

# WHO DHIS2 modules and tools to support countries in harmonizing and strengthening their surveillance systems

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Geneva, February 15, 2022



World Health Organization

# Outline



- The goals
- Context
- The opportunity for countries using DHIS2
- The technical solutions:
  - Malaria Modules
  - Malaria National Repository
  - MetaData Sync Application
  - Data Quality Tools



# The Goals

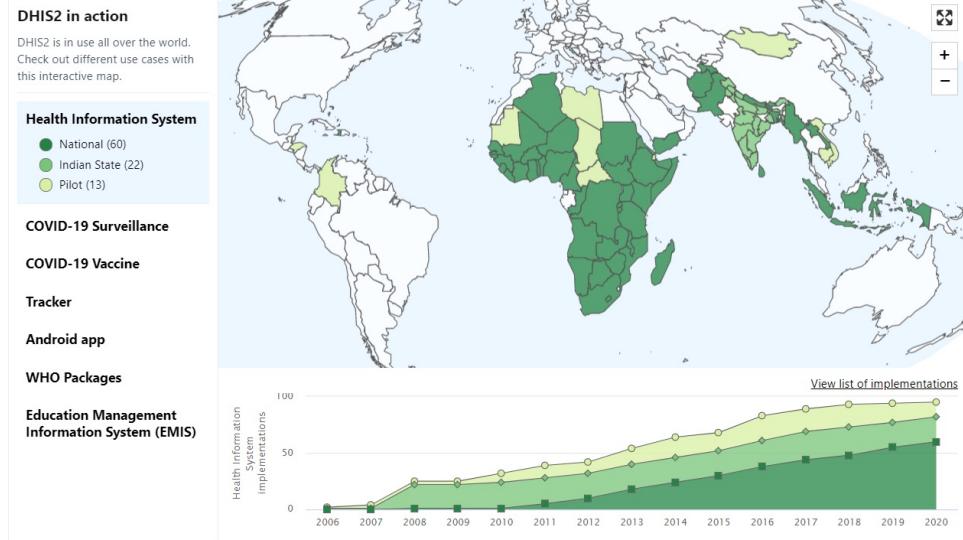
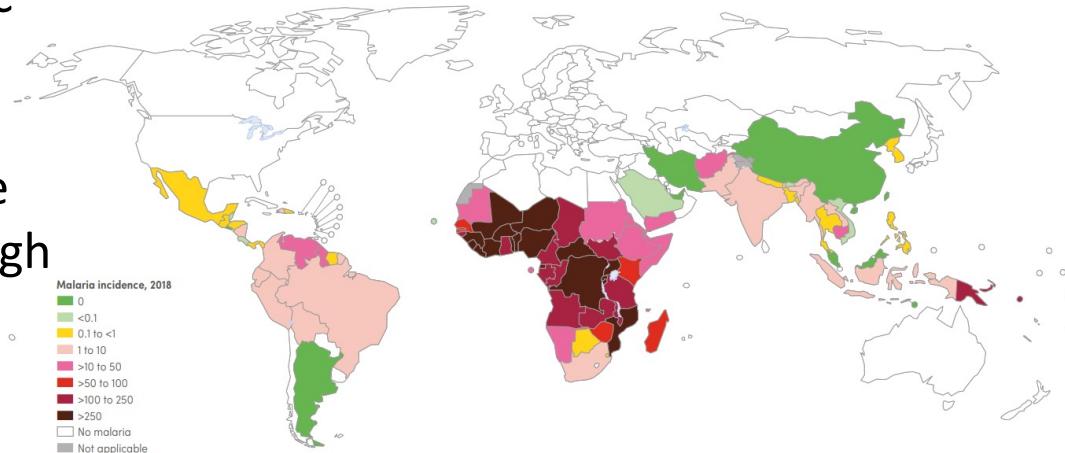
- Strengthen surveillance systems
- Disseminate WHO recommendations and guidance
  - SOPs
- Training
- To ease data reporting from countries to WHO
  - Reducing the time MoH staff invest in reporting data to WHO
  - Allowing for more frequent reporting (e.g. quarterly)
- Transferring data to malaria repositories
  - Countries full control of the process



# Context

1

Many of the malaria endemic countries had implemented DHIS2 as national health information system and were collecting malaria data through it.



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# Standardizing malaria meta-data



This starts with the standards:

- Standardized malaria modules
  - **Aggregate** module: Burden Reduction/Elimination
  - **Case-based** module: Patient and Foci
- With each module
  - Standard meta-data
    - Standard definition
    - Indicators
  - Standard visuals
    - Dashboards
      - Burden reduction/Elimination
      - Data Quality Assurance
- These are recommended starting points
  - New DHIS2 installations
  - Upgrading /Transitioning

