GHANA HEALTH SERVICE

USER GUIDE







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COVID-19 Case-based Surveillance & Contact Tracing System



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COVID-19 Case-based Surveillance & Contact Tracing Tracker System

Purpose

The COVID-19 Surveillance and contact tracing user manual provides an overview of the conceptual design used to configure COVID-19 digital data package in DHIS2 and also a simple guide for end users. The COVID-19 package was developed configured in response to an expressed need for the country to efficiently manage COVID-19 data as well aide Disease Control and Surveillance to effectively track all cases and contacts. This document is intended for use by end users national, regional, district, sub district and facility levels to be able to support the national fight against COVID-19.

The system has been built using the tracker module on the DHIS2 platform which the Ghana Health Service have been using for health data management for over 8yrs.

The e-Tracker module (also known as a Community Module) is an integrated module in DHIMS2, built to support community health systems and facilitate a smooth integration between the community health data and aggregated data management.

The module supports definition of types of entities which can be tracked through the system, which can be anything from persons to commodities, e.g. medicine, person, For the types of entities defined, users can manage community health programs, such as communicable diseases during outbreaks, child immunization, maternal health and e.g. allows tracking of individuals enrolled in various programs and activity planning for community health workers.

What the Tracker does

- The system collects, manage and analyze transactional, case-based data records.
- It stores information about individuals and track these persons over time using a flexible set of identifiers
- The system captures information about anonymous events and cases as well.
- Send SMS-reminders
- Track missed appointments
- Generate visit schedules.
- The system also generates on-the-fly statistical reports
- The reporting module creates dynamic reports bases on cases.
- The tracker has a functionality that allows transactional data to be aggregated and pushed automatically into their respective datasets in DHIMS2.



Background

The system has been designed reflect the Integrated Disease Surveillance and Response guidelines of the Ghana and the new aggregate reporting requirements from the WHO interim surveillance guidelines updated March 20, 2020.

The objectives of COVID-19 Case-based surveillance and contact tracing system are:

- 1. to monitor trends of the disease where human to human transmission occurs;
- 2. rapidly detect and report new cases in our communities across the country;
- 3. provide epidemiological information to conduct risk assessments at the national, regional and district level; and
- 4. provide epidemiological information to guide preparedness and response measures.

The system design builds upon existing case-based disease surveillance principles and information system requirements that have been developed collaboratively between the Ghana Health Service and UiO since 2012. The COVID-19 case-base surveillance and contact tracing system was developed with the intent to align to <u>WHO technical guidance on nCoV-19 surveillance and case definitions</u>, updated March 20, 2020.Note that this design may not necessarily reflect the latest available interim global guidance developed by WHO as updates may be released rapidly.

System Design Summary

The DHIS2 case-based surveillance tracker metadata was based on the WHO inspired Case-based investigation template for Ghana.

The Ghana COVID-19 case-based surveillance and contact tracing tracker system supports surveillance workflows and automated analysis for key components of routine and active surveillance.

- Use Case 2: 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.
- Use Case 2: Contact registration & follow-up: strengthens active case detection through contact tracing activities, such as identification and follow-up of contacts of a suspected or confirmed COVID-19 case.



3. Use Case 3: Points of entry Tracking System: The POE tracker program use case was designed to support the registration of travelers entering a country with a history of travel to, or residence in, a country/area/territory reporting local transmission of COVID-19 who may need to be followed up to ensure no symptoms develop. For this use case, it is assumed that a traveler may be 1) screened and cleared immediately with no follow-up needed; 2) screened and followed up for 14 days [with or without isolation measures] to ensure no symptoms develop; or 3) screened and referred for testing and/or initial case management. The current design proposes that a traveler meeting the country's definition of a suspected case would be enrolled into the complementary DHIS2 COVID-19 Case-Based Surveillance (CBS) Tracker. For example, a traveler enrolled in this program who later meets the definition of a suspected case during follow-up (i.e. an asymptomatic traveler from a country with known transmission is registered at the POE and later develops symptoms) is enrolled as a suspected case into the COVID-19 CBS program to capture all clinical details, exposures and follow the case through laboratory diagnosis and case outcome.

The system is optimized for Android data collection with the DHIS2 Capture App, free to download on the <u>Google Play store</u>.

Logging on to Covid-19 case-based Surveillance and contact tracing system

To log on to the tracker application, enter the URL <u>https://idsr.chimgh.org/idsr/</u> into the address bar of your browser. Preferred browsers are Mozilla Firefox or Google chrome.

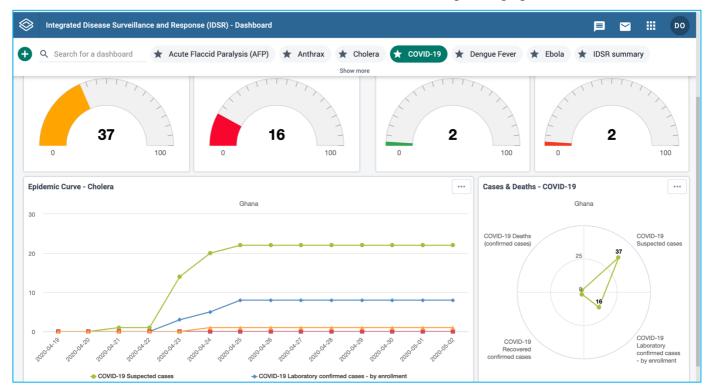


A successful access to the URL shown above, is as shown below Ghana Health Service reporting portal.



🗰 Apps ▶ Suggested Sites 🚺 Web Slice Gallery 🗯 Ayittey Powers: I	🗎 Imported From IE	🔊 New Tab	2019 Calendar De	🛅 Imported From Fir	» 📋 Other Bookmarks
Integrated Disease Surveillance and R	lesponse (IDSR)				
	Sign in				
	Username		_		
	Password		lien		
	■ Login using two factors Sign in	or authentica	lion		
	IDSR				
Powered by DHIS 2			Design	ed By DHIMS 2 Tech Team.	[Change language]

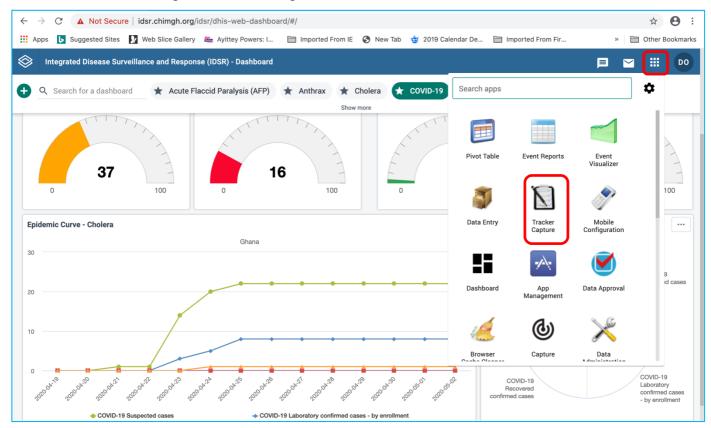
Key in the Username and Password provided to you and click on Sign in to log into the system. After a successful log-in, a dashboard will be displayed as the first screen. The dashboards provide a quick analytic overview of data stored in the tracker in the form of tables charts, maps and graphs.





Registration and Enrolment of cases

- 1. Click on either the Apps icon or the search apps placeholder.
- 2. Select Tracker Capture from the drop down



A click on the Tracker capture app takes you to the Tracker capture interface as shown below.

