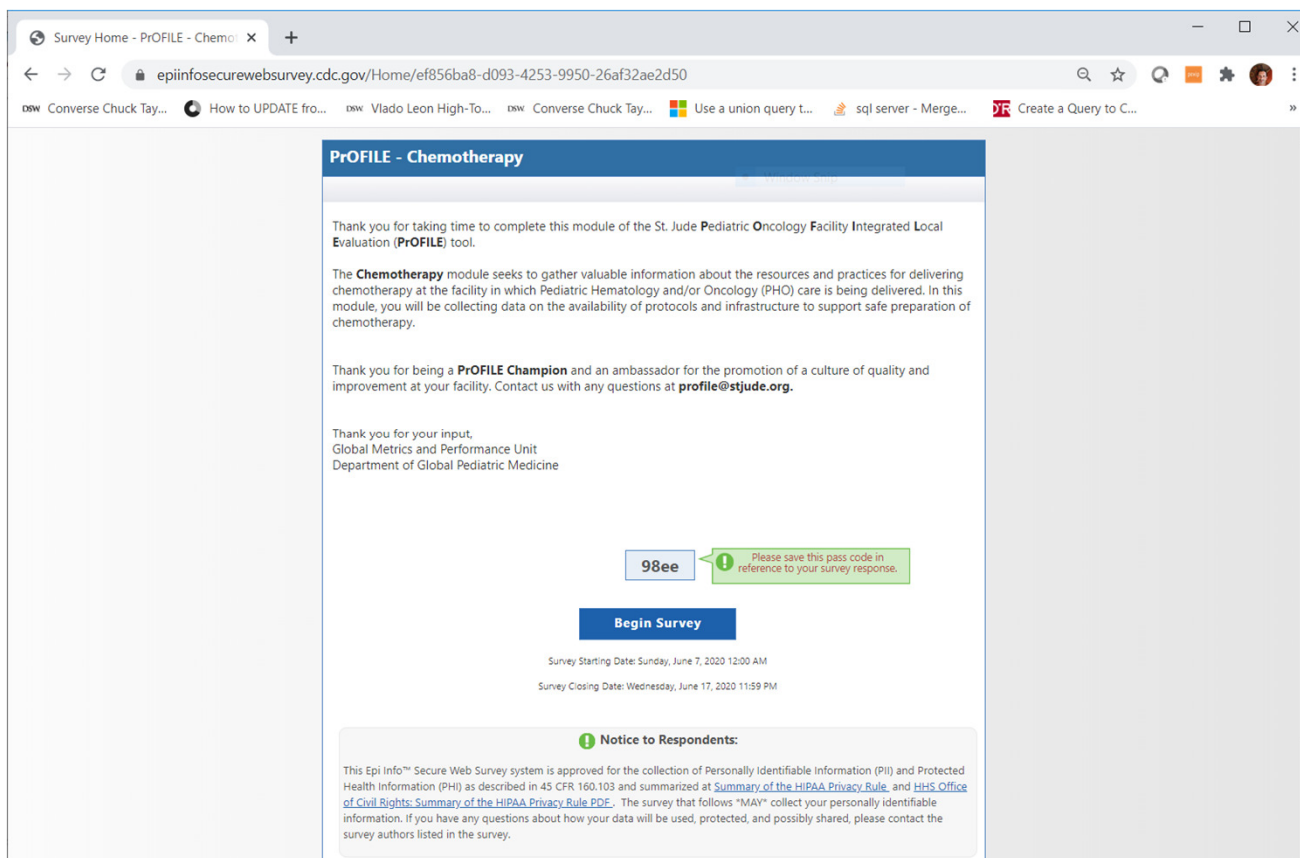
- Enable Epi Info™ forms on web
- Faster deployment of Epi Info™ forms and faster data collection
- Collect data from participants geographically dispersed
- Allow access to forms on web using variety of electronic modes
- Participants to provide data without administrators involvement
- Centralized data management of all the surveys for an organization



EPI INFO™ WEB SURVEY – How does it work?



EPI INFO™ WEB SURVEY



The screenshot shows a web browser window with the URL `epiinfosecurewebsurvey.cdc.gov/Home/ef856ba8-d093-4253-9950-26af32ae2d50`. The page title is "ProFILE - Chemotherapy". The main content area contains the following text:

Thank you for taking time to complete this module of the St. Jude Pediatric Oncology Facility Integrated Local Evaluation (ProFILE) tool.

The **Chemotherapy** module seeks to gather valuable information about the resources and practices for delivering chemotherapy at the facility in which Pediatric Hematology and/or Oncology (PHO) care is being delivered. In this module, you will be collecting data on the availability of protocols and infrastructure to support safe preparation of chemotherapy.

Thank you for being a **ProFILE Champion** and an ambassador for the promotion of a culture of quality and improvement at your facility. Contact us with any questions at profile@stjude.org.

