

# Integrated Community Health Information Systems

## Way Beyond mHealth



# Overview

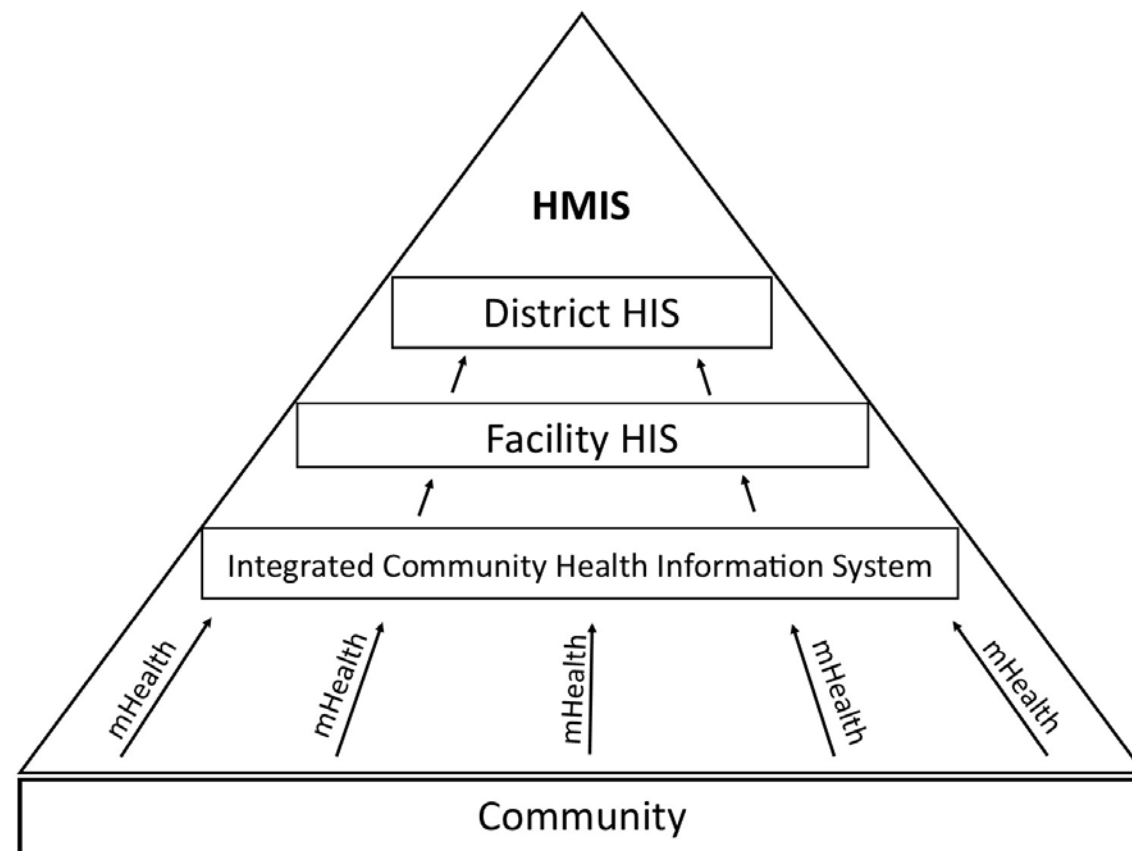
- The need for community health information systems (CHIS)
- What is a CHIS?
- What is the current state of CHIS?
- What are some solutions to CHIS challenges?

## Choking on mHealth

- 25% of mHealth projects go beyond 1000 users
- In some countries, there are dozens of parallel mHealth projects with little coordination
- Ministries report having little oversight or control over community reporting systems
- Ministries want community data to feed into the HMIS
- Interoperability is often custom and, so far, too expensive for ministries to maintain

## Why is this necessary?

- Community is the new facility!
- mHealth tools need to be integrated into a single platform
- Community data needs to be integrated into the HMIS
- Community stakeholders need data to promote health programs
- 27 countries are already planning to take DHIS2 to national scale as a CHIS