Apps 🕟 Suggested Sites 🚺	Web Slice Gallery 🚡 Ayittey I	Powers: I 🗎 Imported From IE 🔇 New Tab	🍲 2019 Calendar De 🗎	Imported From Fir	» 🗎 Other Bookma
Ghana Cor	vid-19		Search	i apps	III 😳
	COVID-19 Case-based	٩.	Register		▲ ↔ ■
	COVID-19 Case-based		First Name	Last Name	≎ Age
Ghana 🕀 Ahafo 🕀 Ashanti	COVID-19 Port of Entry		evelyn	fatima	23-04-1989
Bono Bono East	0099-2020-00073	0541018650	augustina	amponfi	23-04-1967
Central	0099-2020-00069	02478376253	beatrice	Menuber	23-04-1999
B-Eastern B-Greater Accra	0099-2020-00067	0552672776	Nditigma	Nelemorcha	17-04-2002
North East	0099-2020-00065	0248208804	Ama Aseda	Agyeman Owusu	23-04-1977
B-Oti B-Savannah	0099-2020-00063	0244244854	Doris	Amponsah	23-04-1998
-Upper East -Upper West	0099-2020-00061	055877968	Naja	Junior	23-04-2000
3-Volta 3-Western	0099-2020-00057	0245671694	Ali	Amparbeng	23-04-1978
-Western North	0099-2020-00055	0277421529	Rahamah	Pokuah	23-04-1997

To register a case or a contact, Select District or Health Facility from the organisation Unit Tree on the left and select the appropriate program from the list of programs and click on the Register button.



$\leftarrow \rightarrow C$ $$ covid19.chimgh	ora/covid19/dbis-wab-tracker-co	apture/index.html#/?program=uYjxkTbwRNf			☆ 😁 ፡
	Web Slice Gallery 🛛 🚂 Ayittey Powers:		019 Calendar De 🗎 Impor	ted From Fir »	
Ghana Covid	id-19		Search ap	ps	_ 🗰 💿
 ₩ ← → Registration and Data Entry 	B COVID-19 Case-based Surveil	ance × V Lists Search Regist	er		
Reports	🔳 O 🖌 🗙 Cus	tom working list 👻			≛ ⊖ ⊞
	Epid Number	Facility contact number	First Name	Last Name	≎ Age
-Goodwill Maternity Home -Hajia Maternity Home	07-2020-00110	0243019222	kb	otoo	
-Iran Clinic -Maxmum Clinic	07-2020-00009	0244555555	Yaa		1962-04-10
-North Ridge Clinic	07-2020-00008	024444444	Kwame	Kwame	10-04-1997
-Ridge Regional Hospital	A				
e-Osu ⊕-Tema Station ⊕-Tudu		Number of rows per	page: 50		Jump to page: 1
Kpone-Katamanso Krowor La-Dade-Kotopon					«« « 1 »

A= Organization Unit. The programs for data entry is assigned to the District and Health Facilities, so once a district user who are supposed to do these entries logs on the system, select organisation unit that owns the case or contact you are about to enter (select District for cases identified during contact tracing while you select the Health Facilities for cases suspected or identified in routine clinical services.

B= Program. Pull down the program menu and select the appropriate program.

C= Search or find button. Search for an existing case of contact already registered in the system by clicking on the search button and entering any of the attributes allowed to search for a person.

D=Register Button. Click on the button to display the registration page

Use Case 1: COVID-19 Case-based surveillance tracker

The basic case surveillance program is designed to:

- 1. Enroll suspected* COVID-19 cases (generally appearing at a health facility, but may be enrolled at other places)
- 2. Capture key information about the suspected case including demographics and exposures, such as symptoms, contact with a previously confirmed case & travel history
- 3. Generate lab requests
- 4. Record laboratory diagnosis
- 5. Record contacts of a confirmed** or probable*** case for follow-up
- 6. Record case outcome
- 7. Facilitate case notification and national/regional/global case reporting
- 8. Generate dashboards and analytics tools for monitoring disease trends and planning response efforts



The design of the case-based tracker program assumes that WHO case definitions are followed in the use case; its use can be adapted to local case definitions as needed.

The WHO case definitions were updated on March 20, 2020 and noted below.

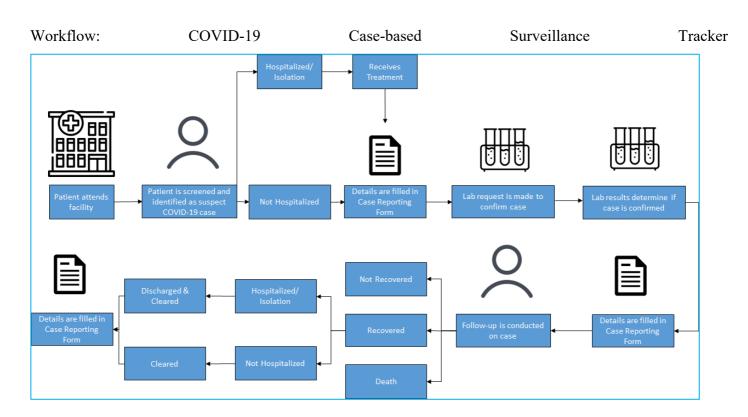
*Suspected case: A) a patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness of breath), AND with no other aetiology that fully explains the clinical presentation AND a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset; **OR**, B) A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case (see definition of contact) in the last 14 days prior to onset of symptoms; **OR**, C) A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath) AND requiring hospitalization AND with no other aetiology that fully explains the clinical presentation.

****Probable case:** A) a suspect case for whom testing for COVID-19 is inconclusive (inconclusive being the result of the test reported by the laboratory) **OR**, B) a suspect case for whom testing could not be performed for any reason. *****Confirmed case:** A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

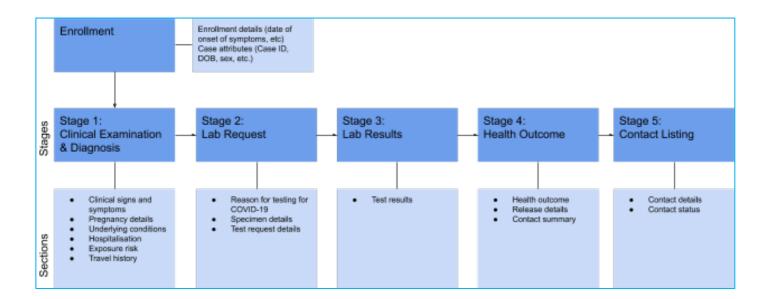
Intended users

- District and Health facility users: capture and record details about a suspected case, including clinical symptoms & exposures; track lab results; record case outcome
- Laboratory users: receive lab requests and record laboratory results for a particular suspected case
- National, Regional and District health authorities: monitor and analyse disease surveillance data through dashboards and analytics tools to conduct risk assessments and plan response measures; generate reports for regional and global reporting.





Structure: COVID-19 Case Surveillance Tracker Program



Program Description: COVID-19 Case Testing, Diagnosis & Outcome

Stage	Description
Enrollment details	The Tracked Entity is the case, which is represented by a Tracked Entity Type of 'person.'