Thank you for your input,
Global Metrics and Performance Unit
Department of Global Pediatric Medicine

A pass code box displays "98ee" with a green callout bubble that says "Please save this pass code in reference to your survey response." Below this is a blue "Begin Survey" button.

Survey Starting Date: Sunday, June 7, 2020 12:00 AM
Survey Closing Date: Wednesday, June 17, 2020 11:59 PM

Notice to Respondents:

This Epi Info™ Secure Web Survey system is approved for the collection of Personally Identifiable Information (PII) and Protected Health Information (PHI) as described in 45 CFR 160.103 and summarized at [Summary of the HIPAA Privacy Rule](#) and [HHS Office of Civil Rights: Summary of the HIPAA Privacy Rule PDF](#). The survey that follows "MAY" collect your personally identifiable information. If you have any questions about how your data will be used, protected, and possibly shared, please contact the survey authors listed in the survey.



EPI INFO™ WEB SURVEY

Survey

epiinfosecurewebsurvey.cdc.gov/Survey/cc880ad4-ac17-4abd-bdf7-db23cc628640/5

Converse Chuck Tay... How to UPDATE fro... Vlado Leon High-To... Converse Chuck Tay... Use a union query t... sql server - Merge... Create a Query to C...

1 2 3 4 5 6 7 8 9 10 11

Exit Survey

Treatment Practices: Curative Treatment Protocols

6. PHO protocols or guidelines for treatment with curative intent at my facility contain:

a. Details for risk group stratification	Almost Always	5
b. Flow sheets (chemotherapy road maps)	Almost Always	5
c. List of possible toxicities	Frequently	3
d. Suggestions for dose modifications	Sometimes	1
e. Suggestions for management of toxicity	Frequently	3
f. Suggestions for follow up after completion of treatment	Frequently	3

7. Regarding the treatment plan for each patient, tell us how frequently the following statements are true at your facility:

a. A clear treatment plan is developed for each patient	Almost Always	5
b. The protocol name or number to be followed is clearly documented in the patient's medical chart	Almost Always	5
c. The protocol schema (timeline) is clearly documented in the patient's medical chart	Frequently	3
d. The treatment plan is kept up to date if a change in therapy occurs	Infrequently	0

Curative Treatment Protocols Practices Subtotal 40

Previous Finish Later Continue





EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

- Companion to the Epi Info™ 7 suite of tools
- Allows the survey designer to collect information from authorized users over the internet
- Meets a different business need than Epi Info™ Web Survey tool



EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

- Epi Info version upgrades – IT dependency
- Only authorized person should be able to edit form design
- Only authorized users should be entering data
- Only members of organization should be able to access data
- Data should be secure behind firewall
- Data should be available instantaneously
- Data consolidation should not involve import/export files



EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

- Authentication and authorization
- Organization and user management
- Multi-user data entry environment
- Only authorized users enter data in the system
- Concurrency management at time of data entry
- Option to sort and search data
- Data maintained in secure database server behind firewall
- Data collection form can be designed using Epi Info 7
- Enterprise implementation using SQL Server



EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

Epi Info™ Cloud Data Capture

Log In

Welcome to Epi Info™ Cloud Data Capture!

The Epi Info™ Cloud Data Capture System is a data collection tool for public health professionals.

- Collect data for variety of public health events.
- Manage the data on the web using your PC or mobile devices.

Log In

Email:

Password:

Log In

[Forgot Password?](#)

Terms of service and conditions of use

EPIINFO SURVEY TOOL WEBSITE AND SERVICE
TERMS OF USE



EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

The screenshot shows the Epi Info™ Cloud Data Capture web application interface. The browser address bar displays the URL: <https://epiinfowebssurveytest.cdc.gov/Home/98eed9fb-53a3-4d68-880e-e5d2e54164e9/7>. The application header includes the Epi Info™ logo and the text "Epi Info™ Cloud Data Capture". Below the header, the user is logged in as "Jose Aponte" and has access to "Site Administration" and "Log Out" options.

The main content area is titled "PUICaseReport" and features a "Settings" button. A "Add New Record" button is also present. The data is displayed in a table with the following structure:

PatientLastName	ContactID
Dominguez	3456

The left sidebar contains a list of forms, including "eCigStudy", "NovelCoronaVirusV5", "FoodborneComplaintFV1", "VermontForm", "CareIntake", and "PUICaseReport". The "PUICaseReport" form is highlighted with a yellow border. Below the list, there are filters for "My Forms", "Forms Assigned to Me", "Forms Shared with Me", "Forms in Final", and "Forms in Draft".

The footer of the application includes the text "Powered by: V 1.1.0.0" and the CDC logo.