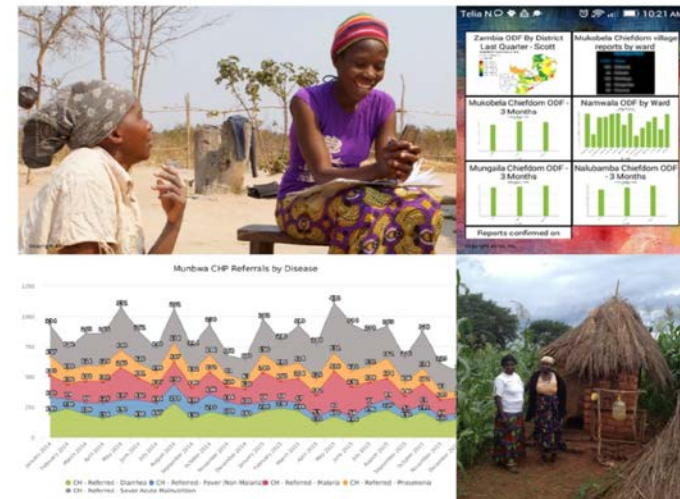


# CHIS Guidelines

- Comprehensive guidelines on how to assess, develop, implement, and sustain a CHIS using DHIS2
- Dozens of use-cases
- A living document
- Collaboration of 14 MoH, 11 NGOs, UiO, UNICEF, HDC and GF
- Available in English and French at: [dhis2.org/academy](http://dhis2.org/academy)



## Guide pratique sur les Systèmes d'information sanitaire au niveau communautaire



# CHIS Macro Assessment

- Developed as part of the CHIS DHIS2 Guidelines
- Platform agnostic – DHIS2 not mentioned
- Based on HMN assessment
- 58 questions in 5 thematic areas, each to be scored between 3 (best) and 0
  - For the corresponding four possible scores, representing highly adequate, adequate, present but not adequate, and not adequate at all

	Highly Adequate	Adequate	Present but Not Adequate	Not Adequate At All
Items	3	2	1	0
Is there an established CHIS Technical Working Group (TWG) lead by ministry senior staff and including representation from key stakeholder groups?	Yes, there is a CHIS TWG with clear leadership and active participation from all key stakeholders that manages the development, implementation, and sustainability of the CHIS.	Yes, there is a CHIS TWG with clear leadership and active participation from most key stakeholder organizations.	Yes, there is a CHIS technical working group but it does not have clear leadership or it is not able to manage all CHIS development, implementation, and sustainability.	There is not a CHIS technical working group or it is inactive.

# Conducting Macro Self Assessment – Who Participated

- Participants identified by CHIS steering community
- In each country a stakeholder identification exercise to identify all relevant participants or groups involved in the assessment