	Enrollment date = Date of registration of the case.
	Related programs = COVID-19 Contact registration & follow-up
	Attributes include basic personal information and unique case identifiers
	GPS Coordinates
Attributes	System Generated Case ID
	EPID Number
	• Age
	First Name
	Middle Name
	• Surname
	• Sex
	Case phone number
	 Home Address
	Facility contact number
Stage 1:	This stage records a suspected case's clinical signs/symptoms and exposures
	including:
Clinical	Symptoms and Signs
Examination and	 Pregnancy and underlying conditions
Exposures	Hospitalisation and Isolation
	Exposures in 14 days prior to symptoms
	Travel history
	Contact with confirmed case
	After examination, you can record if the case has been hospitalised or isolated, and
	information surrounding this.
Staga 2:	The lab request records the reason for testing and other information that a labor is to
Stage 2:	The lab request records the reason for testing and other information that a lab needs to
	process a sample and test it for COVID19. The information provided here can help lab
Lab Request	personnel prioritize lab tests when resources are limited. The person entering this data
	could be the same person who registered the suspected case and recorded the patient's
1	1

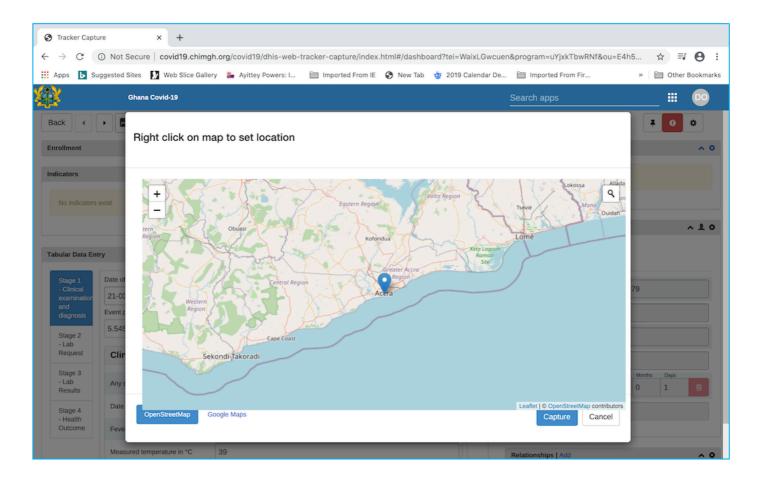


[repeatable]	clinical exam and exposures; or may be other personnel charged with making lab
	requests.
Stage 3:	The Lab Results stage records the type and results from laboratory testing. It can be
	done directly at the lab or as secondary data entry. This stage is repeatable as samples
Lab Results	for a given case may be tested multiple times (i.e. in the case of an inconclusive
	laboratory results, a new lab test can be conducted and results recorded).
[repeatable]	
Stage 4:	The health outcome records the final outcome of the case: (recovered, not recovered,
Health Outcome	dead or unknown) including date of discharge or death as applicable.

Enrolment and Case Registration

\leftrightarrow \rightarrow C $$ covid19.ch	nimgh.org/covid19/dhis-v	veb-tracker-capture/index.html#/?p	rogram=uYjxkTbw	RNf		९ 🕁 😝 :
Apps b Suggested Sites	🖌 Web Slice Gallery 🚒	Ayittey Powers: I 🗎 Imported Fro	m IE 🚯 New Tab	o 2019 Calendar De	Imported From Fir	» 🗎 Other Bookmarks
Ghana Covid-1	9				Search apps	
* * >						
Registration and Data Entry	COVID-19 Case-based Surveil	lance × × Lists	Search Register			
Reports	Enrollment					
Ridge Regional Hospital	Enrolling organisation unit	Ridge Regional Hospital		Enter Home	e Location coordinates for the c	ase being registered or click
 ➡Korle-Klottey ➡Adabraka ➡North Ridge 	Enrollment point	Latitude Longitude	v		on pointed button to capture the	
-Amanda Maternity Home -Asylum Down/Christian Metl -Bank Of Ghana Clinic	Case Registration Date	24-04-2020				
–Dua Clinic –Gilead Hospital –Goodwill Maternity Home	Profile					
Hajia Maternity Home Iran Clinic Maxmum Clinic	System Generated Case ID	COVID19_1504				
–North Ridge Clinic –Nyarkoa Clinic	Epid Number	0718-2020-00802				
-Ridge Regional Hospital Trust Towers Down CHPS Osu	Facility contact number					
 Tema Station Tudu 	First Name					
Kpone-Katamanso Krowor La-Dade-Kotopon	Middle Name					
	Last Name					
	Age	Date of birth Years Months	Days			
	Sex	Select or search from the list	•			
	Phone Number					
	Address		li			
	Save and continue Sav	e and add new Print form Cancel				





Click on Save and Continue button to save the current registration and display an interface to enroll the client on a program.

A click on Save and add new to save the current registration and open another interface for a new registration (this allows you to register multiple clients before enrolling them onto a program).

Save and continue	Save and add new	Print form	Cancel

Click on "Print form" to print the registration form or Cancel to cancel a registration

Save and continue Save and add new	Print form	Cancel
------------------------------------	------------	--------

DHIMS2 TECHNICAL TEAM-GHANA

Save and Continue will display the page below.

S Tracker Ca	apture × E COVID	9-19 Surveillance & Conta 🗙 📔 🗧 COVID-19 Ports of Entry Tra	cke × +				
← → C	Covid19.chimgh.org/covid1	9/dhis-web-tracker-capture/index.html#/dashboard?te	i=ismRZ5vPXaV&program		-		0:
_	Suggested Sites 🚺 Web Slice Gal	lery 🐞 Ayittey Powers: I 🗎 Imported From IE 📀 N	ew lab 🤠 2019 Calendar I	De 🔲 Imported F		» 📄 Other Bo	ookmark
Stage 1 - Clinical examination and diagnosis Stage 2 - Lab Request Stage 3 - Lab Results Stage 4 - Health Outcome	Date of Consultation * [10-04-2020 Event point Latitude Clinical Signs and Symptoms Any signs or symptoms? Any signs? Health status of case at time of reporting Date of death	Longitude Select or search from the list Select or search from the list Select or search from the list Gd-MM.yyyy	* 20 20 20 20 20 20 20 20 20 20 20 20 20	Epid Number Facility contact number First Name Last Name Age Sex Relationships Add	07-2020-00110 0243019222 kb Otoo Date of birth Years Male	Months Days	
	Underlying Conditions/Comorbidity	Select or search from the list		No relationships exist			
	Hospitalisation	Celect of search from the list		Notes Your note here			^
	Hospitalised Exposure Risk	Select or search from the list	*	Add Clear			
	Occupation Other Occupation	Select or search from the list	•				
	Is case a Health Care Worker (any job in a health care setting)? Has case visited any health care facility in the 14 days prior to symptom onset? Has case had contact with a confirmed case in the 14 days prior to symptom onset?	Select or search from the list Select or search from the list Select or search from the list	• • •				
	Travel History						
	Has the case traveled in the 14 days prior to symptoms onset?	Select or search from the list					
	Most likely country of exposure	Select or search from the list	•				
	Assigned Date of Onset of Symptoms Date of onset of symptoms if available, otherwise	- enrollment date					
	Assigned Date of Onset of Symptoms	10-04-2020					
	Complete		Delete Print form				

Program Stage 1: Clinical Examination & Diagnosis

Section 1 - Clinical Signs and symptoms

Selecting "yes" to the Data Delement 'Any signs or symptoms?' reveals the rest of the options.

'abular Data Entry 🛛 🔒 🕹 🔺						~ 0	Profile			
Stage 1 - Clinical	Date of Consultation *					+		Epid Number	07-2020-00110	
examinatior	10-04-2020								07-2020-00110	
and diagnosis	Event point					Ê		Facility contact number	0243019222	
Stage 2 - Lab	Latitude		Longitude		0	~		First Name	kb	
Request	Clinical Signs and Sym	ptoms						Last Name	otoo	
Stage 3 - Lab Results	Any signs or symptoms?	Select or search	from the list		•			Age	Date c Years Month Days	
Stage 4	Any signs?	Select or search	from the list		-			Sex	Male	
- Health Outcome	Health status of case at time of reporting	Select or search	from the list		•					
	Date of death	dd-MM-yyyy						Relationships Add	~ 0	



This section is hidden unless gender is selected as 'Female.'

