



Optimizing Malaria Measurement System in Ghana

Measurement in the Context of Reduced Funding

Wahjib Mohammed

SME Specialist (Lead), National Malaria Elimination Programme
Ghana Health Service | Ministry of Health

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National Malaria Elimination Programme - Ghana



Outline

- Brief Background
- National Malaria Goals
- Objectives of Measurement Optimization
- Ghana's Malaria Measurement Ecosystem
- How We Use Data for decision making
- Optimization to for efficiency:
- Current Integration Status
- Operational challenges
- Next Steps

Background: Malaria Measurement System Review: MPR 2012

Malaria surveillance and M&E data management system has evolved from three parallel routine malaria surveillance systems:

- DHIMS of the Centre for Health Information Management (CHIM),
- the Integrated Disease Surveillance and Response (IDSR) system, and
- the vertical malaria surveillance system established by the NMCP.

Table 19: SWOT Analysis, Surveillance, Monitoring and Evaluation

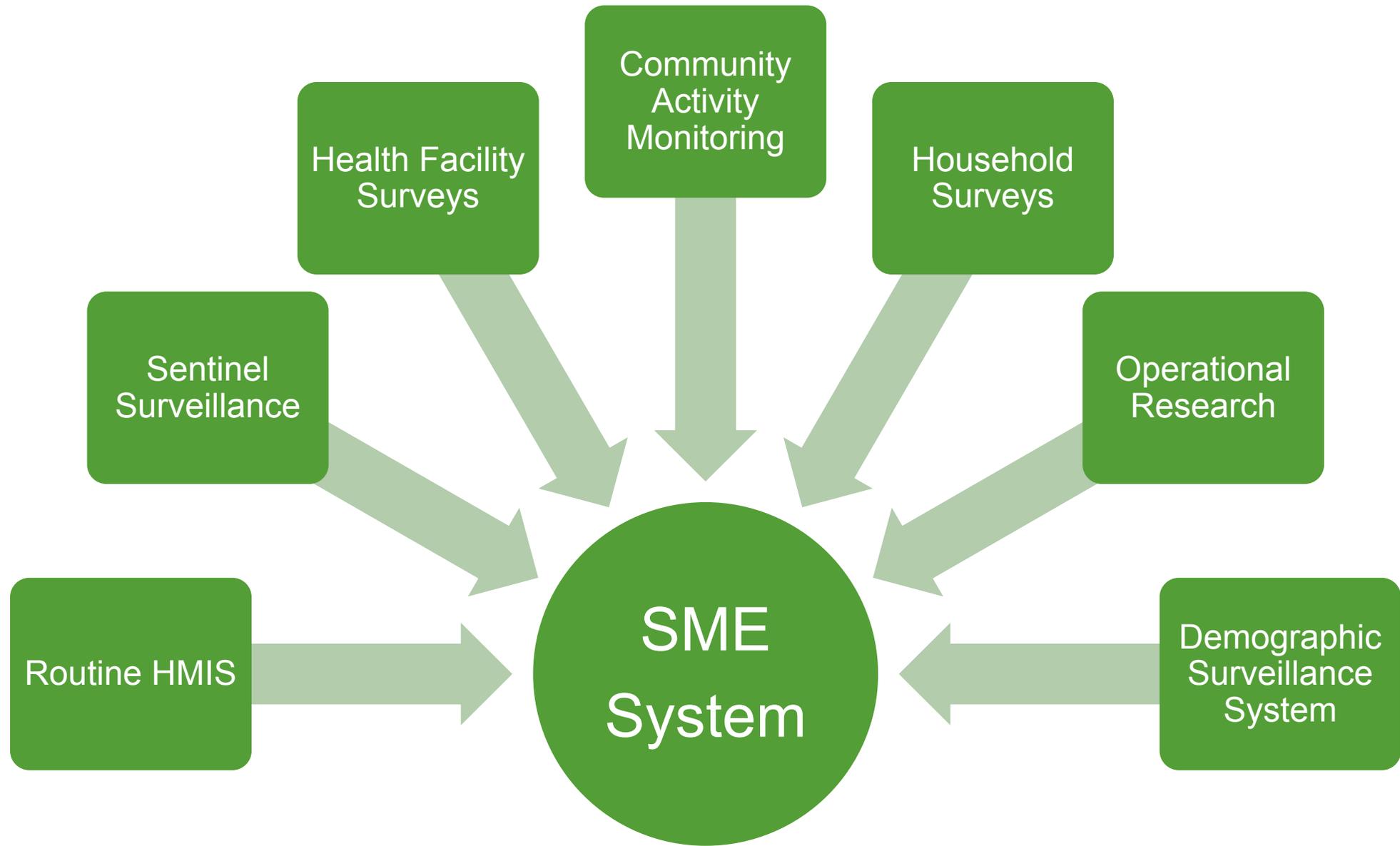
Thematic Area	Strengths	Weakness	Opportunities	Threats
Malaria surveillance	<ul style="list-style-type: none"> • Established sentinel sites for anti-malaria <u>drugs</u> efficacy testing • Improved DHIMS exist • Well trained staff • Standard operating procedures have been developed to ensure standardization • Timelines for data submission have been defined • Performance indicators have been developed • Monitoring and evaluation plan developed and disseminated 	<ul style="list-style-type: none"> • No stratification of malaria endemicity at the district level • No clear cut age stratification for malaria endemicity • No sentinel sites for monitoring insecticide resistance • Malaria Data not effectively used at the district level • No harmonization of monthly data collection tools. • Multiple tools collecting same variables at the facility level • Poor timing for the introduction of tools • Parallel data collection systems which places a burden on health facilities 	<ul style="list-style-type: none"> • District data already exist • District malaria focal person available • Have institutional capacity to set up insecticide resistance monitoring sentinel sites 	<ul style="list-style-type: none"> • Inadequate resources • Inadequate personnel • Different organizations doing surveillance which is not supervised
Information	<ul style="list-style-type: none"> • Standardized data collection tools have been developed • Official data sources have been designated 	<ul style="list-style-type: none"> • Inadequate funding for the DHIMS • Incomplete malaria data and delayed reporting from the facility • Lack of collaboration between stakeholders, especially private sector data collection 		<ul style="list-style-type: none"> • Different organizations presenting confusing malaria data
Surveys	<ul style="list-style-type: none"> • Good collaboration among NMCP and research Institutions 	<ul style="list-style-type: none"> • Results of quite a number of surveys are not widely disseminated to inform policy 		<ul style="list-style-type: none"> • Inadequate funding for surveys
Operational Research (OR)	<ul style="list-style-type: none"> • Technical expertise is available in the country 	<ul style="list-style-type: none"> • Very few Operational Research (OR) being carried out 	<ul style="list-style-type: none"> • Have research Institutions that can be used to carry out OR 	

