Malaria Surveillance

DHIS2 Annual Conference
17th of June 2019
New features in DHIS2 for malaria surveillance and the Digital Solutions for Malaria Elimination (DSME) grant
Agenda

- DSME project overview
- DHIS2-specific development and features
- Current country implementations and plans
Gaps in surveillance systems

- A **landscape assessment** of current surveillance systems was conducted in 16 countries from 2015-16: most current health information systems for surveillance have **several shortcomings** and provide **inadequate support** for malaria elimination.

- **No single information system** can currently facilitate the **data collection and analysis** of individual cases, case investigations, foci investigations, response interventions, and support task management. Gaps exist in
  - **Data analytics and visualization**, particularly on geospatial visualization and dashboards
  - **Integrating and linking** different types of malaria data

- **Mobile surveillance tools**
  - do not correspond to the **operational workflows** of malaria health workers and health facilities,
  - are not built appropriately for **low infrastructure** and literacy settings,
  - and are **difficult to configure** and customize to different countries

This grant aims to address these gaps in information systems and mobile tools
The DSME project aims to strengthen and roll out integrated surveillance information systems with upgraded core DHIS2 functionality and effective mobile tools in a sustainable policy and tech environment across malaria elimination geographies.
The importance of surveillance for malaria elimination

The way towards elimination and staying there -

- Detect, notify, follow up and investigate all new malaria cases
- End transmission of new cases by targeted interventions based on data collected
- Ultimately, get certified by WHO
- Will rely on a fully functional national surveillance and response system which is sensitive and robust
  - like DHIS2!
Detect, notify, follow up and investigate all cases

- Often happens at community level, in low connectivity and low literacy settings
  - Low literacy: The DHIS2 Android app has many icons and colors that can be configured for different metadata
  - Low connectivity: Sharing of QR codes, and upcoming functionality around sending cases through SMS in areas with no connectivity
Detect, notify, follow up and investigate all cases

Working lists and user assignment of events for task and workload planning:

- Make sure both that events/tasks (for example a case investigation) are assigned to the right person - and that this person does the task in a timely manner
- New variables in program indicators to calculate days between events, between created and sync date of events to analyze timeliness and follow-up
End transmission of new cases

Relationships will help with identifying what cases belong to what focus - to determine whether a focus is active and might need interventions to reduce transmission.
End transmission of new cases

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Being able to analyze trends in number of cases, outbreaks across years - through analysis like year on year charts, dual-axis charts and dashboard filters
End transmission of new cases

Being able to style by data points - like type of malaria, mode of transmission etc. - use that data for analysis and planning of interventions
All of this will lead to….

....providing relevant information and data to support the process of elimination and certification!
Implementation
10 countries with near-term elimination goals will be the focus of implementation of DSME tools, optimizing opportunities for impact.

Countries were selected across regions, based on interest from malaria programs, long term in-country presence by core partners, and existing adoption of surveillance processes and digital solutions.
Android Implementation Snapshot 2019: Southern Africa

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<th>Country</th>
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Key features of interest:
- Consolidation of Android apps into 1
- Search functionality
- Presence of org unit hierarchy
- Improved UI/UX
- Icons and Colors
- Task Management
Core Implementation Snapshot 2019: Southern Africa

Key features of interest:

- Improved data visualisation
  - Mapping
  - Chart options
  - Line listing
- Advanced relationships and relationship analytics
- Usage analytics for supervision and M&E
- Task management
- Duplicate handling
- Improved UI/UX
  - Saving clicks
  - Making data entry easier
Country Highlight: An integrated Malaria Information System in South Africa

Major core improvements anticipated through 2.33, motivating early adoption of DSME outputs:

- **Cascading dropdowns**
  - Will improve travel history and source of infection capture, which are critical for identifying areas of transmission

- **Multi-axis charts:**
  - Will greatly improve the program’s ability to analyse data from different program areas together, like cases vs. intervention coverage

- **Relationship and relationship analytics:**
  - Will allow teams to monitor adherence to Foci guidelines and SOP’s, ensuring re-active activities are being conducted in response to index cases

- **Improved line listing**
  - Will allow teams to monitor follow-up activities and quickly see what stages are outstanding
Country Highlight: An integrated Malaria Information System in South Africa

Cases Program
- Case Notification
- Lab Results
- Case Investigation
- Supervisor approval
- 7/14/28-day follow-up

IRS Program
- Location and Team Info
- Spray Report
- Spray Report
- Spray Report...