Pregnancy Details			No relationships exist	
Patient pregnant	Yes	× -		
Pregnancy gestation (weeks)			Notes	^ C
Pregnancy Trimester	T2	× -	Your note here	
Post partum (<6 weeks)	Select or search from the list	•		ĥ

Section 3 - Underlying Conditions/Comorbidity

This section is hidden unless "Any underlying conditions" is marked as "Yes".

Underlying Conditions/C	comorbidity	
Any underlying conditions?	Yes	× ×
Cardiovascular disease, including hypertension	Yes	× -
Diabetes	Select or search from the list	•
Liver Disease	Yes	× -
Chronic neurological or neuromuscular disease	Select or search from the list	•

Section 4 - Hospitalisation

This section is hidden unless "Hospitalised" is marked as "Yes".

Но	ospitalisation		
Hos	spitalised	Yes ×	•
Adr	mission date	08-04-2020	
Hos	ospital name	Ridge Regional Hospital	ŧ
Hos	spital record number		
	d the case receive care in an nsive care unit (ICU)?	No ×	•
Did	d the case receive ventilation?	Yes ×	•
extra	d the case receive racorporeal membrane genation?	No ×	•
	case in isolation with Infection htrol Practice in place?	Select or search from the list	•

Section 5 - Exposure Risk

This section is used to record exposures (fields are hidden by program rules if the case is not a health care worker; if the case has not had contact with a confirmed case in 14 days). A suspected case's exposure to a previously confirmed case is distinct from prospective contact tracing in Program Stage 5.



Exposure Risk		
Occupation	HEALTH CARE WORKER	× -
Other Occupation		
Is case a Health Care Worker (any job in a health care setting)?	Select or search from the list	-
Has case visited any health care facility in the 14 days prior to symptom onset? Has case had contact with a	Select or search from the list	•
confirmed case in the 14 days prior to symptom onset?	Select or search from the list	•

Section 6 - Travel History

\$	Ghana Covid-19		 Search apps	DO
	Travel History			
	Has the case traveled in the 14 days prior to symptoms onset?	Yes ×		
	Country 1	Spain × -		
	City 1			
	Country 2	Select or search from the list		
	City 2			
	Country 3	Select or search from the list		
	City 3			
	Most likely country of exposure	Select or search from the list		

Program Stage 2: Lab Request

	ate of Lab request *			+	E. H. Harris	07.0000.0000		
al 25	25-04-2020				Epid Number	07-2020-00009		
sis	Reason for Testing for C	DVID-19		<u> </u>	Facility contact number	0244555555		
2	-			~	First Name	Yaa		
st R	Reason for testing for COVID-19	Select or search from the list	•		Last Name			
	If none of the above, please explain					Years	Months	Days
s	o a provincia de la composición de la c				Age	1962-(2010	0	6 🛍
4 h	Specimen details			Sex	Female			
me	Specimen ID							
т	Type of specimen	Select or search from the list	•		Relationships Add			^
D	Date Specimen Collected	dd-MM-yyyy			No relationships e	exist		
	Date Specimen Sent to Laboratory	dd-MM-yyyy						
Т	Test request details				Notes			^
т	Type of Test	Select or search from the list	•		Your note here			
	Complete	Delete	~~~~		Add Clear			
	Type of Test Complete	Select or search from the list Delete Print for						



Stage 3: Lab Results

Stage 1 - Clinical						+						_
examination	25-04-2020	25-04-2020					Epid Number	07-2020	-00009)		
and	Event point						Facility contact number	0244555	5555			
Stage 2	Latitude		Longitude		0		First Name	Yaa				
- Lab	Assigned user						First Name	faa				
Request	Select or search from the	list			-		Last Name					
Stage 3 - Lab Results	Lab Results						Age	1962-(Years 2010	Months 0	Days 6	Ŵ
Stage 4 - Health Outcome	Specimen ID						Sex	Female				
	Date of Test Result	dd-MM-yyyy										
	Type of specimen	Select or search	from the list		•		Relationships Add	I				^
	Type of Test	Select or search	from the list		-		No relationships	exist				
	Test Result	Select or search	from the list		•							

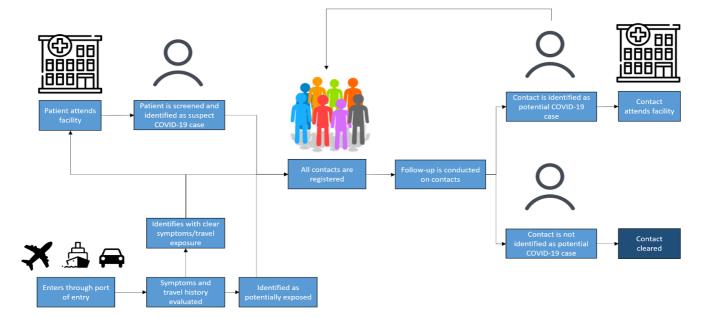
Stage 4: Health Outcomes

Stage 1	Report date *				+			
- Clinical examination	25-04-2020				Epid Number	07-2020-00009		
and diagnosis	Event point			Facility contact number	0244555555			
Stage 2	Latitude		Longitude	9	First Name	Уаа		
- Lab	Assigned user						144	
Request	Select or search from th	ne list		-	Last Name			
Stage 3 - Lab							Years Months Days	
Results	Health Outcome					Age	1962-(2010 0 6	Ŵ
Stage 4 - Health Outcome	Health outcome	Health outcome Select or search from the list				Sex	Female	
	Contact Summary					Relationships Add	ł	^
	Total number of contacts followed for this case					No relationships	exist	

Use Case 2: COVID-19 Contact registration & follow-up

The Contact registration & follow-up program is to facilitate the registration and follow-up of contacts of a confirmed case. In this scenario, it is assumed that if any contacts of a confirmed case meet criteria for suspected case and are referred for testing, the case will be enrolled into the COVID-19 Case Surveillance tracker program.

The Contact registration & follow-up program registers each contact of a case (as described in COVID-19 Case Surveillance Use Case) as a new Tracked Entity Instance (person) and links them to the case in the COVID-19 Case Surveillance Program via a 'relationship.' It has a simple repeatable follow-up stage where symptoms and any follow-up undertaken can be registered.



Workflow: Contact registration & follow-up

Program Description: Contact registration & follow-up

Stage	Description
Enrollment details	The Tracked Entity is represented by a Tracked Entity Type of 'person.' Related programs: COVID-19 Case based surveillance
Attributes	 Attributes include basic personal information and unique case identifiers System Generated Case ID Local Case ID First Name Surname Date of birth Age Sex Phone number (local)



	Home AddressCountry of Residence
Stage 1: Follow-Up	This stage is meant to record information related to contact tracing follow up, given that a contact has already been identified. It is divided into two sections:
[non- repeatable]	 Relation with case Exposure Assessment
Stage 2:	This stage is intended to record symptoms of the case. Follow-up to check on the symptoms
Symptoms	of a contact can be repeated until the follow-up period is complete (for example, after 14
[repeatable]	days or according to national guidelines). When follow-up period is complete, the enrollment can be 'completed.'1. Symptoms

Contacts are added to the index case using the relationships menu in the case surveillance program:

Back A COVID-19 Contact Registration & Follow-up	× v		70	\$
Enrollment		^	Feedback	^
Selected program Owned by: Awutu Senya East	Other programs		No feedback exist	
Enrolling organisation unit Awutu Senya East	No active enrollments exist			
25-04-2020			Profile Edit	~ 1
Complete Deactivate Delete			Relationships Add	^
			No relationships exist	
Indicators		^		

Once you select "Add" from the relationships box, you are able to select the relationship and program and either select an existing person or enroll a new contact using the enrollment stage that appears. This will enroll the contact into the contact registration and follow-up program. Contacts can be added by searching for existing contacts already registered or register new contacts from the relationship screen.