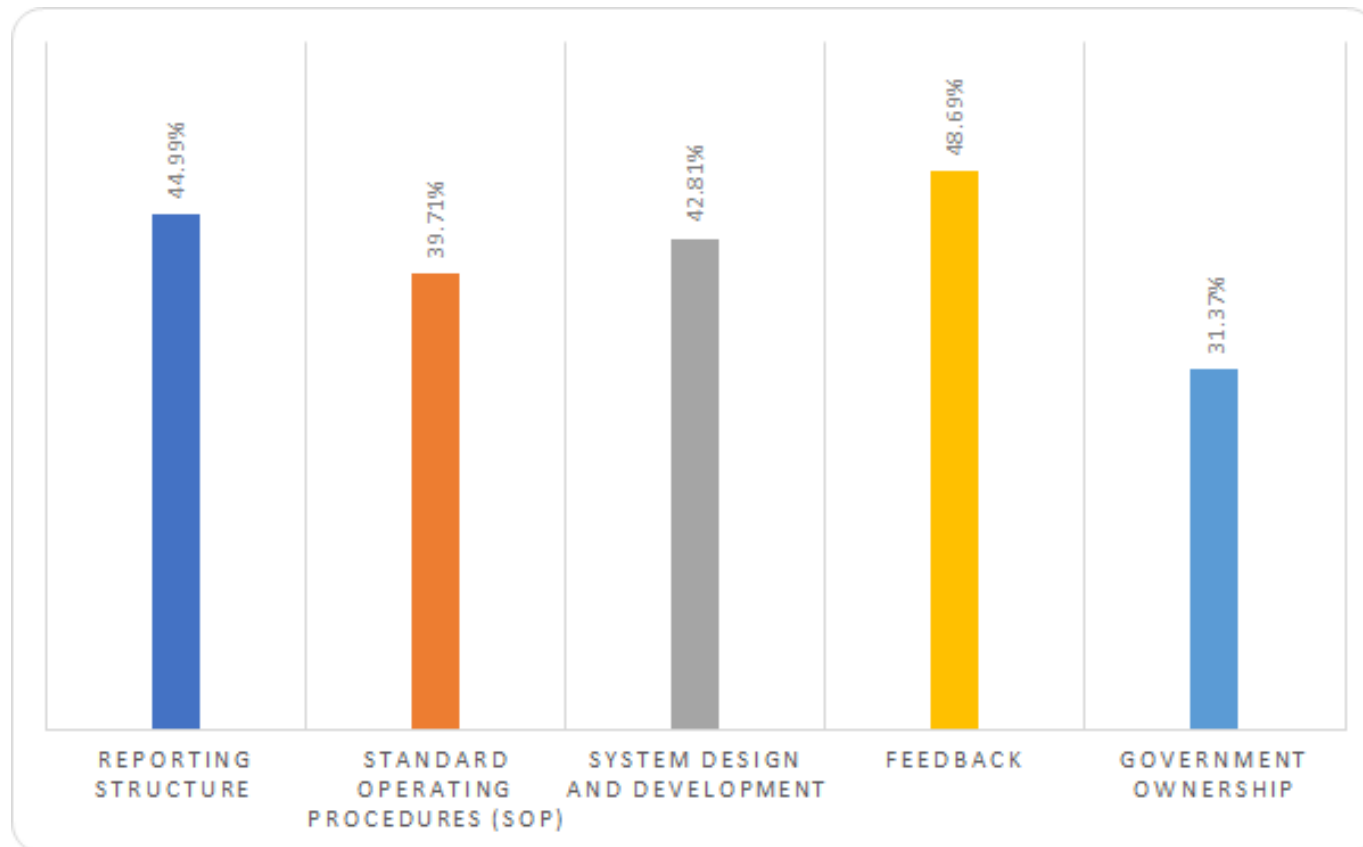
Hierarchy/roles	Stakeholders
Community	CHWs, Chiefs, Mayors, Religious leaders, Parent Teachers Associations (PTA), Village Health Committee
Facility	Information Officer, Clinic in-charge, Supply Chain manager, Clinician
District	District Health Team members
Province	Provincial Health Team
National	Health Program Units, such as the IDSR Unit, Ministry of Health – HMIS Manager, Disease Program Advisors, Human Resource, Finance Advisors, M&E Advisors, other ministries and governmental agencies
International	Donor agencies, Implementing partners

## Conducting Self Assessment – Who Participated

- Benin, Burkina Faso, Cameroon, Congo, The Democratic Republic of the Congo, The Gambia, Ghana, Guinea Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Chad, and Togo
- Results were presented at the May 2018 CHIS Academy in Dakar



## Assessment Results – Thematic Area Composite Score



$$\text{Composite Score (\%)} = \frac{\text{Total Aggregated scores accross all countires} \times 100}{\text{Total available score}}$$

## Assessment Results – Key Take-Aways

- No or little engagement between system developers, community health workers or key community stakeholders prior to the assessment
- Data feedback to CHWs and community stakeholder is understood to be critically important but largely lacking, especially to community stakeholders
- Infrastructure, access to cell phones, reliable electrical power supply, and mobile network continue to be principal limitations to community information systems

## Assessment Results – Key Take-Aways

- Governments are severely under resourced to support robust community health information systems
  - Caused by and actually promotes the reality of siloed, unconnected, and program specific community based mhealth and support tools
- Complex and expensive interoperability layers between mHealth apps and the CHIS will be unsustainable to MoH given their financial constraints
- Ministries also reported in both the qualitative and quantitative assessment data that SOP are still lacking and general governance over the CHIS is a persistent problem

## Assessment Results – Key Take-Aways

- The CHIS assessment conducted in 17 West and Central African countries has shown the need and desire is high amongst countries to have a CHIS that harmonizes the fragmented landscape of CHW reporting tools and populates data into the national HMIS.