Malaria Measurement System Optimization

Objectives

- Prioritise essential data for action
- Reduce duplication and Improve interoperability while strengthening data security
- Improve clarity in data variables and indicators and data quality
- Digitize data sources where applicable to improve efficiency; data quality, decision, cost
- Integrating community interventions systems; e.g SMC, ITN Mass Campaign and Malaria vaccine follow-up
- Contribute to overall health system strengthening

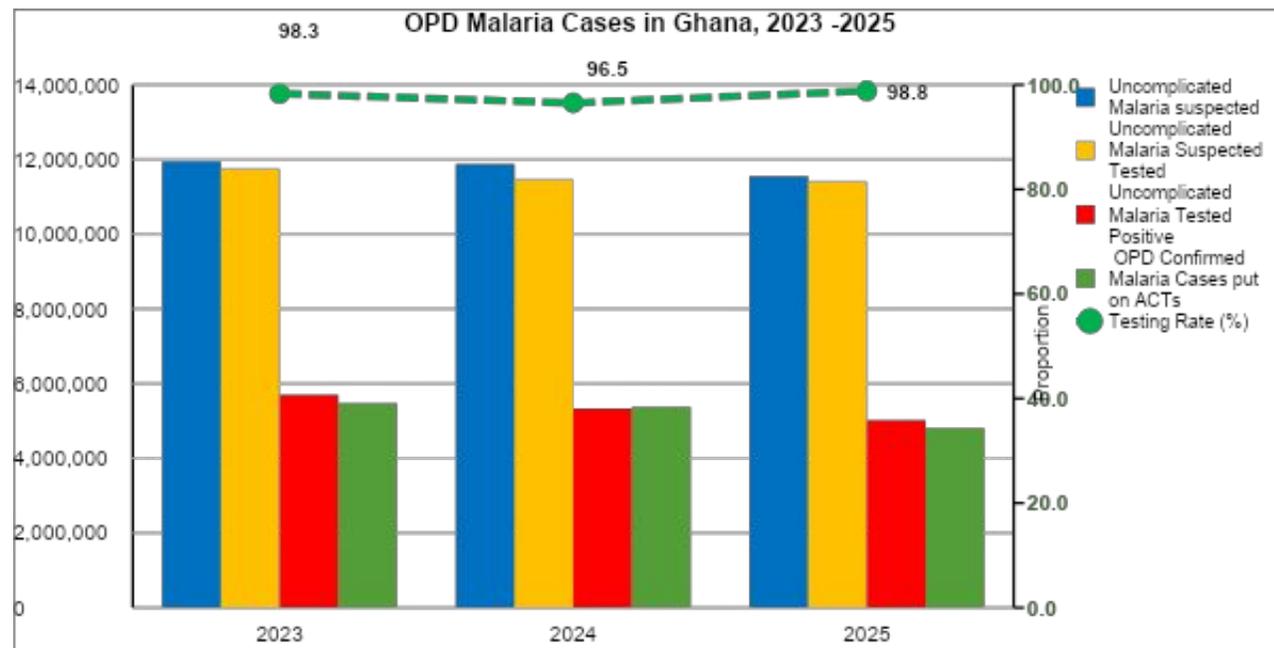
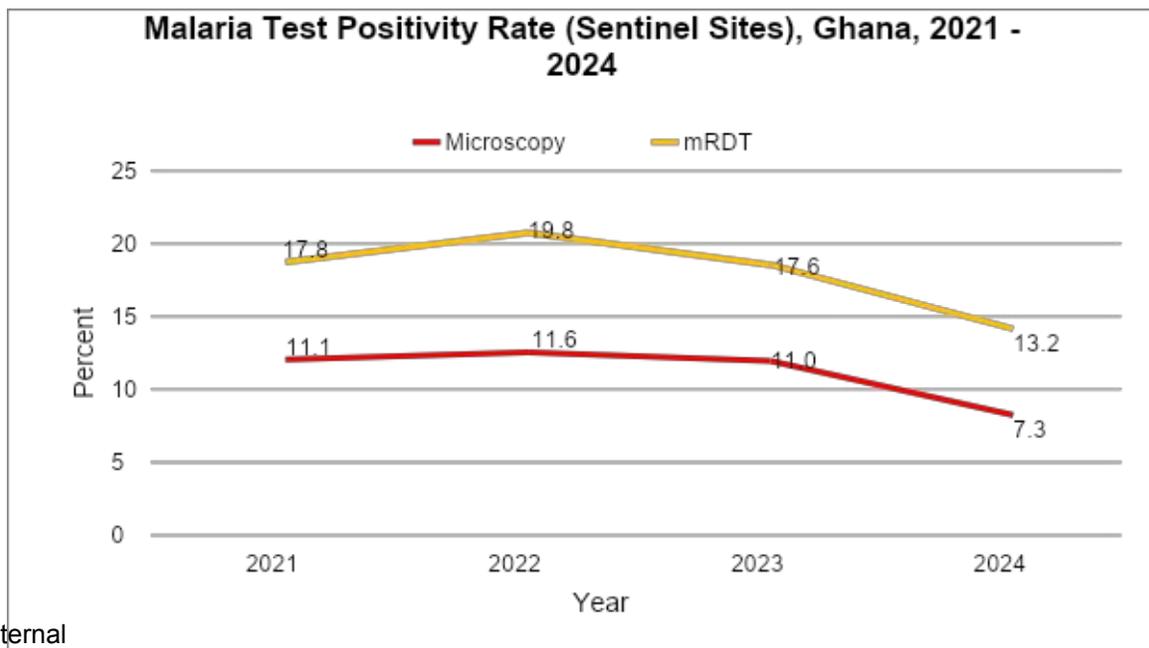
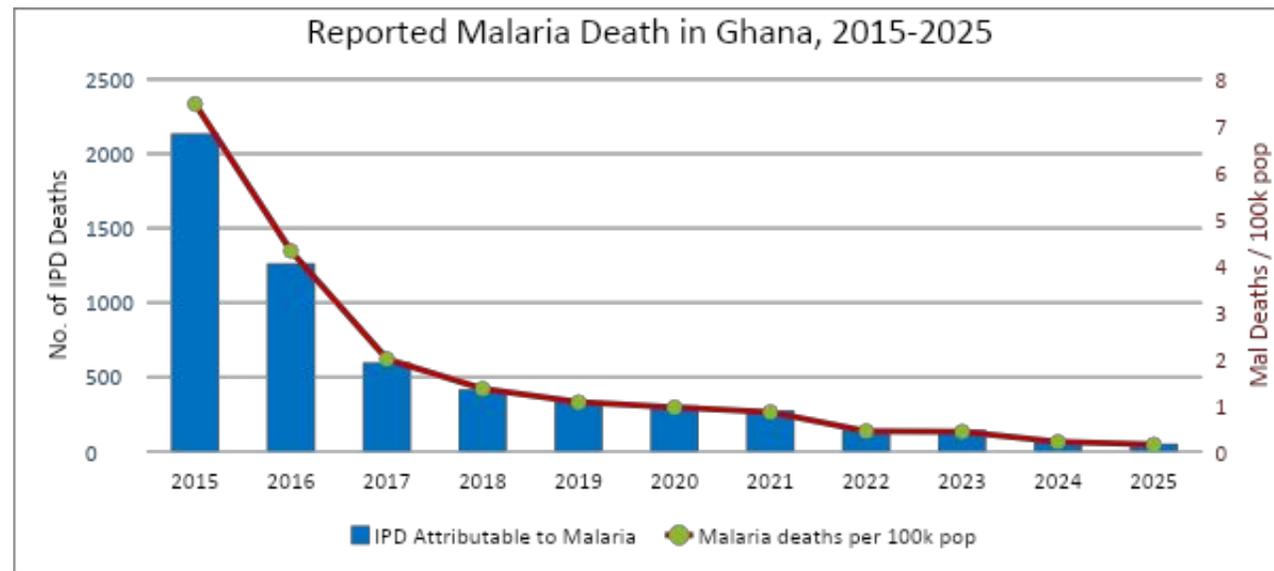
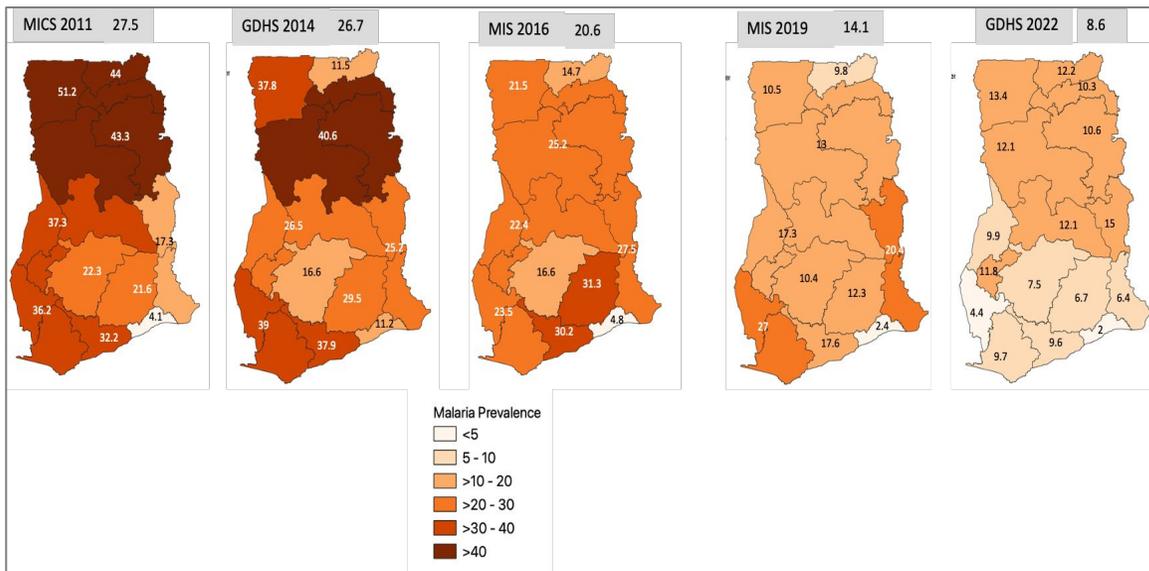
Malaria Measurement System: Data Sources