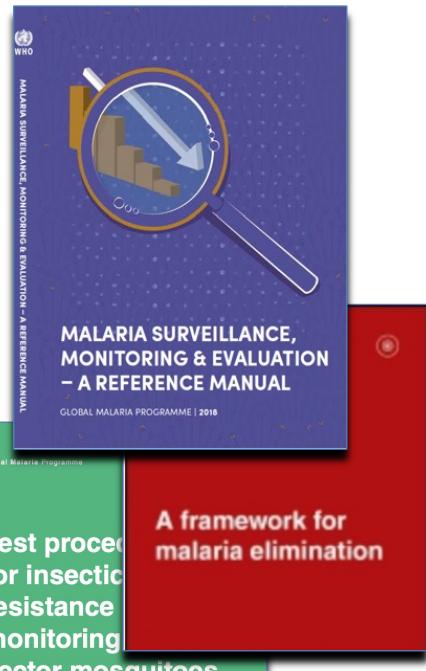


# Standard metadata packages

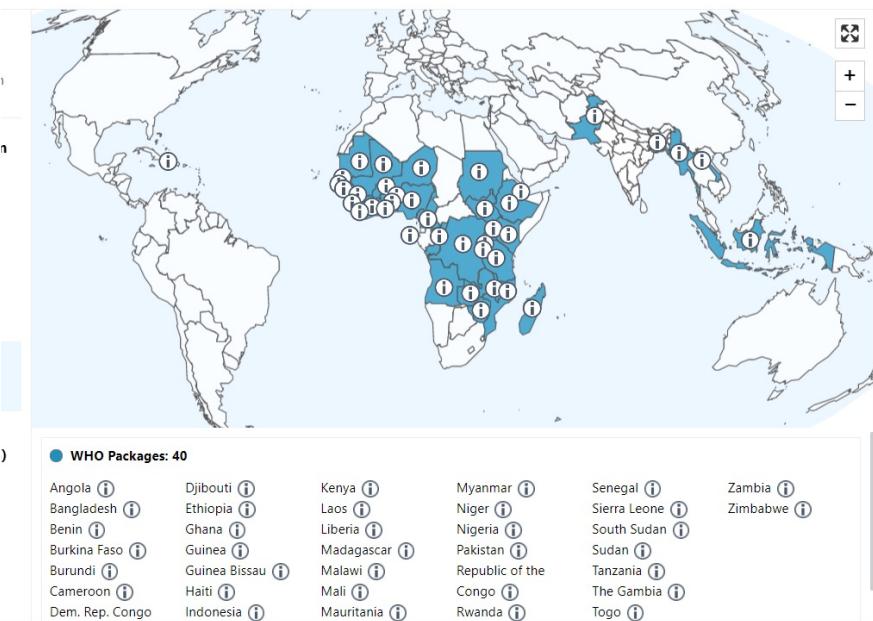
2

Modules: Aggregate/Case-based, Visualizations, Dashboards are based on:

- Malaria surveillance reference manual
- A framework for malaria elimination
- DHIS2 standard metadata packages for data collection, which have been adopted by over 40 countries



- Guidance (English)
- Guidance (French)
- Exercise book: Learner's Guide
- Exercise book: Tutor's Guide (English)
- Exercise book: Tutor's Guide (French)
- Configuration package



# Malaria Module



Meta-data packages created for the District Health Information Software (DHIS2) and therefore compatible with existing HMIS systems in many countries.

## Content

- Standardized data elements, indicators and definitions
- Standard data collection forms
- Standard data validation rules
- Standardized graphs and maps
- Standard dashboards



# Malaria Module (case-based)



Tracker capture

Malaria Case Register

Registering unit	Case Number
Banteay Neang	KH1
Ballangk	232132342
Chamnaom	450

No of pages: 1

Malaria Case Register

Date of visit: 2016-04-08 (Banteay Neang Malaria diagnosis ... Open) → 2016-04-29 (Banteay Neang Case Investigation (Overdue))

Date of investigation: 2017-07-13 (Cardinal Hospital Ga... Malaria diagnosis & t... (Open)) → 2017-08-17 (Cardinal Hospital G... Case investigation & ... (Open)) → 2017-08-18 (Cardinal Hospital Ga... Foci investigation & ... (Open))

Date of Foci Investigation: 2017-08-17 (Cardinal Hospital G... Foci investigation ... (Open))

Date of Foci Investigation: 2017-08-31

Foci Investigation

Foci name: \_\_\_\_\_

Foci name (Village name): \_\_\_\_\_

Registered as foci since: yyyy-MM-dd

Province/state: Select or search from the list

District: Select or search from the list

Commune: Select or search from the list

Name of health facility catchment area: \_\_\_\_\_

Average location of health facility (from inhabitants): Select or search from the list