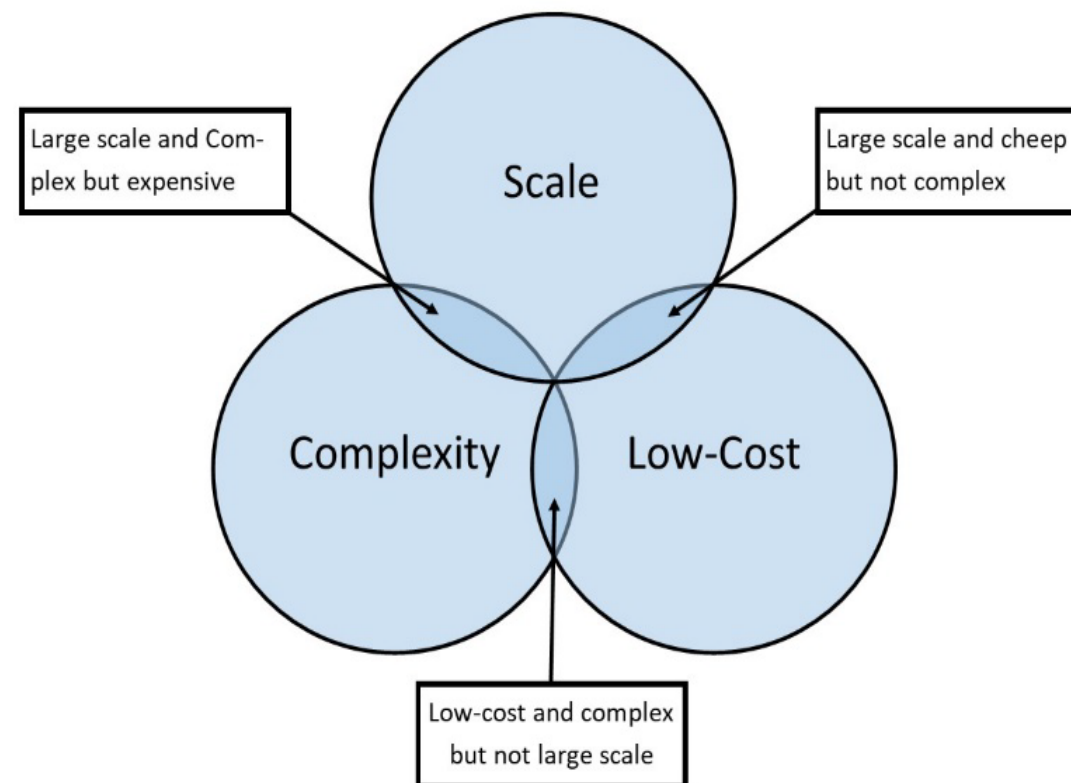
## Addressing Challenges

- mHealth implementers must plan from beginning to integrate with HMIS
  - Expensive/complex interoperability layers/ETL are not a solution
- Ministries should demand and implementers should only use technology that complies with global data sharing standards
  - Open API, ADX, HL7, and FHIR
  - Use digital global goods to share risk of software development
- Ministries must produce policy and guidelines on how community data is reported into CHIS/HMIS
- Ministries need to develop HMIS architecture to represent the community data; NGOs and donors should support this

# Addressing Challenges

- Do not force technology where infrastructure does not exist
- Data feedback is critical to low level users; if they do not get feedback the system fails
- Driving periodic engagement between system developers and end-users (CHWs) is critical
- Agile continuous development and improvements are necessary