EPI INFO™ FOR WEB – CLOUD DATA CAPTURE

The screenshot displays the Epi Info™ Cloud Data Capture web application interface. The browser address bar shows the URL <https://epiinfowebsurveytes>. The page title is "Epi Info™ Cloud Data Capture". Below the title, there is a navigation bar with tabs labeled 1, 2, 3, 4, and 5, and buttons for "Save & Close" and "Exit".

The main content area is titled "PUI Case Report" and "Infección Humana con Coronavirus 2019 Persona Bajo investigación (PUI) Hoja de Caso". A warning box states: "LA INFORMACIÓN DEL IDENTIFICADOR DEL PACIENTE NO SE TRANSMITE A LOS CDC".

The form includes the following fields:

- Nombre del paciente: Jose
- Apellido del paciente: Dominguez
- Jurisdicción informante: Mayaguez
- ID Local/Dept. del caso: [Empty]
- Jurisdicción de salud informante: Puerto Rico
- CDC 2019-nCoV ID: PR9897
- ID Contacto: 3456
- NNDSS loc. rec. ID/Case ID by: [Empty]

Additional information includes:

- Nombre del entrevistador: Apellido: Rivera, Primer: Mario
- Afiliación / Organización: Departamento de Salud
- Teléfono: [Empty]
- Correo electrónico: [Empty]

Demographic and clinical information:

- ¿Cuál es el estado actual de esta persona? (Radio buttons):
 - Pruebas pendientes *
 - Prueba negativa *
 - Caso presuntivo (prueba local positiva) prueba confirmatoria pendiente +
 - Caso presuntivo (prueba local positiva) confirmatorio probado negativo +
 - Caso confirmado por laboratorio
- Etnicidad (Radio buttons):
 - Hispano/Latino
 - No-Hispano
 - No especificado
- Raza (seleccione todos los que apliquen) (Checkboxes):
 - Caucasos
 - Nativo Hawaiano/Isleño del Pacífico
 - Moreno
 - Indio Americano/Nativo Alaska
 - Asiático
 - Otro
 - Desconocido
- especifique: [Empty]
- Sexo (Radio buttons):
 - Masculino
 - Femenino
 - Desconocido
 - Otro
- Fecha de nacimiento: Edad: [Empty] Unidad (años/mes/días): Select
- Síntomas presentes durante: Si sintomático (Radio buttons):
 - Síntomático
 - No sintomático
- Fecha inicio enfermedad: 6/1/2020

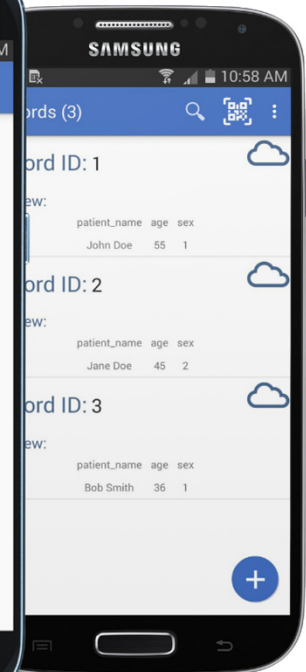
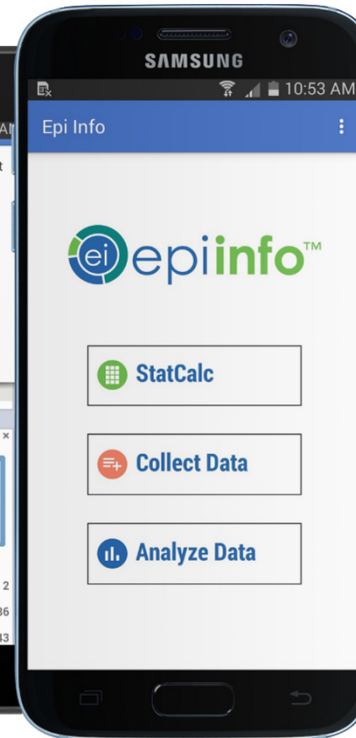
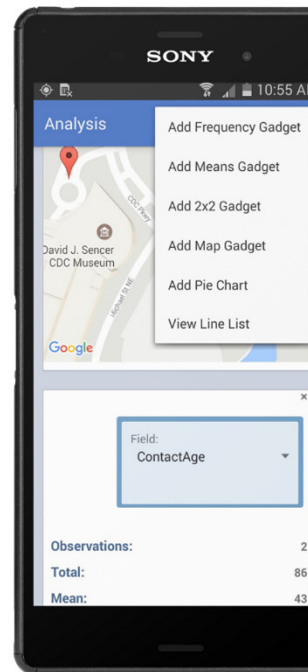
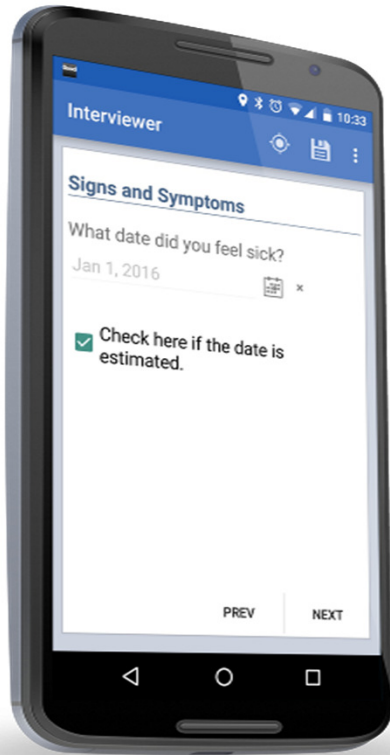