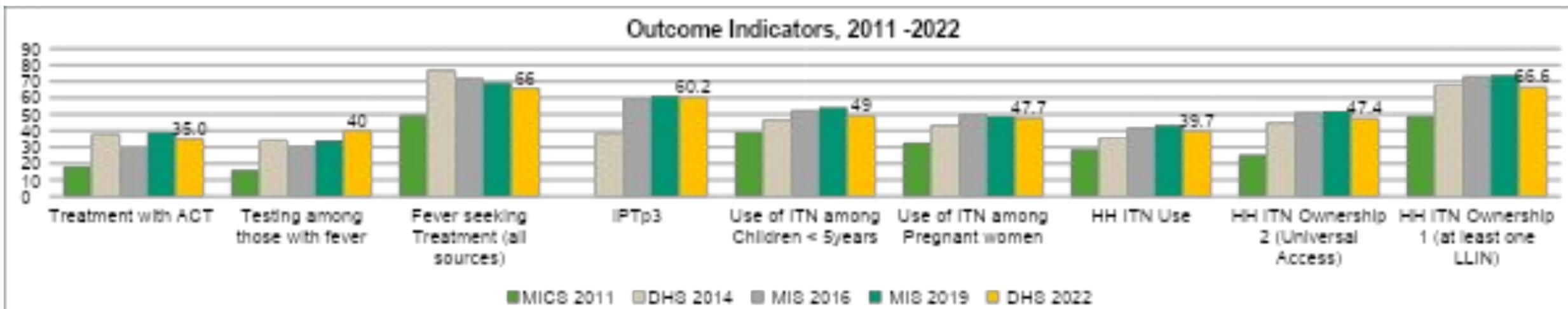
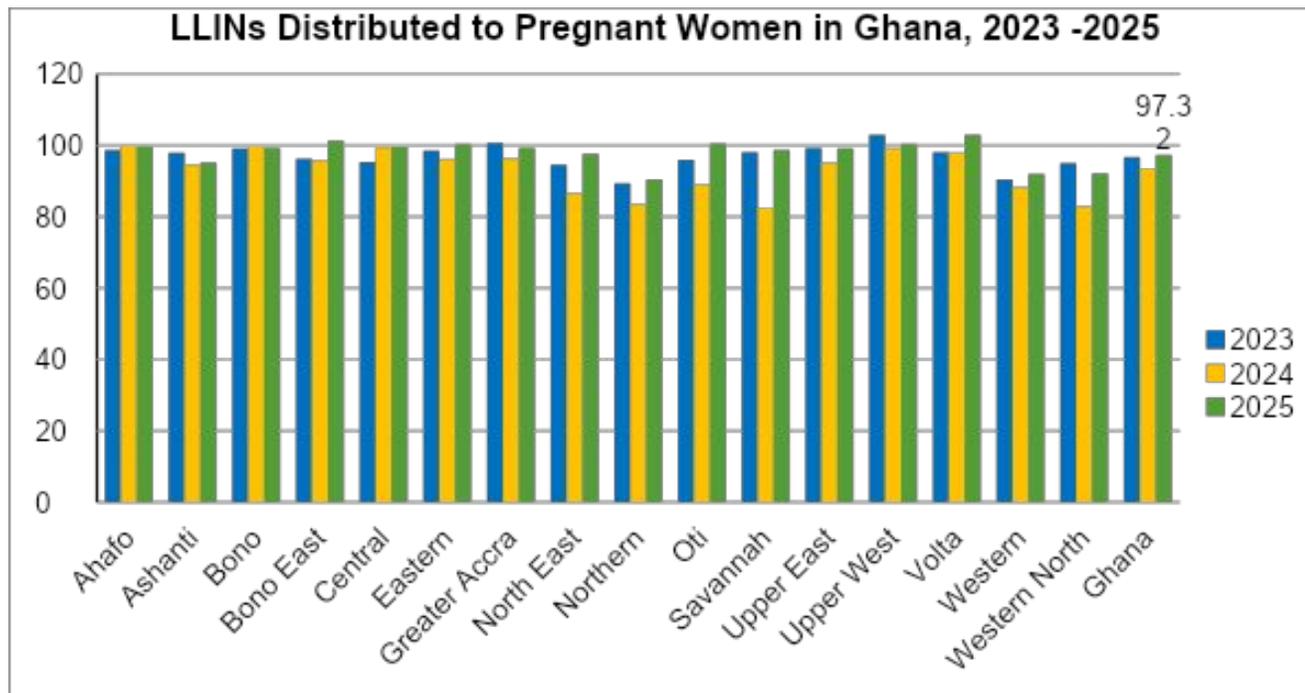
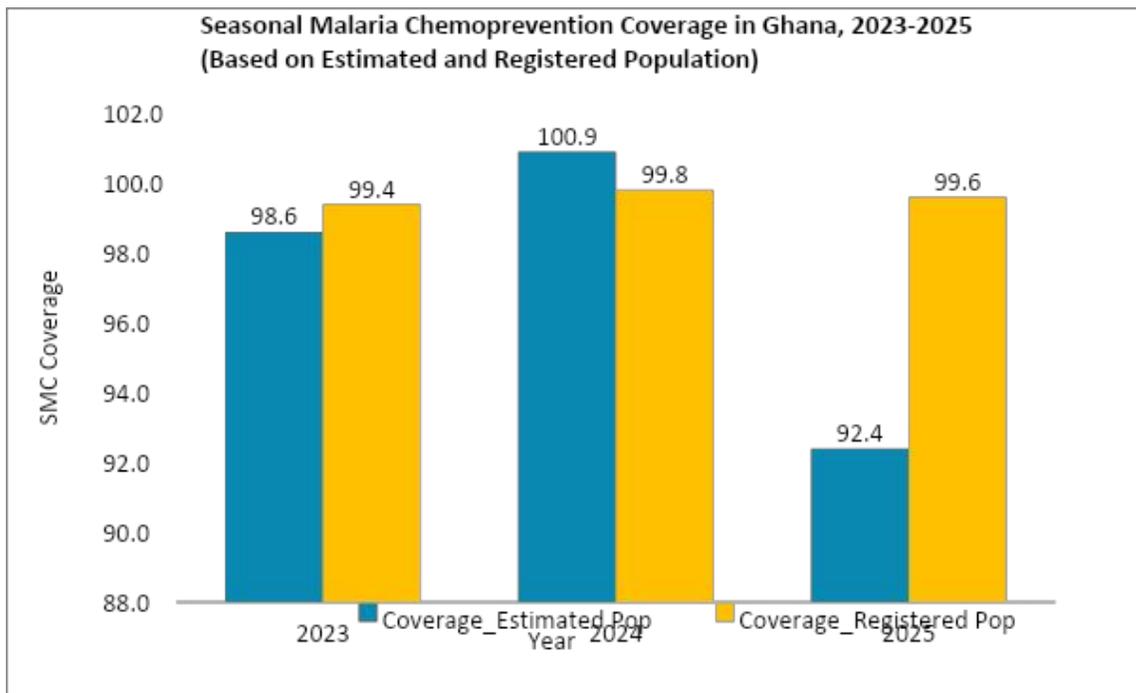