Population: \_\_\_\_\_

No of households: \_\_\_\_\_

Locality: Select or search from the list

Type of population: Select or search from the list

Vulnerability: Select or search from the list

Geographical features: Select or search from the list



## Vector control

- LLIN campaigns
- IRS campaigns
- IRS residual efficacy

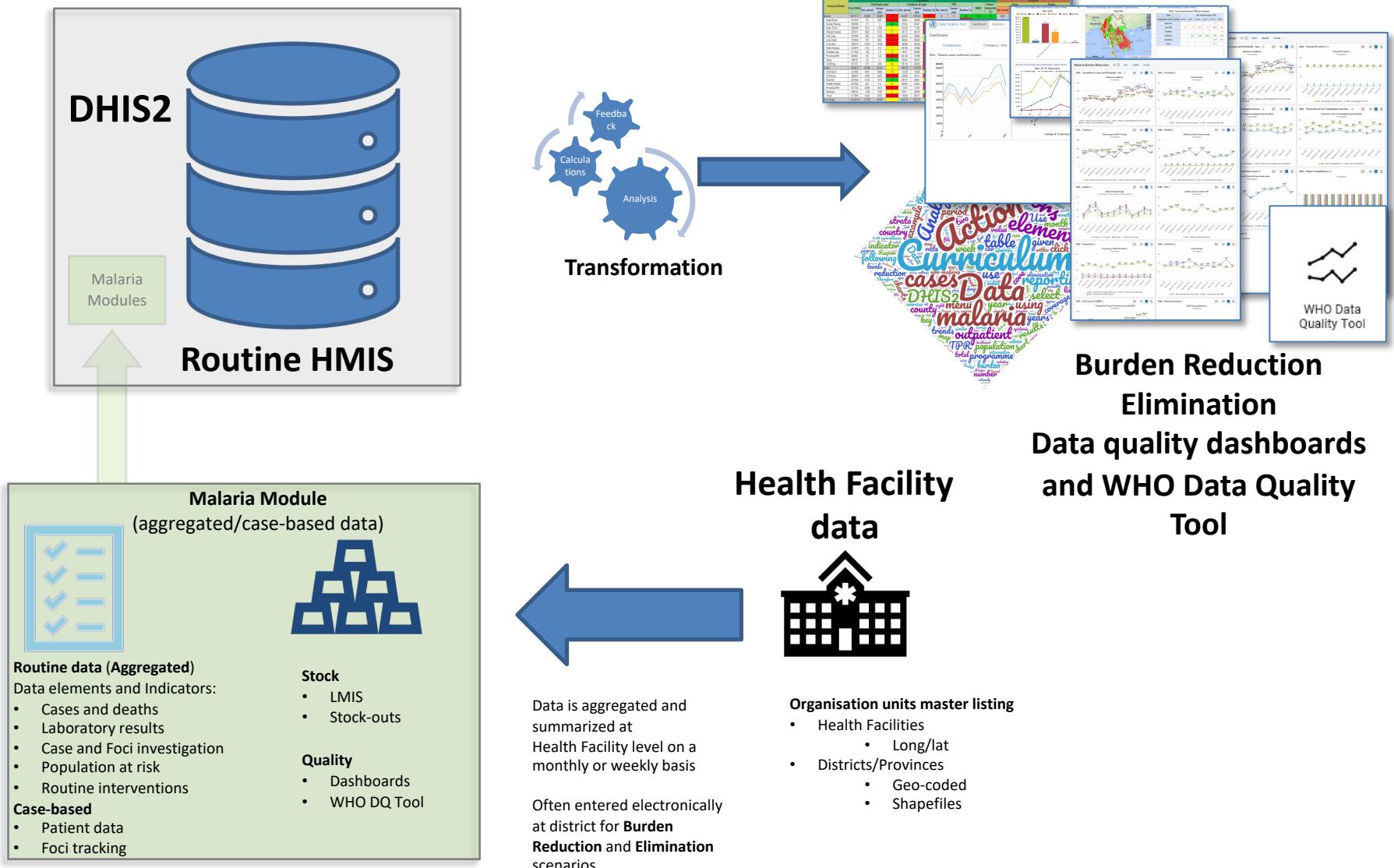


## Entomology

- Insecticide resistance monitoring
- Adult surveillance
- Immature stages surveillance