EPI INFO™ FOR MOBILE

- Appropriate for distributed data collection in locations lacking IT infrastructure
- Load forms on to multiple devices as email attachments
- Collect and store data within the mobile device and copy them back to Epi Info™ for Windows using sync files
- Automatically sync data to cloud services such as Box or to CDC's secure SFTP site
- Supports relational forms and most Epi Info Windows form logic



EPI INFO™ FOR MOBILE



Epi Info™ Team Functions

- The Epi Info Team supports three editions of Epi Info™ software:
 - Epi Info™ for Windows
 - Epi Info™ for Mobile
 - Epi Info™ for Web & Cloud
- And provides other services such as:
 - Training and support in multiple languages
 - Build custom solutions for CDC programs



COLLABORATIONS OVERVIEW

- COVID-19 - Domestically
 - West Virginia
 - Reporting of COVID-19 testing for Long Term Care and Assisted Living facilities
 - Nebraska
 - Traveler's history surveys
 - Puerto Rico & Guam
 - Contact Tracing
 - COPA



COLLABORATIONS OVERVIEW

- E-cigarette outbreak (DDNID/NCCDPHP)
- COPA (NCEZID) – Puerto Rico
- Child anthropometry (ONDIEH/NCCDPHP) - Guatemala
- Economic evaluation project (NCIRD/DBD) - Zimbabwe
- Seroprevalence and Risk Factors for Leptospirosis (NCEZID) - USVI
- Micronutrient Household and Biomarker Study (MRMHHS) - Tanzania
- Community Assessment for Public Health Emergency Response (CASPER)
- Opioids – Grady Health / New England High Intensity Drug Trafficking Area
- St. Jude’s Research Children's Hospital - Pediatric Oncology Facility Evaluation





James A. Fuller, PhD, MSPH

Epidemiologist (Contractor)
GDD Operations Center, CGH

kux9@cdc.gov
godata@who.int



Go.Data – project goal



- ▶ Design, develop and deploy comprehensive Go.Data software to be used globally by WHO, Member states and Partners to:

Support and facilitate outbreak investigation including field data collection, contact tracing and visualization of chains of transmission.



Go.Data - In 30 seconds



- ▶ **Collaborative** project coordinated by WHO and conducted in cooperation with GOARN partners.
- ▶ Building on previous **WHO and partners experience** in design, development and rollout of the **field data collection** tools.
- ▶ Focus on **individual-level data: case** (*including lab, hospitalization and other variables through case investigation form*) and **contact** data (*including contact follow-up*).



Key features 1



- ▶ Different types of operation (online, offline / server, standalone) on multiple platforms (Windows, Linux, Mac).
- ▶ Multi-lingual support, with possibility to add additional languages.
- ▶ Granular user roles and permissions.
- ▶ Library of APIs for integration with other systems.
- ▶ Free for use.



Outbreak templates > Generic acute respiratory diseases > Case investigation

Selected outbreak: [Active] TEPHINET Die Language: 中文

Question	Answer type	Variable	Category	Answers display	Inactive?	Required?	Multi answer
A 数据收集者信息	Markup	-	重要基本信息	-	No	-	-
Q1 A1 数据收集者姓名	Freetext	e_1_name_of_data_co...	重要基本信息	Vertical	No	No	No
Q2 A2 数据收集者电话号码	Numeric	e_2_data_collector_tel...	重要基本信息	Vertical	No	No	No
Q3 A3 数据收集者单位	Freetext	e_3_data_collector_in...	重要基本信息	Vertical	No	No	No
Q4 A4 表格完成日期 (dd/mm/yyyy)	Date/Time	e_4_form_completion_...	重要基本信息	Vertical	No	No	No
B 受访者信息 (非患者)	Markup	-	重要基本信息	-	No	-	-
Q5 B 受访者是否患者?	Single answer	b_is_the_interview_res...	重要基本信息	Vertical	No	No	No
C 患者标识信息	Markup	-	重要基本信息	-	No	-	-
Q6 C9 唯一病例ID (如适用)	Freetext	c_9_unique_case_id_c...	重要基本信息	Vertical	No	No	No
Q7 C10 病例状态 (确诊、疑似、曾观或其他)	Single answer	c_10_case_status	重要基本信息	Vertical	No	No	No
Q8 C11 姓	Freetext	c_11_patients_family_...	重要基本信息	Vertical	No	No	No
Q9 C12 名	Freetext	c_12_patient_given_n...	重要基本信息	Vertical	No	No	No
Q10 C13 居住地所在国家	Freetext	c_13_patients_country...	重要基本信息	Vertical	No	No	No
Q11 C14 性别	Single answer	c_14_patients_sex	重要基本信息	Vertical	No	No	No
Q12 C15 出生日期 (dd/mm/yyyy)	Date/Time	c_15_patients_date_of...	重要基本信息	Vertical	No	No	No
Q13 C16 年龄 (年、月)	Freetext	c_16_patients_age_ye...	重要基本信息	Vertical	No	No	No
Q14 C17 住址 (省/自治区、区/县、村/镇)	Freetext	c_17_patients_addres...	重要基本信息	Vertical	No	No	No
Q15 C18 患者电话号码	Numeric	c_18_patients_telepho...	重要基本信息	Vertical	No	No	No
D 患者临床病程	Markup	-	临床信息	-	No	-	-