How we use the data for decisions

Tracking epidemiological trends

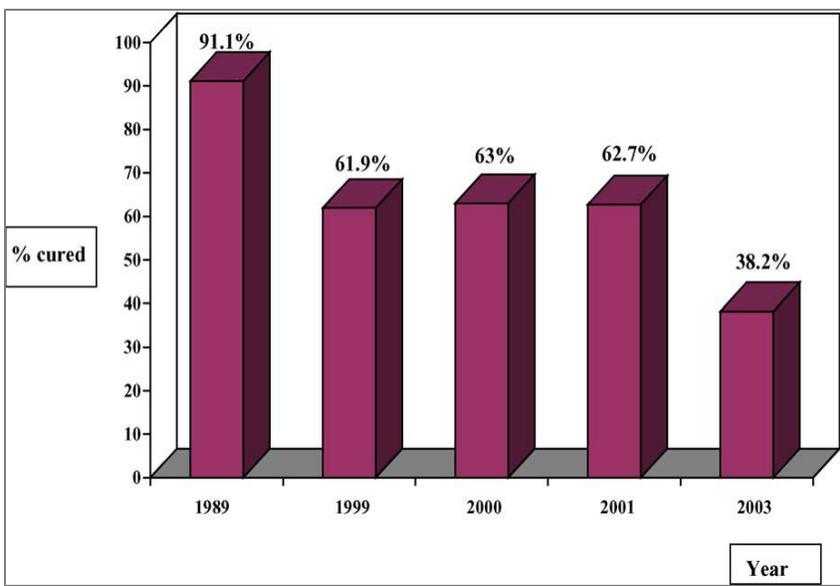


Tracking intervention distribution and coverage

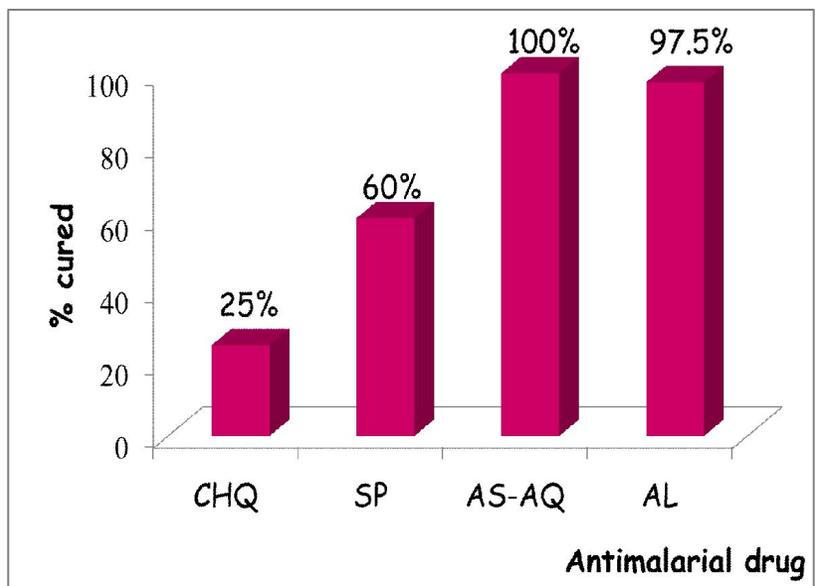


Monitoring threats (Sentinel Surveillance)