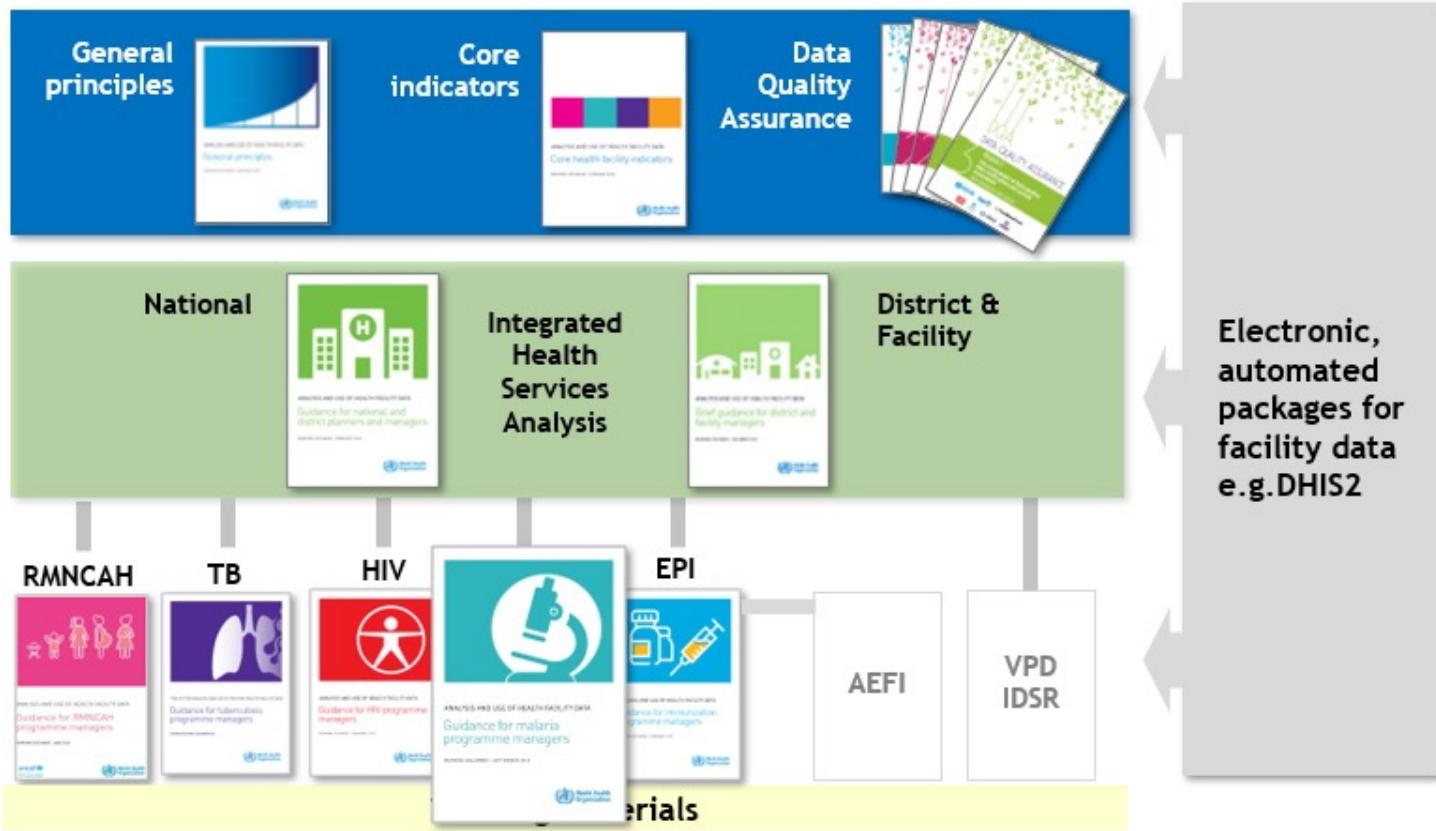
# Malaria Module (aggregated data/case-based integration)



# Malaria Modules (Integrated)

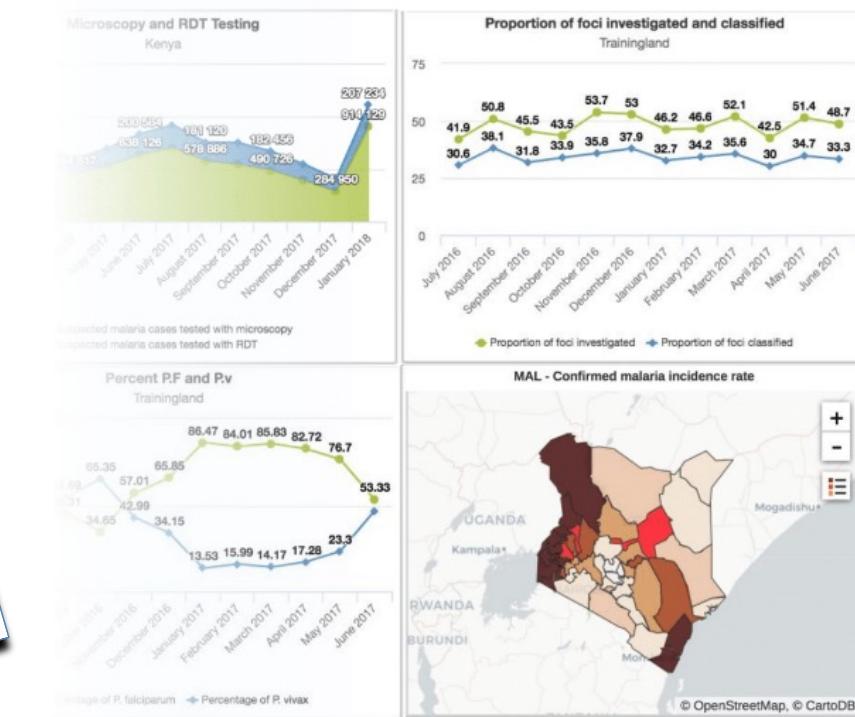


Standards for Measurement and Analysis



Malaria Module integrates into a broader set of WHO disease surveillance tools for the countries

# Guidance: Analysis and use of health facility data



- Curriculum

- Guidance for malaria programme managers
  - Provides guidance on the analysis and use of routine malaria data collected at the facility level
  - Tutorial and exercises



# Data Quality

The image shows three versions of the WHO Data Quality Review guidelines: Module 1 (Framework), Module 2 (Desk review), and Module 3 (Data verification and system assessment). To the right is a screenshot of the WHO Data Quality Tool dashboard, which includes various data visualizations such as line graphs for reporting completeness and tables for malaria case data.

