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

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

Especially the countries with the highest burden and the lowest capacity.
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
    o Standard definition
    o Indicators
  • Standard visuals
    o Dashboards
      – Burden reduction/Elimination
      – Data Quality Assurance

• These are recommended starting points
  • New DHIS2 installations
  • Upgrading /Transitioning
Standard metadata packages

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 (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)

- Patient registration (patient Id)
- Diagnosis, confirmation and Treatment
- Case investigation
- Foci investigation
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)

**Routine HMIS**
- DHIS2
- Malaria Module (aggregated/case-based data)
  - Routine data (Aggregated)
    - Data elements and Indicators:
      - Cases and deaths
      - Laboratory results
      - Case and Foci investigation
      - Population at risk
      - Routine interventions
  - Case-based
    - Patient data
    - Foci tracking
  - Stock
    - LMIS
    - Stock-outs
  - Quality
    - Dashboards
    - WHO DQ Tool

**Data Quality**
- Burden Reduction
- Elimination
- Data quality dashboards and WHO Data Quality Tool

**Health Facility data**
- Data is aggregated and summarized at Health Facility level on a monthly or weekly basis
- Often entered electronically at district for Burden Reduction and Elimination scenarios

**Organization units master listing**
- Health Facilities
- Long/lat
- Districts/Provinces
  - Geo-coded
  - Shapefiles

Global Malaria Programme
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

- 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

Global Malaria Programme
WHO Data Quality Tool for DHIS2

Global Malaria Programme
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)

**Phase 1: Project initiation**
- Determine key stakeholders and identify a steering committee
- Define the assessment rationale, scope, objectives and methods in a concept note and/or protocol
- Customize selected data collection tools based on scope and country context

**Phase 2: Data collection**
- Gather all existing documentation and datasets
- Organize data collection trainings, as relevant
- Conduct a [1] data quality assessment of retrospective data in central databases and source documents, [2] desk review* of literature supplemented by interviews with key stakeholders, and [3] a survey of surveillance staff at all relevant levels of the health system
- Monitor/supervise data collection processes

**Phase 3: Data analysis and output development**
- Develop an analysis plan for each indicator selected to assess using the assessment
- Manage and clean data from all data collection sources
- Analyze qualitative and quantitative data collected to produce tables and figures

**Phase 4: Prioritization of recommendations and dissemination**
- Produce dissemination material including standardized technical brief and/or report
- Prioritize recommendations through discussion with steering committee
- Create an action plan with stakeholders and discuss the feasibility to address priority gaps
- Evaluate the assessment to validate results and inform further refinement of the toolkit**

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*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

DHIS2

Repository

Malaria Module

Ento/IR Module

LMIS Module

Climate Module

DHIS2

Malaria Module

Ento/IR Module

Climate Module

Other non-routine data modules

Repository

Data Sync

HMIS

Anticipated interventions

Vector control

Entomology

Insecticide resistance studies

Interventions

• IRS
• ITN
• Coverage

Human resources/Training

• Health workforce
• Training sessions

Document library

• Guidelines
• SoPs
• Operational plans

Funding

• Government
• External

Stock

• LMIS
• Stock-outs

Climate

• Temperature
• Rainfall
• Transmission season

Malaria Module

(aggregate or case-based)

Routine reporting

• Health facilities
• Public/Private
• Community
• NGDs

Master list

• Health facilities
• CHW
• Geo-coded
• Shapefiles

Global Malaria Programme

World Health Organization
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
Synchronize two DHIS2 instances

MD Sync Workflow

1. Step1 DHIS admin
   Install MDSync app
2. Step2 Sysadmin
   Install scheduling script*
   *not mandatory
3. Step3 DHIS admin
   Assign user roles: Run Access / Configurators
4. Step4 MD Sync Configurator
   Create destination instances
5. Step5 MD Sync Configurator
   Mapping Destination instances
6. Step6 MD Sync Configurator
   Create sync rules
7. Step7 MD Sync Configurator
   Assign sharing settings to sync rules
8. 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

Endemic countries
THANK YOU
MERCI