CHIS: You can only pick two

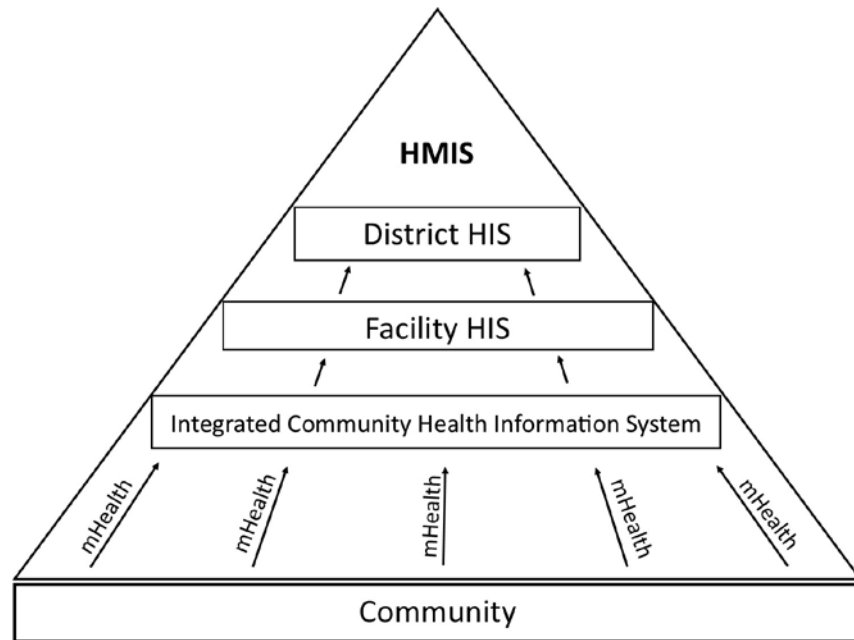


## DHIS2 for CHIS

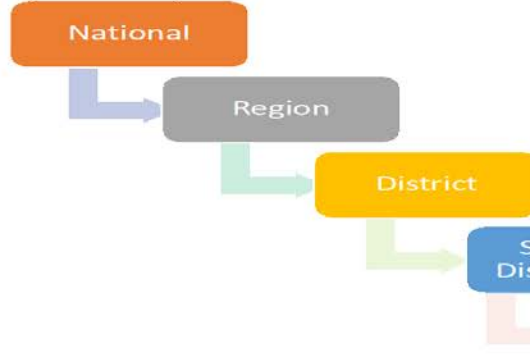
How can DHIS2 be the CHIS?



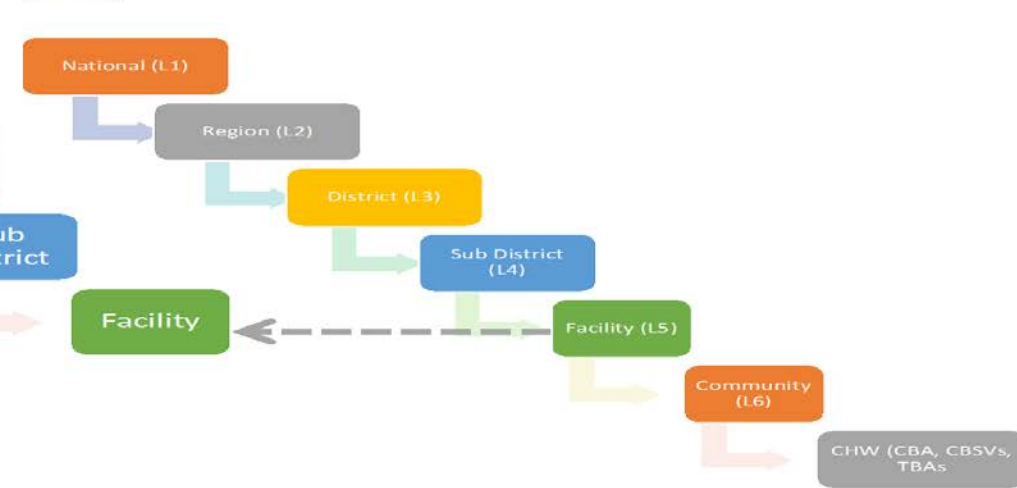
# DHIS2 Architecture



Current Structure  
(DHIMS2)

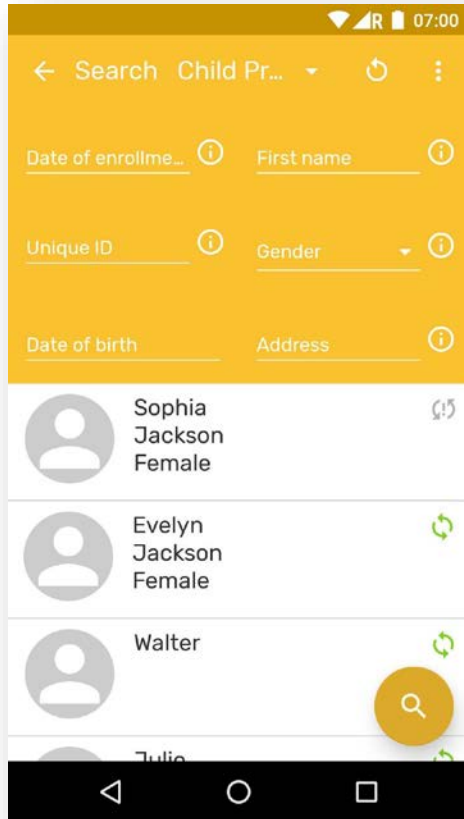


Proposed Structure  
(CHIS)