Solution	G	hana Covid-19			Search apps	🏼	DO
and diagnosis	Event p			This person has been in contact with $ ightarrow$ Thi	s person has been in contact with		
Stage 2 - Lab	Latitu	System Generated	COVID19_1494	Back			
Request	Clin	Case ID		Registering unit	Awutu Senya East		
Stage 3 - Lab		Epid Number	0510-2020- 01204	Registration date	25-04-2020	Months Days	
Results	Any s		01204	Inactive	false	1 7	Ŵ
Stage 4 - Health	Any s	Facility contact number		System Generated Contact ID	CASE_CONTACT-0510-00002		
Outcome	Healt report	First Name	Godfred	First Name	Oswald Dachaga		
	Date		Countra	Middle Name	к		
		Middle Name		Surname	Dachaga		^
	Unc	Surname	Ampong	Age	25-04-1975		
		Age	18-03-1985	Sex	Male		
	Any t	Sex	Male	Telephone (local)	0248403076		
	Hos	Telephone (local)	0243530223	Home Address	accra		^
	Hosp	Home Address	Kasoa North				

Contacts that are added will then be listed on the case's tracker dashboard in the relationship widget.

You may also enroll them separately into the program. Once enrolled, you will be able to find them for the follow-up as required.



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Garaa ⊡Ghana ⊕Ahafo	Enrolling organisation unit	Awutu Senya East	
⊕ Ashanti ⊕ Bono	Enrollment date	25-04-2020	
Bono East Central Dura-Asebu-Kwamankese	Profile		
 Agona East Agona West Ajumako-Enyan-Essiam 	System Generated Contact ID	CASE_CONTACT-0510-00020	
 Asikuma-Odoben-Brakwa Assin Foso 	First Name		
Assin North Assin South Awutu Senya	Middle Name		
 Awutu Senya East Cape Coast Efutu 	Last Name		
⊕-Ekumfi ⊛Gomoa Central	Age	Date of birth Years Months Days	
Gomoa East	Sex	Select or search from the list	
	Phone Number		
	Address		
	Save and continue	ave and add new Print form Cancel	

Program Stage 1 : Follow - Up

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Enrollment					~ 0	Feedback				~ 0
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						Profile Edit				~ 1 0
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Follow-up	Date of follow-up *				+	System Generated	CASE CON	TACT-0510-0	0002	
Symptoms	25-04-2020					Contact ID First Name	-	000		
	Assigned user				-					
						Last Name	Dachaga	rs Months	Days	
	Relation with case					Age	25-04-1 45	0	0	Ē
	Relationship with case	Select or search from the lis	t		•	Sex	Male			
	Exposure Assessment					Address	accra			11
	Was the contact exposed to a confirmed or probable case?	Select or search from the list	st		•	Relationships Add				~ 0
	Complete			Delete	int form	Relationship				



Program Stage 2 : Symptoms

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No indicators ex	xist					
					Profile Edit	~ 1 0
Tabular Data Entry	1			0 1 4 0	Profile	
Follow-up	Date of assessment *			+	System Generated Contact ID	CASE_CONTACT-0510-00002
Symptoms	Assigned user				First Name	Oswald Dachaga
	Select or search from the list					Dachaga
	Symptoms Present				Age	Years Months Days 25-04-1 45 0 0 🖹
	Any signs or symptoms?	Select or search from the lis	st	•	Sex	Male
	Complete	Search			Address	accra
	Your note here	Yes No Unknown			Relationships Add	^ 0
	Add Clear			<i>te</i>	Relationship	
-					This person has bee	n in contact with
Report				~ 0	Notes	~ 0
COVID-19 Contact I	Registration & Follow-up				Your note here	

Use Case 3: COVID-19 Points of Entry Tracker System

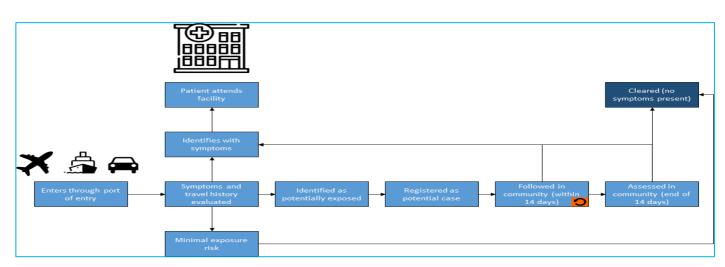
Intended users

- POE users: personnel responsible for screening travelers at points of entry such as airports, seaports and land crossings who may conduct initial screening at POE, make a determination about the traveler's clearance and register the traveler into the Tracker program.
- Public health workers: personnel responsible for following up with travelers for 14 days to inquire about onset of symptoms and refer the person for testing if required.
- National and local health authorities: monitor and analyse data through dashboards and analytics tools to conduct risk assessments and plan response measures.

Workflow

The Points of Entry program workflow is based on the following scenario:





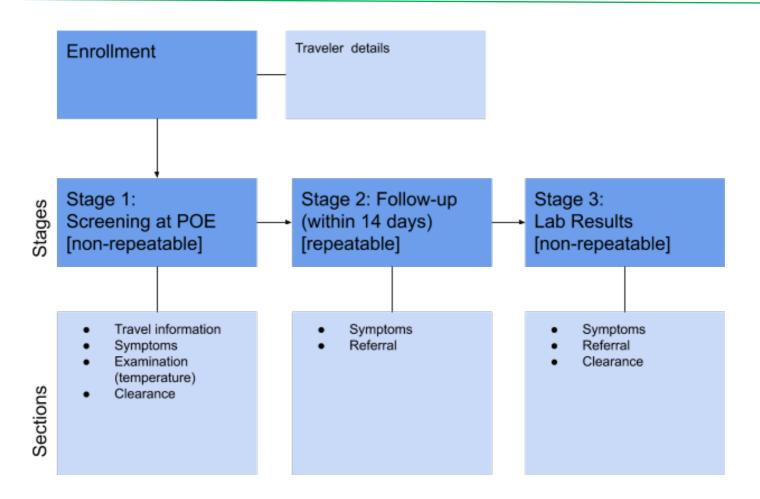
In this design, it is assumed a traveler would complete their enrollment in the POE under the following scenarios:

- 1. Traveler is marked as 'cleared' during initial screening or after 14 day follow-up
- 2. Traveler is referred to health facility at any point during follow-up

A traveler that is referred to a health facility is expected to be enrolled in the COVID-19 Case-based Surveillance Tracker as a suspected case (according to national guidelines). Details about a suspected case including clinical exam, exposures, laboratory results and case outcome would be recorded in the CBS program.

Structure: Points of Entry Screening Tracker Program

BHIMS2 TECHNICAL TEAM-GHANA



Consideration for Organisation Units & Geography

This program design assumes that Points of Entry such as airports, seaports or land crossings will be created as organisation units included in the OU hierarchy. The program would be assigned to the POE org units. Primary analysis is based on the enrolling Org Unit (the port of entry).

Additional geographical components are also captured as other dimensions:

- TEI coordinates: It is possible to capture TEI coordinates when registering the traveler as TEI. These
 can be displayed in the maps app. Local protocols may choose what coordinates to enter, for example
 the TEI's local residence where he/she may be self-quarantined for 14 days.
- 2. Event coordinates: for screening and follow-up stages, coordinates can be captured on the event and displayed in a map. For example, the user may capture a traveler's location each time they are followed up (i.e. in the case of tourists or others not in home quarantine).