- Guidance on data quality standards
  - WHO data quality review guidelines
  - WHO Data Quality Tool
  - Data Quality dashboards
  - Malaria Surveillance Assessment Toolkit
    - Web application
    - Guidance documents for toolkit

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# WHO Data Quality Tool for DHIS2



The screenshot displays the WHO Data Quality Tool for DHIS2 interface. On the left, three brochures titled 'DQR DATA QUALITY' are shown, labeled 'Module 1', 'Module 2', and 'Module 3'. The main dashboard features several tabs: 'Dashboard' (selected), 'Analysis', 'Annual Report', 'About', and 'More'. The 'Dashboard' tab contains four cards: 'Completeness' (a line graph showing confirmed malaria cases from Aug to Jul), 'Consistency - time' (a scatter plot of average vs previous period for Orgunits and National levels), 'Consistency - data' (a scatter plot of average vs previous period for Orgunits and National levels), and 'Outliers' (a scatter plot of average vs previous period for Orgunits and National levels). The 'Consistency - time' card includes a note about Jul 17.

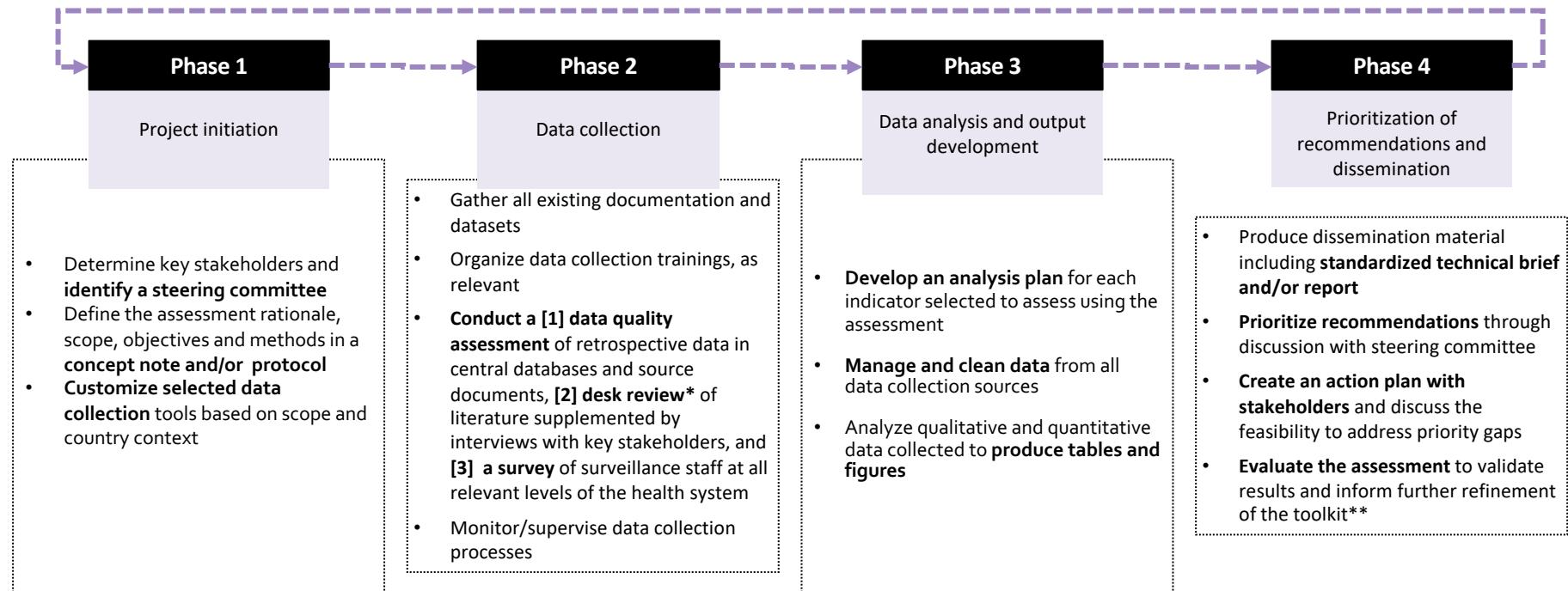


# Data Quality Dashboard

Data Quality (DQ) Dashboard is the extension of the functionality of WHO DQ tool of DHIS2. There are four domains of DQ indicators of malaria surveillance:

1. **Completeness** – available at DQ dashboard
2. **Timeliness** – available at DQ dashboard
3. **Consistency** – available at DQ dashboard
4. **Concordance** – available at **Surveillance Assessment Toolkit** (desk level and service delivery level data quality assessment)