# Data Capture – Everything mobile



Search Child Pr... 07:00

Date of enrollment First name

Unique ID Gender

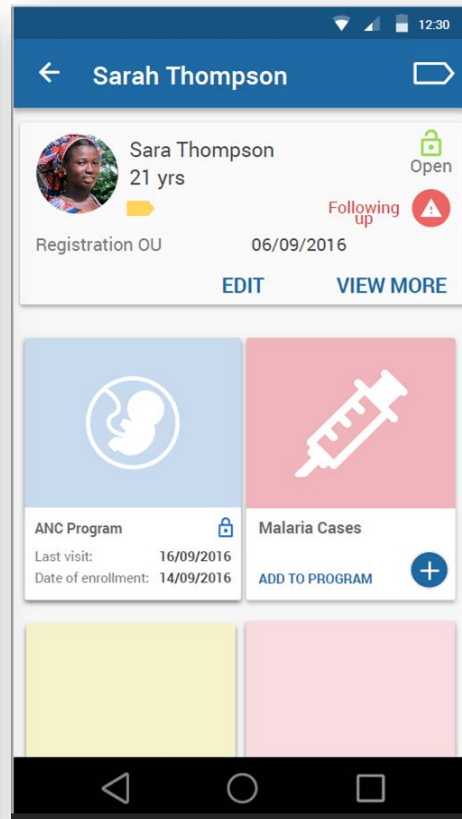
Date of birth Address

Sophia Jackson Female

Evelyn Jackson Female

Walter

Julia



Sarah Thompson 12:30

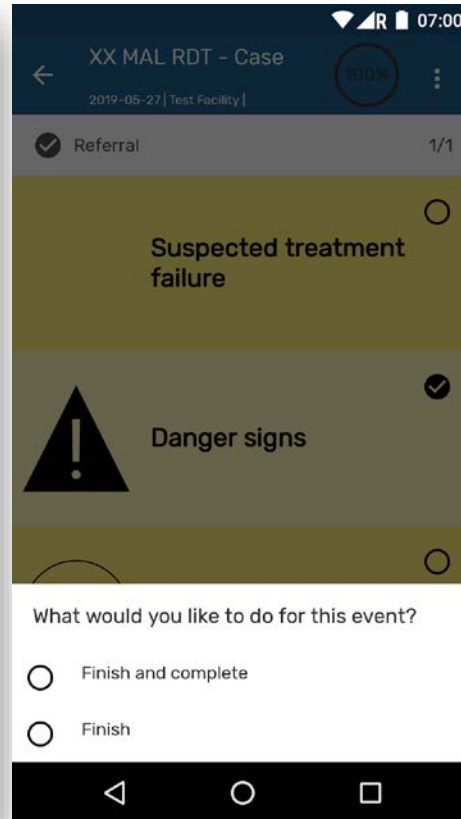
Sara Thompson 21 yrs Open

Registration OU 06/09/2016 Following up

EDIT VIEW MORE

ANC Program Last visit: 16/09/2016 Date of enrollment: 14/09/2016

Malaria Cases ADD TO PROGRAM



XX MAL RDT - Case 07:00

2019-05-27 | Test Facility |

Referral 1/1

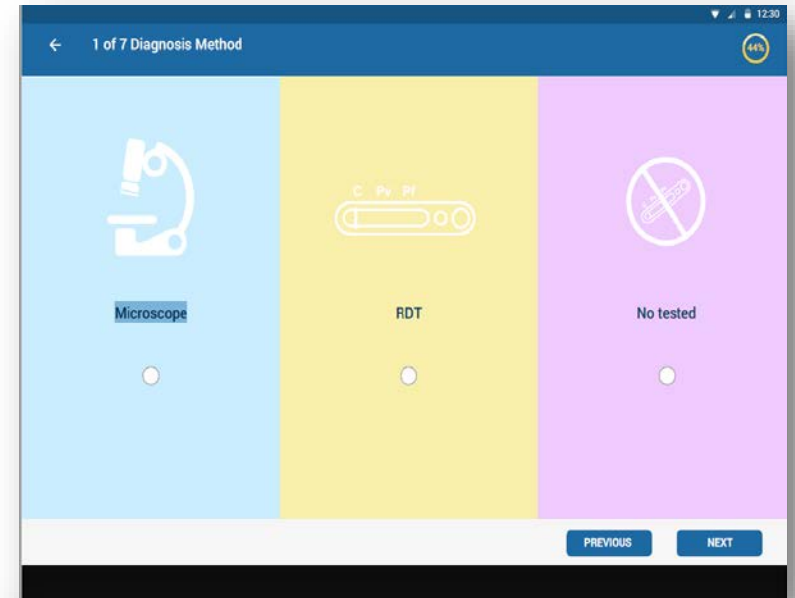
Suspected treatment failure

Danger signs

What would you like to do for this event?