Program Description

Stage	Description
Registration Enrollment	The Tracked Entity is the traveler, which is represented by the Tracked Entity Type of 'person.' The TEI is configured to collect a geographic 'point' during registration. These can be analyzed in a map. Enrollment date
details	The first Program Stage is configured to appear on the Registration page so that a user does not need to click through to add the first event. Attributes include basic personal information and unique case identifiers
Attributes	 Passport number Local Case ID Age First Name Surname Country of residence Sex Date of birth Local address Home address Telephone (local) Telephone (foreign) Emergency contact Emergency contact phone Email
Stage 1:	This stage records:Traveler details (countries visited, flight number, date of departure, etc)
Screening at POE	 Examination: recorded temperature Symptoms: this list includes symptoms typically checked for both COVID-19 symptoms and symptoms of other potential notifiable diseases Case clearance



Inon	
[non- repeatable]	If the traveler is marked as 'cleared', no further follow up is required; the enrollment may be closed. If the traveler requires follow-up, an event can be scheduled for follow- up. The data entry form is blocked after completion; no further changes can be made
	without authorization.
Stage 2:	Data is entered at this stage if any interim follow-up is performed before the end of 14 days. Event coordinates can be captured (i.e. the current location of the traveler at the
Follow-up	time follow-up was completed) to present in a map.
(within 14 days)	• Symptoms
[repeatable]	• Referral (user may select an Organisation Unit in a Data Element configured as type OU, for example to select a health facility where a traveler was referred after reporting symptoms)
	If a traveler has symptoms and is referred to a health facility for testing, the traveler should be enrolled into the Case based Surveillance program. The enrollment may be closed if no further monitoring & follow-up is planned in this program.
	The data entry form is blocked after completion; no further changes can be made without authorization.
Stage 3:	Data is entered at this stage at the end of 14 days. Event coordinates can be captured
	(i.e. the current location of the traveler at the time follow-up was completed) to present
Follow-up (after	in a map.
14 days)	• Symptoms
	• Referral (user may select an Organisation Unit in a Data Element configured as
[non-	type OU, for example to select a health facility where a traveler was referred
repeatable]	after reporting symptoms)
	Case clearance



If a traveler has symptoms and is referred to a health facility for testing, the traveler
should be enrolled into the Case based Surveillance program. The enrollment should be
closed at the completion of 14 day follow-up.
The data entry form is blocked after completion; no further changes can be made
without authorization.

Enrollment

Enrollment Enrolling organisation unit	Trainingland				ſ
Enrollment Date	2020-03-24				
Profile					
Point on map	Latitude		Longitude	ç	TEI Coordinates
Passport Number]
Local Case ID]
First Name					
Surname]
Country of Residence	Select or search from	the list			
Sex	Select or search from	the list			
Age	Date of birth	Years	Months	Days	
Age					
Home Address					
Home Address]
Case phone number]
Telephone (foreign)]
Email					

Program Stage 1 - Screening at POE



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* < >	Home Address			
Registration and Data Entry	Case phone number			
Reports	Telephone (foreign)			
요 由-Trainingland	Email			
	Data entry			
	Date of Registration at Port of Entry *			
	yyyy-MM-dd			
	Travel Information			
	Date of arrival	2020-53-24		
	Flight/Ship number			
	Seat number			
	Country of Boarding	Lao People's Democratic Republic x -		
	Date of departure	yyyy-MM-dd		
	Transitted Countries During Current Travel			
	Reason for Traveling			
	Period of stay in country (days)			
	Traveled to countries outside of origin in the last 14 days?	Yes x -		
	Country 1	Select or search from the list		
	Country 2	Select or search from the list		
	Country 3	Select or search from the list		
	Contact with Persons having flu during last 14 days	No x -		
	Any signs or symptoms?	Yes x -		
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Registration and Data Entry	Symptoms			
Reports	Fever	Select or search from the list		
C	Shortness of breath	Select or search from the list		
a-renngano	Cough	Select or search from the list		
	Diamhea	Select or search from the list		
	Fatigue	Select or search from the list		
	Headache	Select or search from the list		
	Muscle/joint pain	Select or search from the list		
	Runny nose	Select or search from the list		
	Skin Rash	Select or search from the list		
	Sore throat	Select or search from the list		
	Vomiting	Select or search from the list		
	Examination			
	Measured temperature			
	Clearance			
	Select 'Yes' to clear the case (no follow-	up required). Select Nor If follow up is required.		
	Case cleared?	O Yes O No		
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Program Stage 2: Follow-up (within 14 days)

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OHIS 2					Search apps	
Trainingland Registration at Port of E (Complete)			+ m +	Emai		
Date of follow-up *		Due date		Relationships Add		^ 0
2020-03-24 Event point		yyyy-MM-dd				
Latitude		Longitude	9	No relationships exist		
Symptoms Present						
				Notes		^ 0
Any signs or symptoms?	Select or search from the list		•	Your note here		
Symptoms 2						
Fever	Select or search from the list		•	Add Clear		
Shortness of breath	Select or search from the list		-			
Cough	Select or search from the list		*			
Dianhea	Select or search from the list		•			
Fatigue	Select or search from the list		•			
Headache	Select or search from the list		*			
Muscle/Joint pain	Select or search from the list		•			
Runny nose	Select or search from the list		-			
Skin Rash	Select or search from the list		-			
Sore throat	Select or search from the list		•			
Vomiting	Select or search from the list		*			
Referral						
Referral location	Parrot District Hospital		8 E			
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Program Stage 3: Follow up (after 14 days)

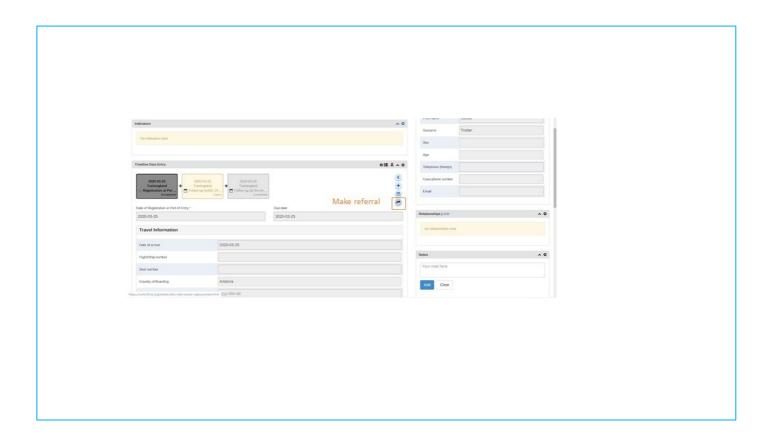
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Date of final evaluation *		Due date	<u></u>	Relationships Add		^ 0
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Latitude	Lon	gitude	9	No relationships exist		
Symptoms Present						
				Notes		^ 0
Any signs or symptoms?	Select or search from the list		•	Your note here		
Symptoms						
Cough	Select or search from the list			Add Clear		
Fever	Select or search from the list		•			
Shortness of breath	Select or search from the list		•			
Diarthon	Select or search from the list		•			
Fatigue	Select or search from the list		•			
Headache	Select or search from the list		•			
Muscletjoint pain	Select or search from the list		-			
Runny nose	Select or search from the list		-			
Skin Rash	Select or search from the list		•			
Sere throat	Select or search from the list		•			
Veniting	Select or search from the list		•			
Referral						
Referral location	[Please select]					
Case Clearance						
Select the checkbox to clear the case.						
Case cleared?						
Complete			Delete Print form			
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How to refer the TEI to another Organisation Unit

Primary analysis is completed on the enrolling organisation unit (the port of entry). Referral facility is captured as a Data Element (type: Organisation Unit) in order to display travelers by referral to health facility in the analytics apps (i.e. Event Report). In some use cases, it may be desirable to refer the TEI (the traveler) to another Org Unit for follow-up.