Key features 2

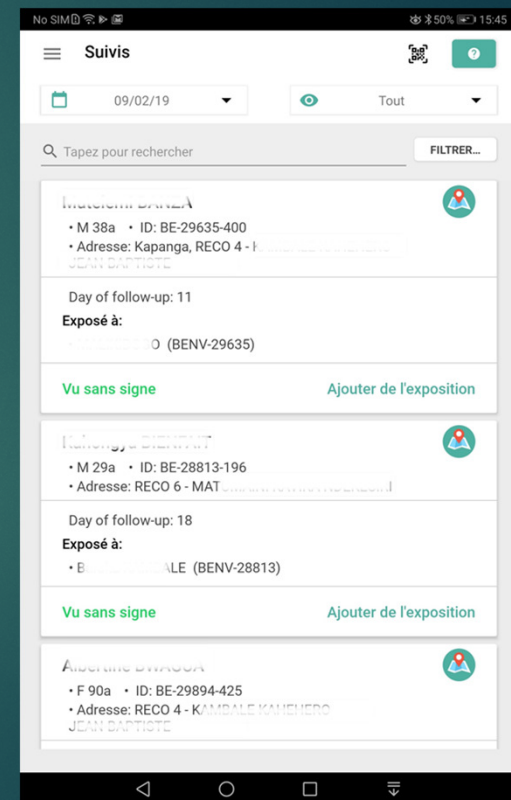


- ▶ One Go.Data installation can be used to collect data for many outbreaks.
- ▶ Highly configurable, with configurable reference data, location data and data variables.
- ▶ Outbreak templates for easier creation of data collection forms.
- ▶ Extensive data import and export features.
- ▶ Generates contact follow-up list.
- ▶ Data encryption on server/PC and mobile app