Finish and complete

Finish



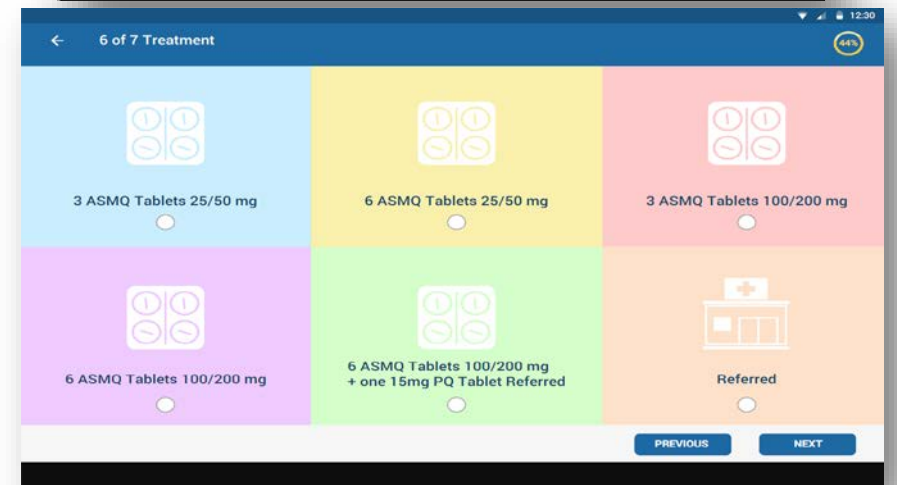
1 of 7 Diagnosis Method 44% 12:30

Microscope

RDT

No tested

PREVIOUS NEXT



6 of 7 Treatment 44% 12:30

3 ASMQ Tablets 25/50 mg

6 ASMQ Tablets 25/50 mg

3 ASMQ Tablets 100/200 mg

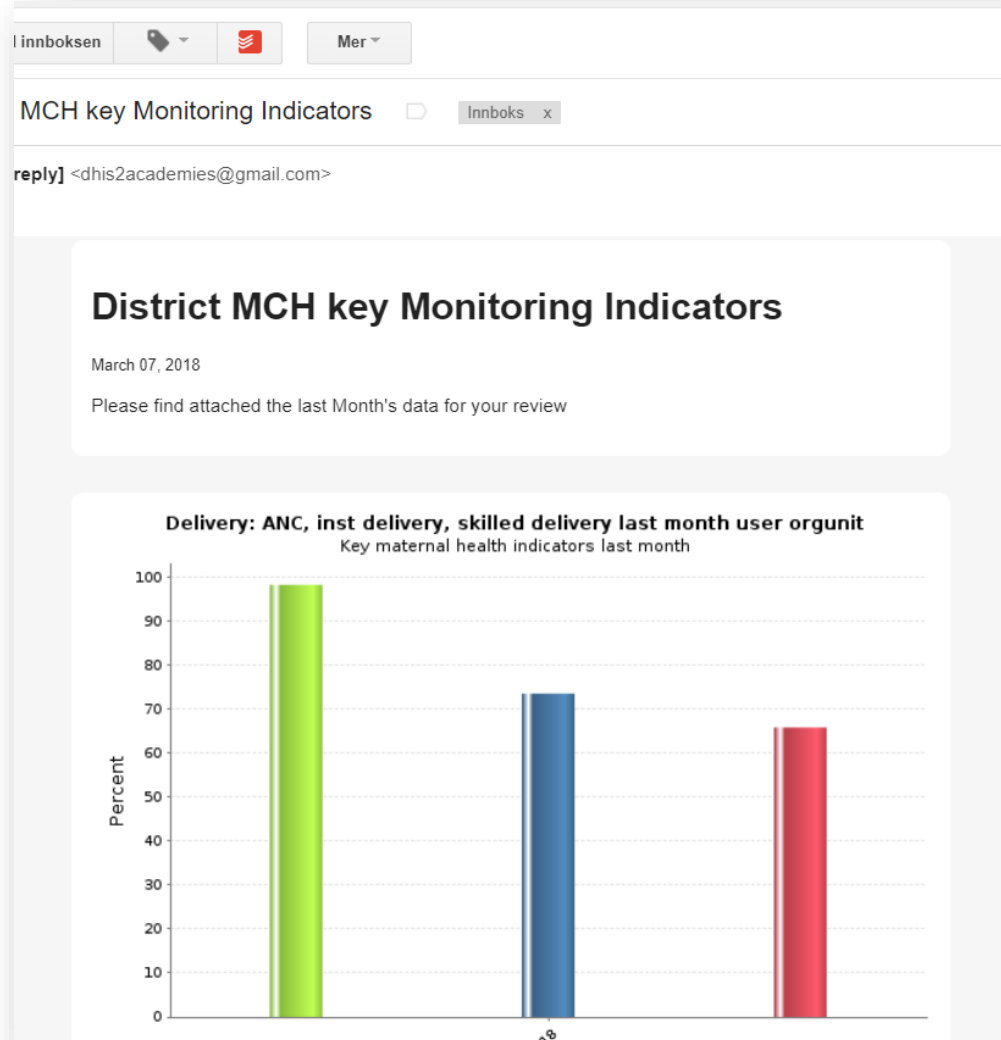
6 ASMQ Tablets 100/200 mg

6 ASMQ Tablets 100/200 mg + one 15mg PQ Tablet Referred

Referred

PREVIOUS NEXT

# Data Feedback – Get Data Out



[Data Quality] Validation violations as of 2019-05-05T03:00:00 Inbox x

**Data Quality message [No reply]** no-reply@dhis2.org via amazonses.com  
to

Violations: High 0, medium 460, low 0

ANC 1 great than ANC 4 directed for Facility 144 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 0.0 which is less than ANC4 of 21.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 173 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 1.0 which is less than ANC4 of 16.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 238 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 0.0 which is less than ANC4 of 18.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 29 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 1.0 which is less than ANC4 of 2.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 347 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 1.0 which is less than ANC4 of 2.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 374 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 4.0 which is less than ANC4 of 6.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 386 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 63.0 which is less than ANC4 of 173.