A TEI can be 'referred' to another org unit such as a health facility for one event or permanently. In this case, health facility user must be able to search TEIs enrolled in the relevant Points of Entry org units. For example, if after screening a traveler at the POE, the traveler may be "referred" to a district health office near the traveler's local address for follow-up by district health staff. After completing the data entry for Stage 1 (screening), the user would refer the TEI to a District Health Center.



Program Relationships

This program has the relationshipType 'Has been in contact with'. Users can create a relationship between TEIs enrolled in the POE program and TEIs in other COVID-19 tracker programs (Case-based Surveillance, Contact Registration & Follow-up). The relationship can be added at any point in the program stages during data entry.

Using Event Reports

Event Reports Overview

- The event reports app enables analysis of events in two fashions.
- Pivot table-style analysis with aggregated values of events
- Lists of events based on queries / filters

Pivot Tables with Aggregated Values

- By selecting "Aggregated values" from the top-left menu you can use the event reports app to create pivot tables with aggregated numbers of events. An event report is always based on a program. You can do analysis based on a range of dimensions. Each dimension can have a corresponding filter. Dimensions can be selected from the left-side menu and includes the following:
- Data elements: Start by selecting the program and program stage for the event report. The data elements associated with the selected program will be listed under available items. Each data element acts as a dimension, and can be selected by double-clicking on it. After selecting a data element, it will be visible under "selected data items". Here you can specify a filter for each data element, with operators such as "greater than", "in" or "equal" together with a filter value.
- Periods: For the period dimension you have three options: relative periods, fixed periods and start/end dates. Relative periods can e.g. be "last 12 months", and has the advantage that it keeps the data in the report up to date as time goes. Fixed periods can e.g. be "January 2019". You can switch to start/end dates by selecting from the drop-down menu under the periods tab, which lets you specify flexible dates for the time span in the report.
- Organization units: The organization unit dimension lets you select any org unit from the hierarchy. You can use the org unit mode selector to select org units explicitly, by org unit hierarchy levels and by organizational unit groups.

By clicking Layout from the top menu, you can control which dimensions should appear as columns, rows and filters in the pivot table. Note that each data element appears as individual dimensions and can be placed on any of the axes. Note that data elements of continuous value types (real numbers/decimal numbers) can only be used as filters, and will automatically be positioned as filters in the layout dialog. The reason for this is that continuous number cannot be grouped into sensible ranges and used on columns and rows.

Event reports can be saved as favorites by clicking on "Favorites" in the top menu. Favorites can later be restored by clicking on them in the list of favorites.

Event reports can be downloaded in various popular formats by clicking on the "Download" button on the top menu.

Event Queries

By selecting "Individual cases" from the top-left menu you can use the event reports app to make searches or queries for events based on a flexible set of criteria. The report will be displayed as a table with one row per event. Each dimension can be used as a column in the table or as a filter. Each dimension can have a criteria (filter). Data elements of type option set allows for "in" criteria, where multiple options can be selected. Numeric values can be compared to filter values using greater than, equal or less than operators.

Options

An event report can be customized using a range of options, which can be accessed by clicking on "Options" in the top menu. The following options apply to aggregated values-type reports only:

- Show totals: Show totals at the end of each column and row in the pivot table.
- Show sub-totals: Show sub-totals for each column and row in the pivot table. Hide empty rows: Hide empty rows in the pivot table.
- Limit: Set a limit on the max number of rows to display in the table, combined with a setting for showing top or bottom values.
- Show hierarchy: Include the names of all parents of each organization unit in labels.

These style-related options apply to both types of reports:

- Display density: Control padding around values inside cells.
- Font size: Control font size of values.
- Digit group separator: Control character to use for splitting digit groups.

Using the covid-19 Case-based surveillance App -Offline Android Tracker Capture

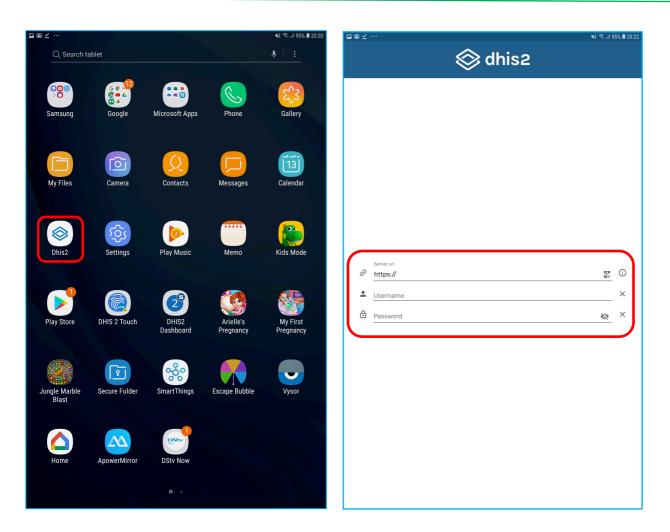
The Tracker Capture Android app allows you to capture, modify and list tracked entity instances with its enrolments and events. The Tracker Capture app works with multiple event-based programs in DHIS2, which handles events linked to registered entities. These programs are suitable for handling disease programs where multiple visits is required. The Tracker Capture app can be used for disease programs such as Covid-19, tuberculosis, HIV and malaria. However, the app is not tied to any specific domain and can potentially be utilized for any scenario of multiple event-based information.

The Tracker Capture app allows you to capture events offline, i.e. without Internet connectivity. The app will automatically synchronize events with the online e-tracker server when connectivity is present. This makes the app suitable for environments where Internet connectivity is scarce or unstable.

Installation and Login

You will be guided to install the stable version of the DHIS2 android capture app on your android device. After installation, locate app icon on your device and click to launch it. Enter URL as will be provided to you (https://covid19.chimgh.org/covid19/) as well as your user credentials and click log in a the bottom of your screen as shown b. These initial steps should be done while your android device is connected to the internet.

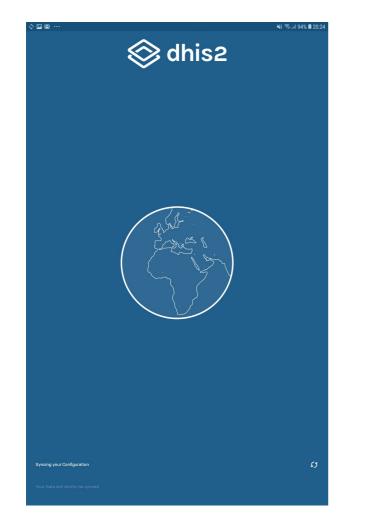


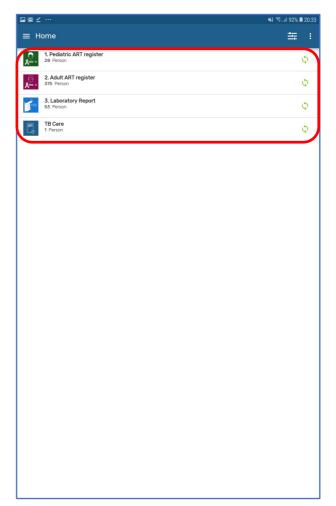


Your device will take few minutes to authenticate your credentials, and also complete a configuration and data synchronization process; be patient and allow this process to completed before proceeding to do anything else on your device.

After logging in the first time, the app will download meta-data from the online instance and then display the list of programs that have been assigned to your facility. Look out for the appropriate program (Case-base surveillance, contact tracing and follow-up or Point of Entry) to display the interface for searching for existing clients on the system.