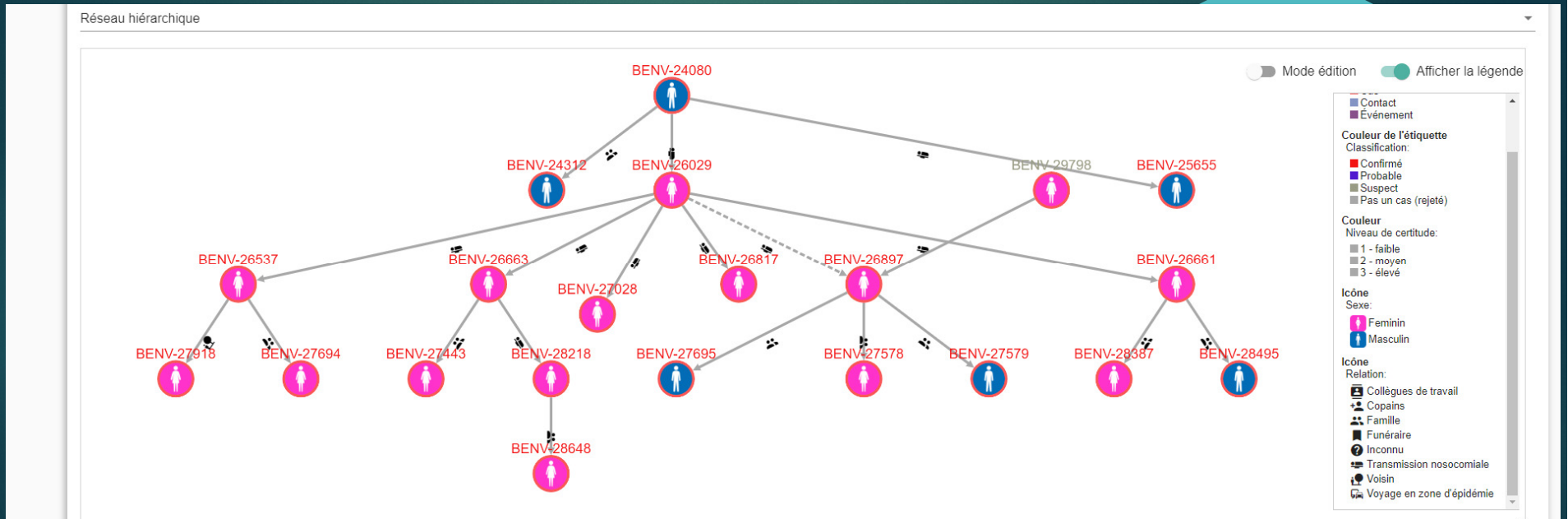


Key features 3

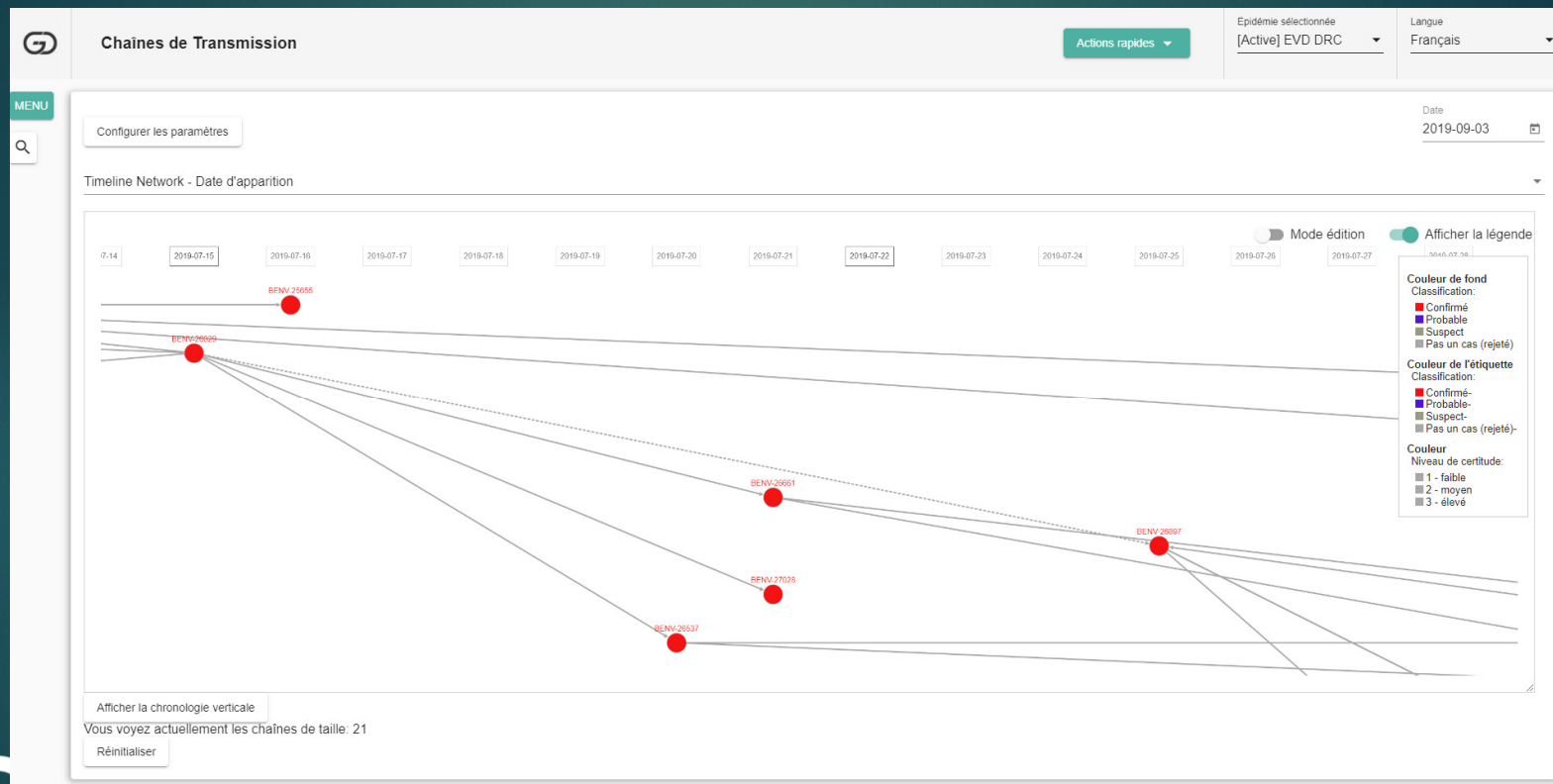
- ▶ Has optional mobile app (Android and iOS) focused on contact tracing.
- ▶ Provides features to visualize chains of transmission using timelines, integrated data bars, network graphs.