# Malaria surveillance assessment toolkit (Web App)

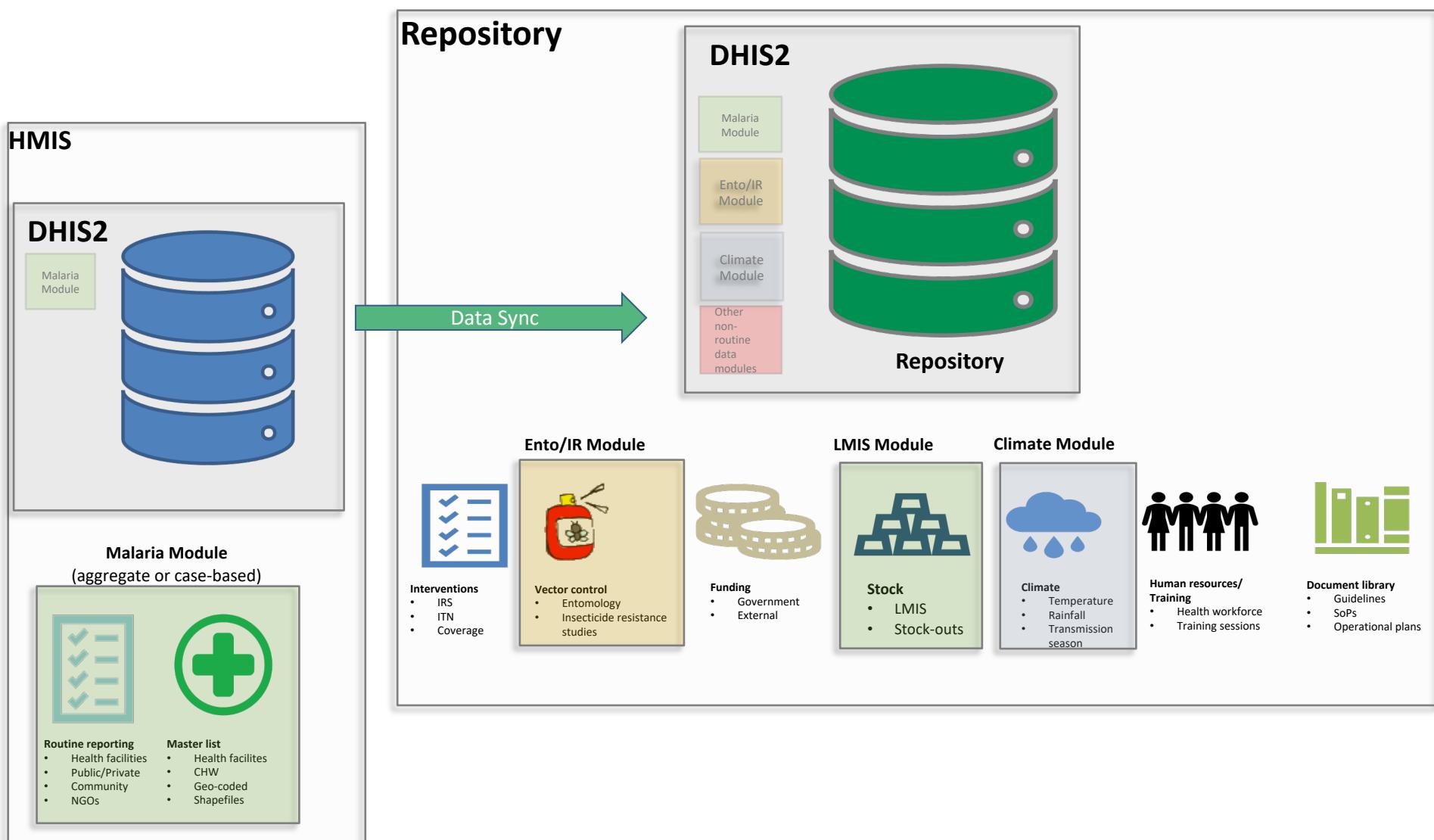


\*the desk review may begin in phase 1 to inform the protocol or concept note

\*\* the expenditure tracking component of the evaluation plan should begin as soon as assessment activities start