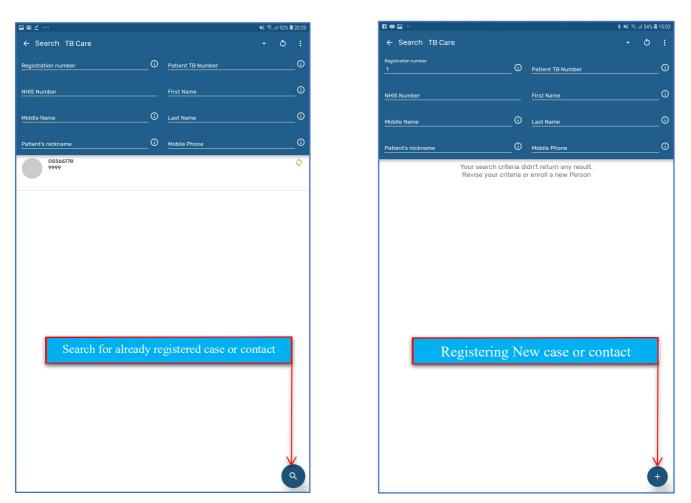


Searching and Registration of Clients

Before being able to register a new client, users automatically conduct a search. If offline, the search is on the local copy of data captured by the user for their organisation unit. and when online, the search is on the server online. For online search, the system will automatically suggest records for download, based on user's Org Unit search setup. As a result, potential duplicates are minimized.

A new client is registered by clicking on the Add (+) button on the down left corner of the page.





Fill the registration form and click on the save button to save the registration. This action takes you to the first stage of the program (Clinical examination and diagnosis) page as shown below.

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Sex Click on Save button after entering registration details		Clinical Signs and Symptoms	16/18 🗸
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	\mathbf{V}_{-}	Choose option	• ×(
	•		•

Each section of the the case-based surveillance appears on a separate page. Navigation to each section is done by using the NEXT/update button on the bottom right corner of the page. You can also use the PREV button to move to previous pages of the Initial assessment.

When data entry is done, you click on the small icon on the bottom right corner of the page and select Complete from the pop-up menu below. (This takes you to the next page to add the follow up)

Click on the See Details button to edit the registration details of the case if there is need for that. The initial Assessment can also be updated by clicking back on it.



Stage 1 - Clinical examination and diagnosis	(74%) :
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Stage 4 - Health Outcome 2000 04:06 Wass Anwell West Details Notes	
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Details Notes	
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Recovered	
Date of release from hospital Choose date	
2020-04-06	
Contact Summary	C
4	

Adding Follow Up

To add the follow up, click on the Add (+) symbol on the bottom right corner of the previous page and click on the follow up

Select the visit date and click on the create button. This opens the follow up data entry screen.

Fill in the details and complete, following the processes used in completing the Initial assessment.

Scheduling Another Follow up

After completing the follow up, click on the Add button on the bottom of the page and choose the Schedule new button from the list shown above.

Provide the next follow up date and click on create to reschedule the client for the next follow up.

This new follow up visit is created and added to the number of events for the client. This new event has a green colour coding, indicating that the event is a scheduled event.

For subsequent follow ups, click on the Add (+) button and reschedule another follow up after data entry is done for the current follow up.

The resulting page from click the add new or schedule new button shows three categories of events that can be added for the client as shown below (i.e. DST, Lab and Treatment)



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Case Registration Date: Enrolling OU:	2020-03-17 Wassa Amenfi West		PI	
SEE DETAILS < SHARE			Stage 2 - Lab Request	Stage 3 - Lab Results
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2020-03-20 Stage 3 - Lab Results	Event Completed			
2020-03-17 Stage 1 - Clinical examination and diagnosis	Event Completed			
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Click to Schedule a new follow up event

Clicking on the three dots button at the top right of your screen after opening a client displays a drop down menu as shown below.



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COVID19_1549 1513-2020-07324 050334443	Delete TEI		Show dashboard with all active programs	
Case Registration Date: Enrolling OU:	Delete enrollment only	Active prog	grams	
SEE DETAILS	Program enrollments			
2220-04-25 Stage 2 - Lab Request	Group events by stage	22	COVID-19 Contact Registration & Follow-up Wassa Amenfi West	2020-04-25
2020-04-25 Stage 3 - Lab Results	Complete	Past progra		
2020-04-25 Stage 4 - Health Outcome	Deactivate	Past progra	ams	
2020-04-25 Stage 1 - Clinical examination and diagnosis	Event Completed 💿		COVID-19 Case-based Surveillance Wassa Amenfi West	2020-04-25
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Click Show help for on screen aid Click Delete TEI to delete the client enti- click Delete enrolment to unroll the cli enrolment only	rely from the system or ient form the currently			
			Enrolment List for COVID-19 ca	se contacts
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Synchronizing Data to the server

The app allows users to synchronize data to the server manually or automatically.

The automatic synchronization has frequencies at which data can be synched. Once you set the frequency, data is synched as soon as there is internet connectivity. Users have to click on the Synch Data Now button to manually synchronize their data to the server.

Apart from synchronizing data to the server, system configuration can also be synchronized with the server. This is to have an updated version of the database on individual tablets from time to time.

To do synchronization, user has to click on the menu bar on the top left corner of the home page and click on settings from the pop-up menu to display the page below.

Users can also restrict access to their tracker data by clicking on the 'block session' button to prevent unauthorised access to data on the tracker app.



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∃ Log Out			Sync parameters Setings limited dicestly Events 0/100 DIE 18 v0500
🛱 Report Jira Issue			Reserved values 100 Reserved values downloaded per TEI attribute
About			Open sync error log This log contains all errors caused by syncing your data and metadata.
			Delete local data All Capture App data stored in your device will be deleted. Data which is not synced to the server will be
			Reset app data & configuration Your configuration and App data stored in the device will be deleted. You will be asked to log in again an to the server will be lost.
			SMS Settings Check and edit parameters related to the sms gateway
Click Block session	to prevent authorised access to your data		
	_		

Reporting Within Tracker Capture Interface.

The Tracker capture interface provides on-the-fly statistical report on selected programs.

1. Click on 'report' on the top left corner of the tracker capture interface to display the various report

types.



Click on any of the report types (E.g. **Program Summary**) above to display a page for **report parameters** to be selected.

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Registration and Data Entry	Tracker Reports			
Reports	Generate a summary report for a particular program, organisation unit and time frame. The report presents a list of tracked entity instances and their records organized based on program stages.	Generate a statistics report for a particular program. The report provides for example an overview of drop-outs or completion rates in a given time frame at a particular organisation unit.		
	Upcoming Events Generate a tabular report showing tracked entity instances and their upcoming events for a selected program and time. Searching, sorting and show/hide operations are possible on the columns.	Overdue Events Generate a list of events for a selected program. The report displays list of tracked entity instances and their events that are not conducted on time. Filtering and searching is also possible.		

Select the program, organization unit scope and the report period (Start date & End date). Click on the

Go button to get your report.

← → C 🌲 covid19.chimgh.org/covid19/dhis-web-tracker-capture/index.html#/program-summary				
Apps b Suggested Sites	🚺 Web Slice Gallery 👗 Ayittey Powers: I 📄 Imported From IE 🔇 New Tab ᡠ 2019 Calendar De 📄 Imported From Fir	» 🗎 Other Bookmarks		
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Registration and Data Entry Reports	Program Summary Report Organisation unit Wassa Amenfi West Program COVID-19 Case-based Sur × *			
Bono East Central Central Greater Accra North East North East Northrem Constraint	Organisation unit scope Selected Immediate children All children 01-03-2020 25-04-2020 Go			



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