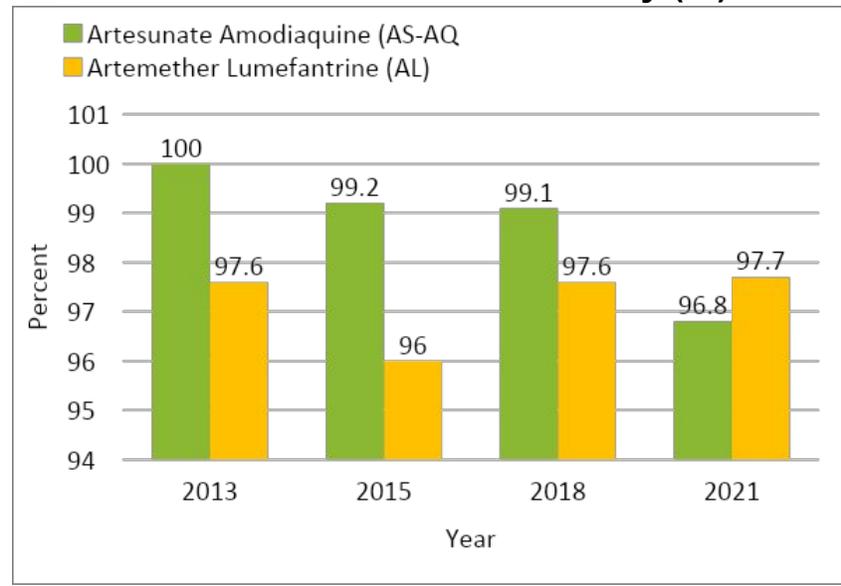
Declining Efficacy of Chloroquine in Ghana (1989- 2003)



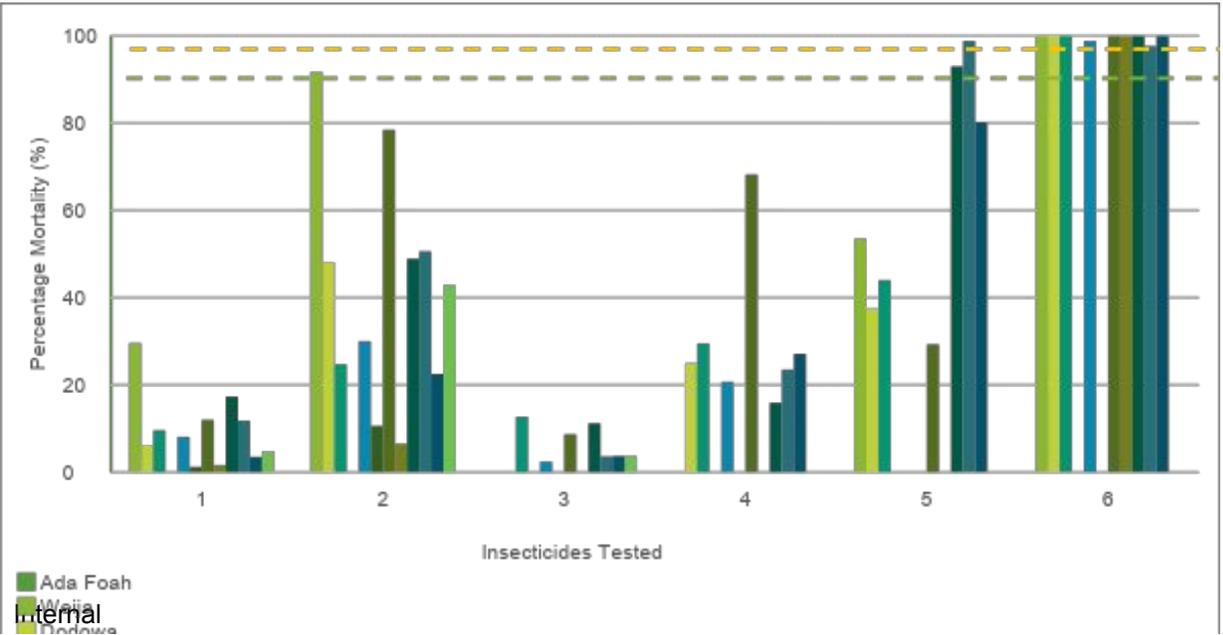
Comparative Efficacy of Antimalarials in Ghana (2004)