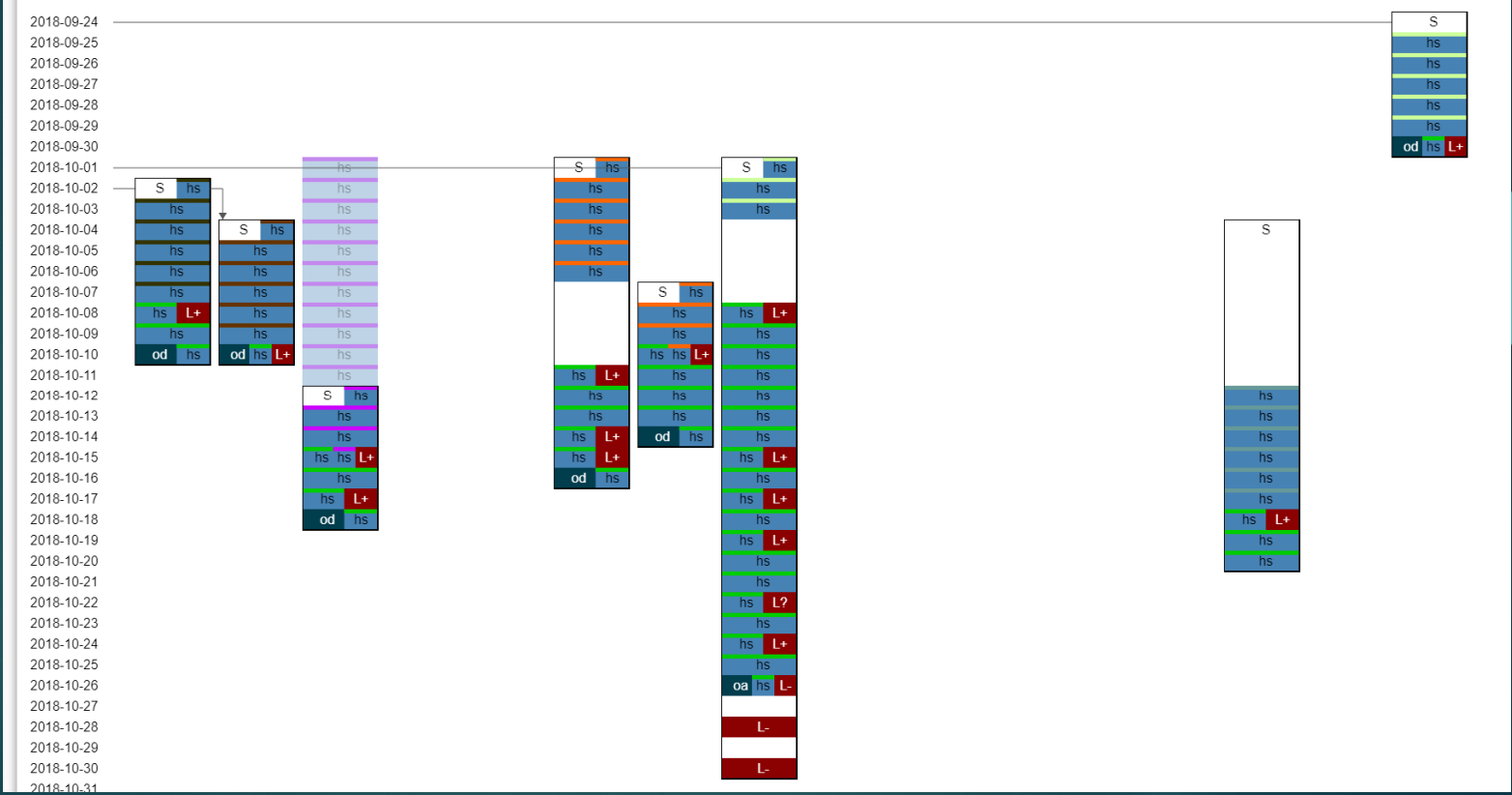
Chains of Transmission



Chains of Transmission



Case Timelines



Contact Follow-Up



2019-08-25 2019-09-09

2019-08-23 2019-08-08

MENU

● Seen no signs
 ● Seen with signs
 ● Not seen
 ● Not performed

Refresh

Name	Area	Date of last contact	Date of the end of the follow-up	2019-08-01	2019-08-02	2019-08-03	2019-08-04	2019-08-05	2019-08-06	2019-08-07	2019-08-08
29737-399	RECO 3 - KAKULE KISA...	2019-08-21	2019-09-11	Green	Green	Green	Green	Green	Green	Green	Green
29923-475	RECO 7 - KAKULE KALU...	2019-08-24	2019-09-14	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BE-29923-474	RECO 7 - KAKULE KALU...	2019-08-24	2019-09-14	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue
U (BE-29525-387	RECO 3 - KAVIRA KANY...	2019-08-21	2019-09-11	Green	Green	Green	Green	Green	Green	Green	Green
KA (BE-29504-280	RECO 4 - MUHINDO KA...	2019-08-20	2019-09-10	Green	Green	Green	Green	Green	Green	Green	Green
BE-29635-580	RECO 2 - KAHINDO KAT...	2019-08-22	2019-09-12	Green	Green	Green	Green	Green	Green	Green	Green
BE-29894-443	RECO 4 - KAMBALE KA...	2019-08-23	2019-09-13	Green	Green	Green	Green	Green	Green	Green	Green
BE-29894-433	RECO 4 - KAMBALE KA...	2019-08-23	2019-09-13	Green	Green	Green	Green	Green	Green	Green	Green
VA (BE-29894-444	RECO 4 - KAMBALE KA...	2019-08-23	2019-09-13	Green	Green	Green	Red	Green	Green	Green	Green
E (BE-30118-555	RECO 2 - KAMBALE NG...	2019-08-24	2019-09-14	Green	Green	Green	Green	Green	Green	Green	Green
29635-584	RECO 2 - KAHINDO KAT...	2019-08-22	2019-09-12	Green	Green	Green	Green	Green	Green	Green	Green
UA (BE-29894-425	RECO 4 - KAMBALE KA...	2019-08-23	2019-09-13	Green	Green	Green	Green	Green	Green	Green	Green
E-29525-342	RECO 1 - KAHINDO MU...	2019-08-21	2019-09-11	Green	Green	Green	Green	Green	Green	Green	Green
E (BE-30118-537	RECO 1 - KAHINDO MB...	2019-08-24	2019-09-14	Green	Green	Green	Green	Green	Green	Green	Green
BE-28813-192	RECO 6 - MATUMAINI K...	2019-08-15	2019-09-05	Green	Green	Green	Green	Green	Green	Green	Green
E-30118-543	RECO 1 - KAHINDO MB...	2019-08-24	2019-09-14	Green	Green	Green	Green	Green	Green	Green	Green
V (BE-28387-149	RECO 4 - KIVISE MUSA...	2019-08-11	2019-09-01	Green	Green	Green	Green	Green	Green	Green	Green
E-29525-373	RECO 5 - PALUKU MAN...	2019-08-21	2019-09-11	Green	Green	Green	Green	Green	Green	Green	Green
V (BE-30118-559	RECO 2 - KAMBALE NG...	2019-08-24	2019-09-14	Green	Green	Green	Green	Green	Green	Green	Green