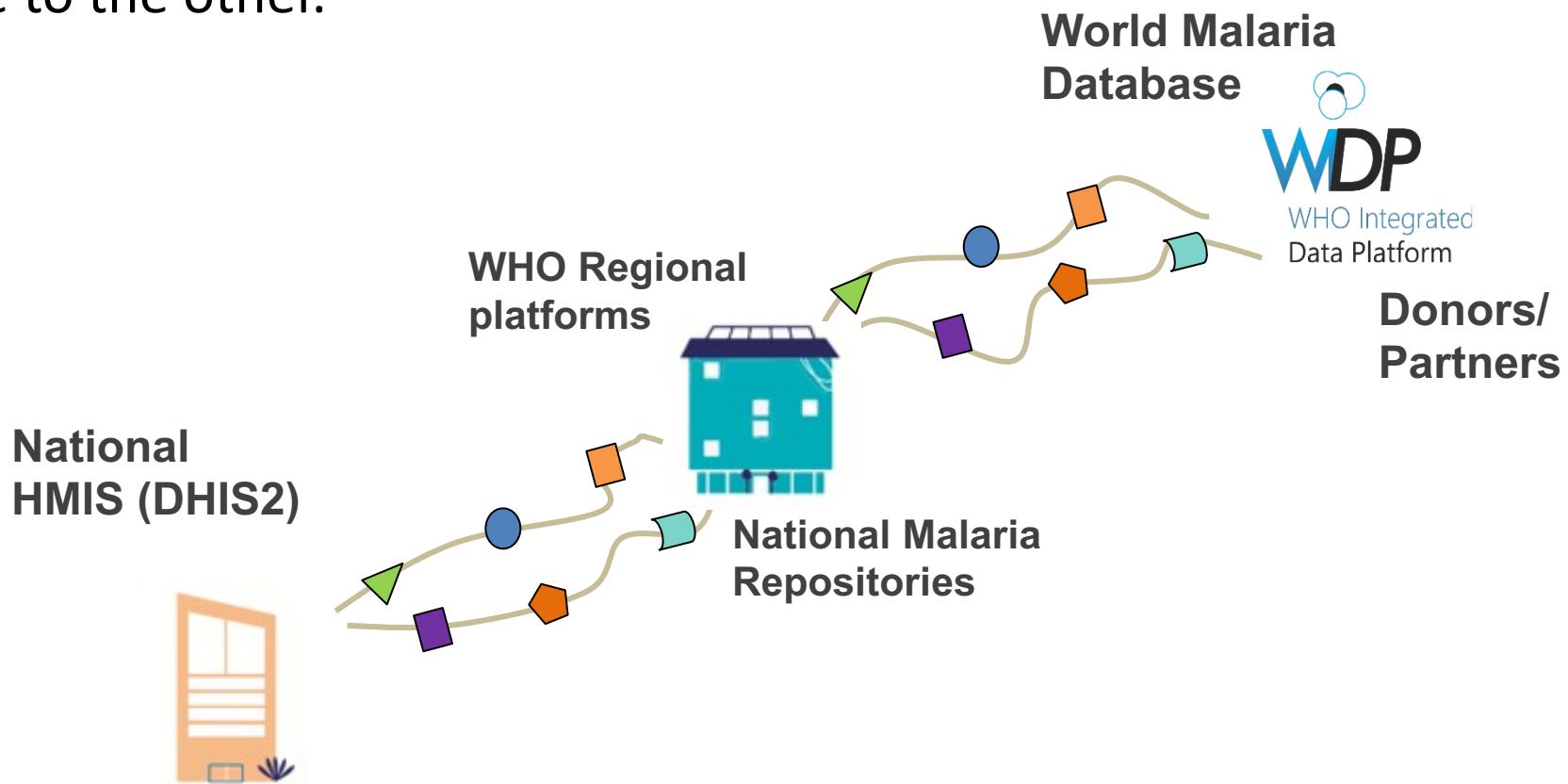
# Malaria National Repository



# Data sharing and reporting



To connect countries national DHIS2 systems (HMIS) to WHO DHIS2 implementations, so that **data** could flow seamlessly from one to the other.



# The technical solution- MetaData Sync App



A tool to support the transfer of data from national HMIS to WHO DHIS2 platforms

## Functionalities

- **Maps metadata:** Allows to map the metadata of a country instance with the global WHO metadata.
- **Sends data:** Sends selected data from one country DHIS2 to WHO DHIS2 implementations, making all necessary transformation on the fly
- **Executes data reporting at fix frequencies:** Schedule data reporting to be executed automatically at the time intervals of countries' choice

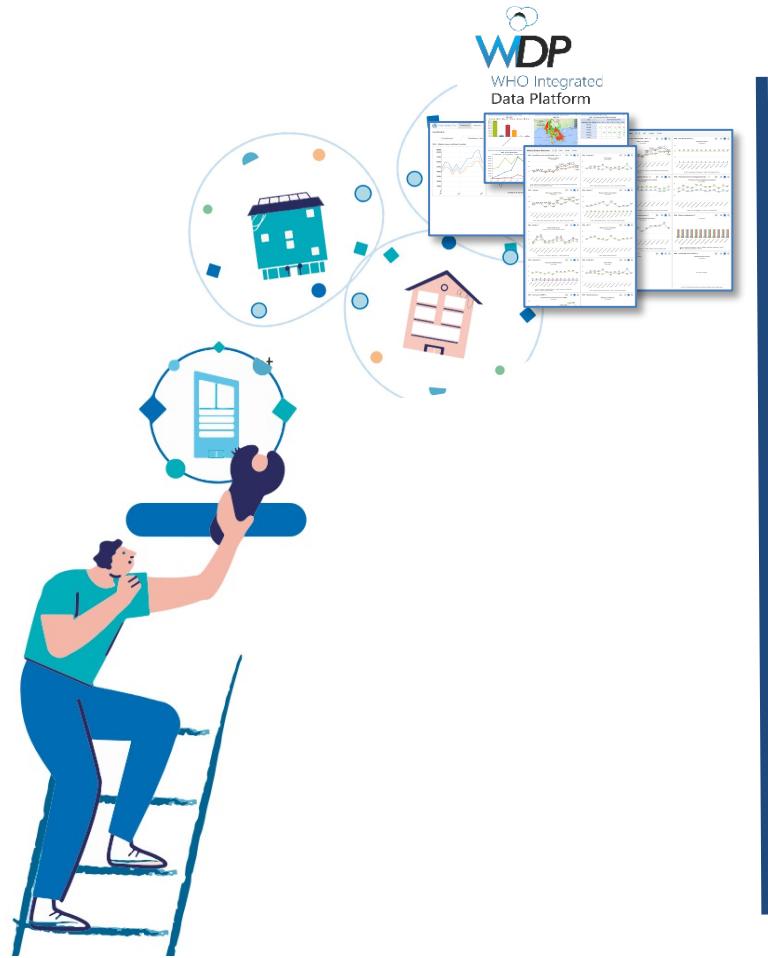
**Country control:** Countries decide what data to share and when to share it with WHO.  
Nothing happens without the control of the country