Active Case Detection
- Contacts tested

Larval surveillance
- Collection info
- Morphology ID
- PCR ID

Adult vector surveillance
- Collection info (by morphology ID)
- PCR ID

Cone bioassay
- Insecticide susceptibility

Foci Register
- Annual Focus Register

Foci Investigation
- Surveillance team checklist
- Vector control team checklist
Country Highlight: An integrated Malaria Information System in South Africa

Depending on the suspected drivers of transmission, teams may implement one or more targeted response activities.

Relationships and corresponding outputs will allow programs to connect the dots and carefully monitor what response activities are being conducted, and how appropriate they are for the context.
Country Highlight: An integrated Malaria Information System in South Africa

Focus profile:
- Geographic characteristics
- Demographic characteristics
- Spatial distribution of cases
- Case counts and classifications
- Testing rates
- Vector densities and profile
- Intervention coverage
Country Highlight: An integrated Malaria Information System in South Africa

CONTACT TRACING
1. Number of contacts tested per index case
2. Number of positive contacts per index case

IRS
1. Number of re-active/focal spraying events
2. Number of spray quality tests in response to an index case
3. Number of spray residual efficacy tests in response to an index case

ENTOMOLOGY
1. Number of adult vector sampling events in response to an index case
2. Number of larval sampling events in response to an index case

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All with improved visualisation capabilities and dashboards
Country Highlight: Android piloting and Foci design in Zimbabwe

Android:
- Select case investigators in across districts are piloting the new Android app on a test server
- Feedback from end users is being fed back to report any technical issues, bugs, and suggestions for enhancements
- Program priorities:
  - User friendliness
  - Improved search and navigation
  - Forthcoming task management capabilities

Core
- Program has highlighted the following features as being key to incorporation of Foci:
  - Mapping:
    - Ability to layer data form different programmatic areas
    - Inclusion of points and polygons
    - Ability to filter data
    - Ability to color code data
  - Relationships
    - Ability to visualize relationships on a map
    - Ability to calculate indicators on relationships
Implementation in Honduras

Sistema Integrado de Información en Salud
Sistema para la captura y visualización de datos de Salud

Sign in

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Sign in

Powered by DHIS 2  Secretaria de Salud de Honduras
Unidad de Gestion de la Informacion
Sistema Integrado de Información en Salud SIIS

- National Platform for Malaria, HIV and TB
- Used also in SESAL (MoH) for other programs and events.
- Current status for malaria implementation:
  - DHIS2 2.27 (Notification and investigation forms, Lab, Ento)
  - Tracker capture 0.4.0 (Notification and investigation forms)
  - Implemented nationwide in all 20 regions (web based platform)
  - Actively using mobile capture in 2 regions (Islas and Gracias a Dios, ~25 users)
- Custom applications:
  - Dreams reports.
  - Sharing settings.
2018 Initial visit DSME

Findings
- Difficulty in adding new features in the DHIS2
- Difficulty in capturing geographic data points
- Duplicative flow of information
- Analytics and Dashboards are not user friendly
- VC, interventions, laboratory, supply chain not integrated at the local level
- Poor internet coverage
- Lack of MDM (Mobile device Management)
- Need for a more user-centric interface
- Potential data validation or calculation issues

Solutions
- Define a policy or guideline for implementing new DHIS2 functionality
- Verification process or digital tool to track the exact coordinates
- Better workflow to reduce redundancies
- Analytics Training
- Data and system integration
- Better understand the impact of infrastructure challenges
- Enhance the user interface to better fit the needs of the users
- Training and workshops to enhance ability
- Create better validation rules
SIIS upgrade

- Upgrading to 2.30 to be completed by July ~ mid August
- New features, cascade selections, new dashboard and maps.
  - Combine several layers.
- Custom applications updates (Support from UiO, HISP Colombia).
- New DHIS2 Capture Android App in the field.
  - Increasing to ~65 users
    - Increasing to 5 Regions (3 new regions, Yoro, El Paraíso y Colón)
- Improving infrastructure, new Database server, server replication.
- Increasing capacity in UGI (Implementation strategies).
SIIS training

- New youtube channel for end users reference.
  - [https://www.youtube.com/channel/UCJApDslq26E5q8wjMDwrbeQ](https://www.youtube.com/channel/UCJApDslq26E5q8wjMDwrbeQ)

- Updating the M&E Plan.

- Feedback from users.
DHIS2 Capture training

OU hierarchy when enrolling a patient

Patient’s page in Android DHIS2 App
Analytics training

Creating a new graph

Creating a new map
Questions?