BE-29894-430	RECO 4 - KAMBALE KA...	2019-08-23	2019-09-13	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
V (BE-28387-157	RECO 3 - KATUNGU VA...	2019-08-11	2019-09-01	Green	Green	Green	Green	Green	Green	Green	Green



Thank you



Go.Data Contacts and Resources

- ▶ GoData@who.int
- ▶ James Fuller, kux9@cdc.gov
- ▶ Larry Hinkle, ndf5@cdc.gov
- ▶ Amy Lang, uyf7@cdc.gov
- ▶ Online Training: <https://openwho.org/courses/godata-en>



Considerations for Choosing the Right Tool

- Conduct appropriate needs assessments
- Understand current functionality and flow of systems
- Existing data tools and systems that could be upgraded or reused
- Skillsets available in country
- Understand the partner landscape
- Consider the technical infrastructure (power, internet, hardware, communications systems)
- Consider training needs
- Sustainability is paramount



Developing a Good Electronic Surveillance System

- Aligns with the national digital health / eHealth strategy
 - Understand and address user and program needs
 - Strengthen existing data tools and systems
- Interoperability with other systems is ideal, or integration at minimum
 - Epidemiology and lab
 - Supply chain, human resource, finance
- Use open standards, open source, and open innovation
- Assign appropriate user access roles





Best Practices for Data Management

- Unique IDs
- Secure and protect patient confidentiality
- Build in data quality through validation, skip patterns, choice menus
- Ease of analysis and accessible data output
- Integrity of data through traceability and audit trails
- Ensure comprehensive documentation



Leverage COVID-19 Investments to Improve Data Science

- Focus on the *why / objective* of the system trying to build
- Improve, strengthen, and reuse systems available in country
- Innovate with caution, consider national capacity and sustainability
- Improve overall data science – e.g., data management, data analysis
- Build country capacity
- Align with current investments
- Help countries meet their Joint External Evaluation (JEE) goals
- Sustainability





Resources

- <https://www.dhis2.org/>
- <https://sormasorg.helmholtz-hzi.de/>
- <https://www.cdc.gov/epiinfo/index.html>
- <https://www.who.int/godata>
- <https://digitalprinciples.org/>
- <https://ohie.org/>



Questions?

CDC COVID-19 International Task Force:
eocevent223@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