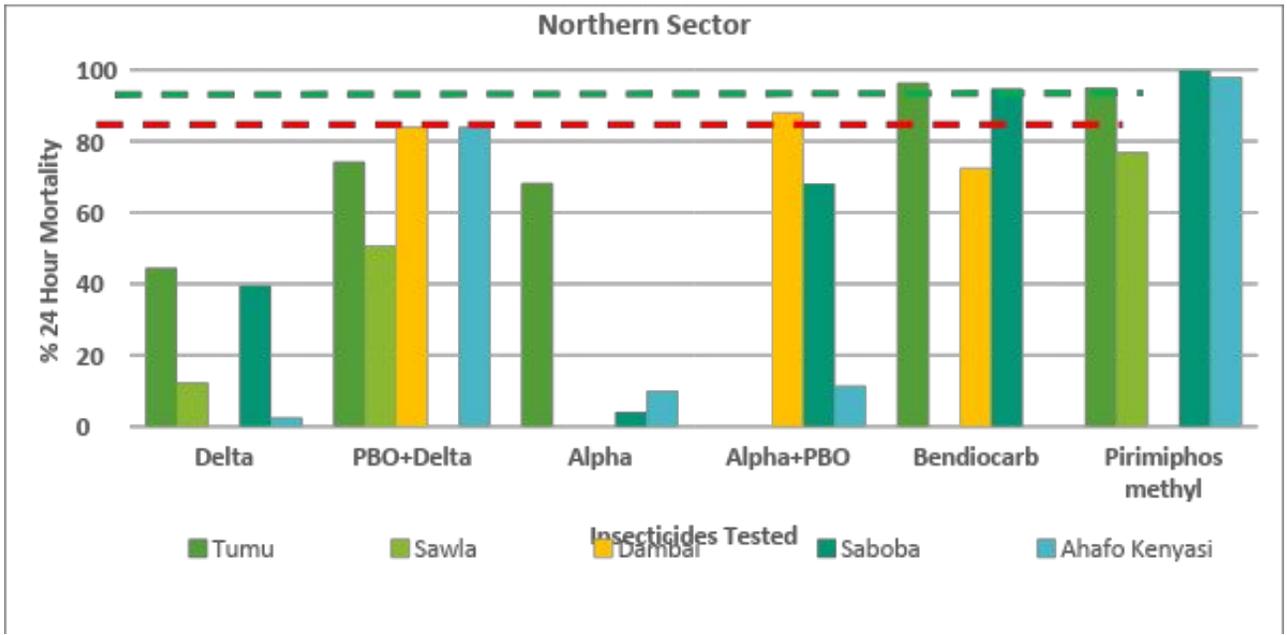
National PCR-corrected efficacy (%)



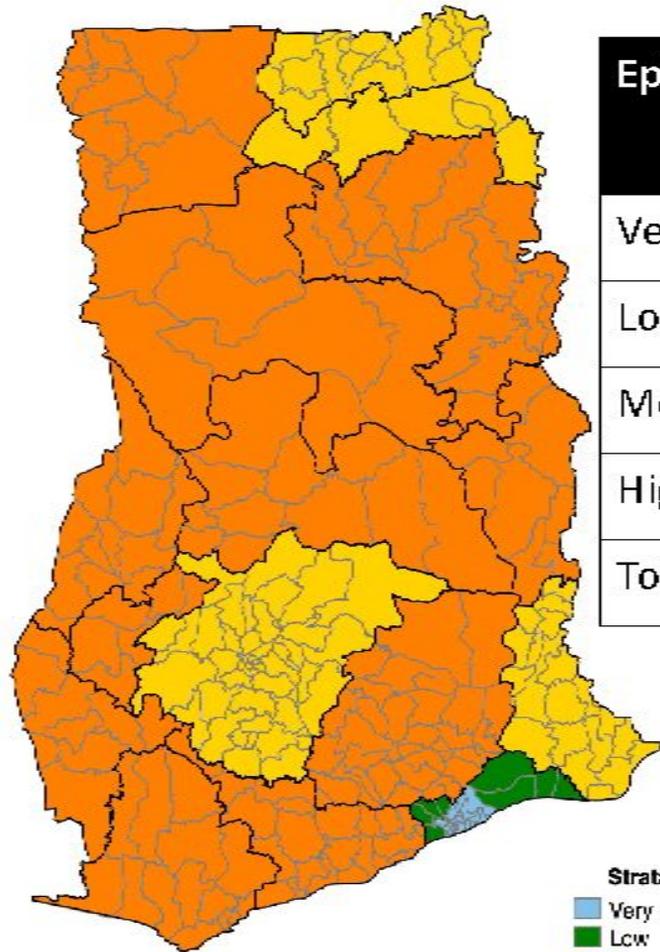
Mortality Rates of Mosquitoes Tested in the Southern Sector, 2024