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 389 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 26.0 which is less than ANC4 of 30.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 390 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 0.0 which is less than ANC4 of 2.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 545 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 0.0 which is less than ANC4 of 5.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 great than ANC 4 directed for Facility 549 on 2019-05-05 for 201904  
For 201904 reported ANC1 of 0.0 which is less than ANC4 of 48.0. This is extremely unlikely to happen. Please review the data and correct the issue or confirm the results with a comment to the ANC4 cell.

ANC 1 Outlier detected at Facility 1 for 201904 on 2019-05-05  
An outlier of ANC 1 visits has been detected. Please confirm that the value is correct.

ANC 1 Outlier detected at Facility 10 for 201904 on 2019-05-05  
An outlier of ANC 1 visits has been detected. Please confirm that the value is correct.

ANC 1 Outlier detected at Facility 100 for 201904 on 2019-05-05  
An outlier of ANC 1 visits has been detected. Please confirm that the value is correct.

ANC 1 Outlier detected at Facility 101 for 201904 on 2019-05-05  
An outlier of ANC 1 visits has been detected. Please confirm that the value is correct.

ANC 1 Outlier detected at Facility 102 for 201904 on 2019-05-05  
An outlier of ANC 1 visits has been detected. Please confirm that the value is correct.

# Data Feedback – Dashboard Android App

- PoC just completed!
- Android & iOS
- Fully supports all in-built dhis2 charts, maps & table types
- No install required: built into DHIS 2.3X