# The technical solution- MetaData Sync App



From mainly manual reporting



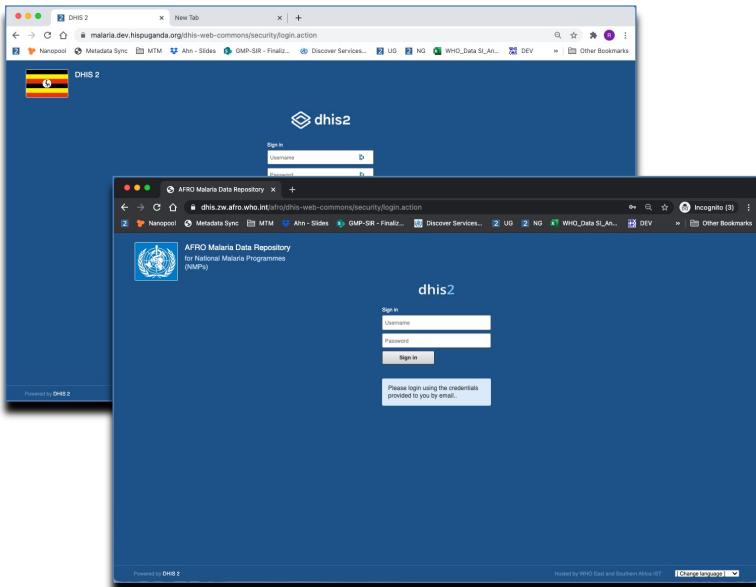
To automatize reporting





# MetaData Sync Application: Workflow

## Synchronize two DHIS2 instances



## MD Sync Workflow

### Step1 DHIS admin

Install MDSync app

### Step2 Sysadmin

Install scheduling script\*

\*not mandatory

### Step3 DHIS admin

Assign user roles:  
Run Access / Configurators

### Step4 MD Sync Configurator

Create destination instances

### Step5 MD Sync Configurator

Mapping Destination instances

### Step6 MD Sync Configurator

Create sync rules

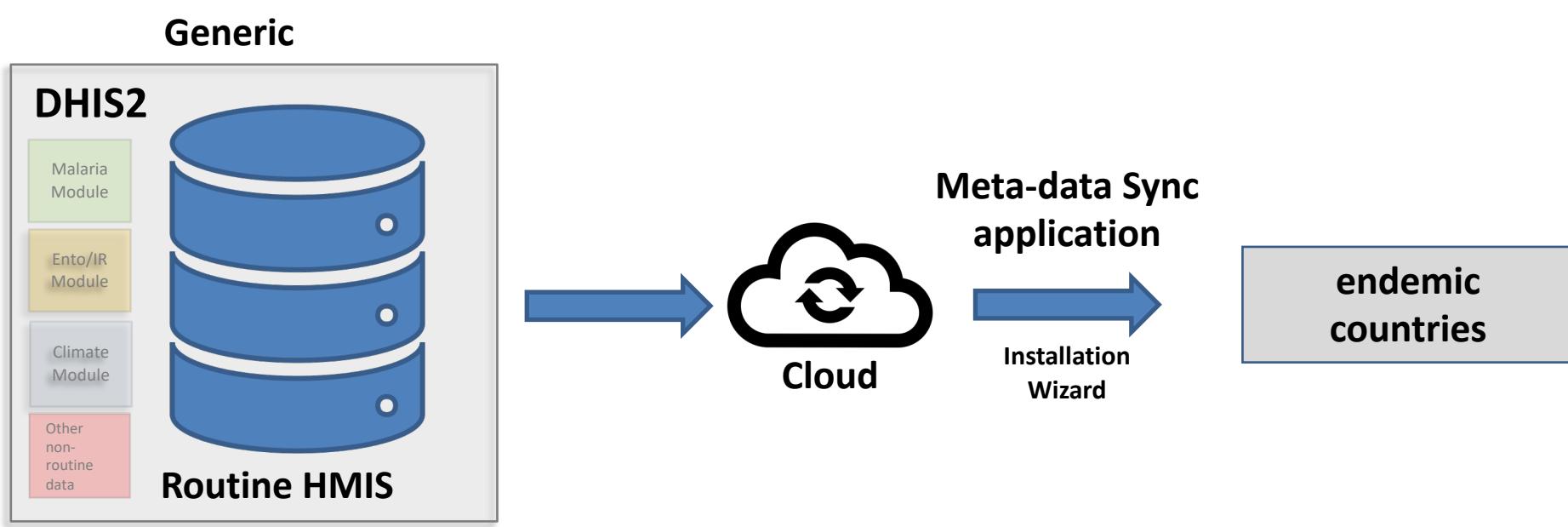
### Step7 MD Sync Configurator

Assign sharing settings to sync rules

### Step8 MD Sync Executor

Synchronize!

# Malaria Repository deployment to countries



**Develop and application to assist countries with installation and maintenance**

- Guided customized installation
- Guided customize upgrades
- Remote support

THANK YOU  
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