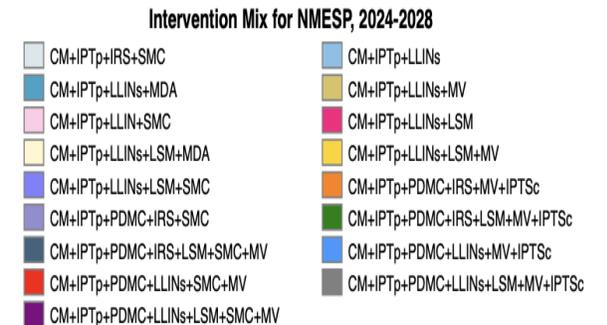
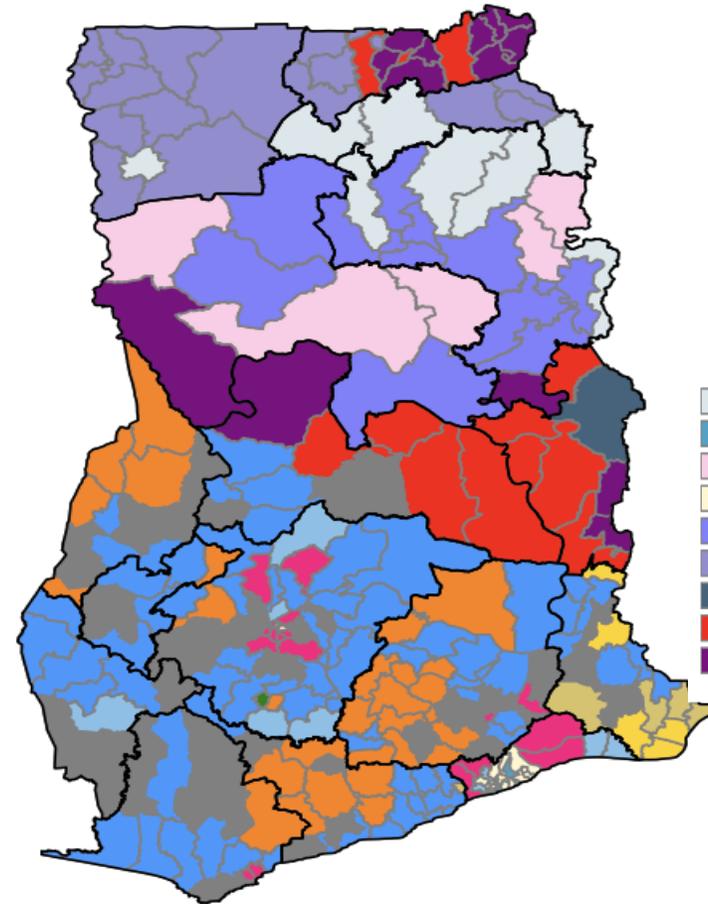
Mortality Rates of Mosquitoes Tested in the Southern Sector, 2024



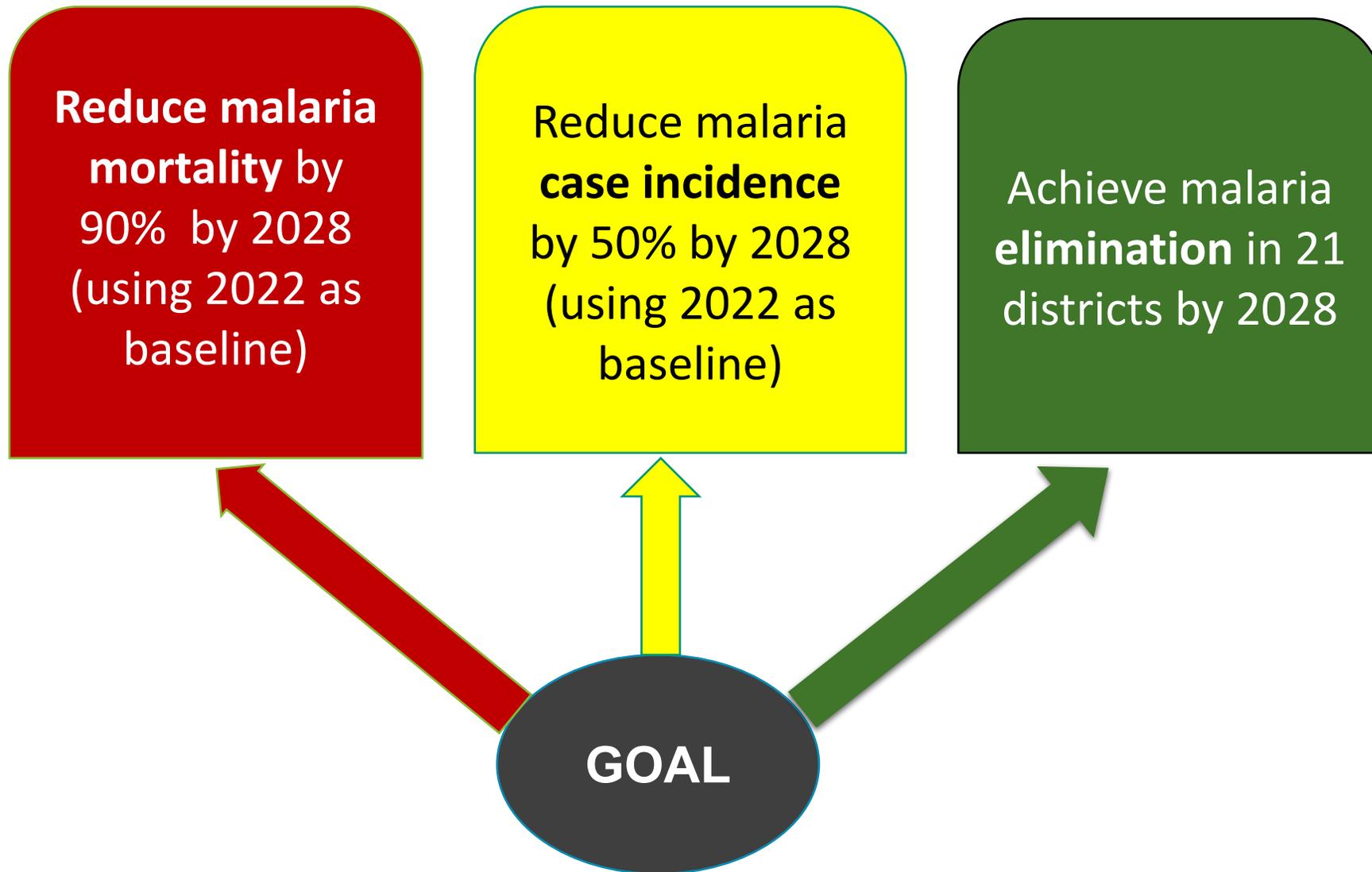
Subnational Tailoring and Intervention Mix



Epi zone	Number of districts
Very low	21
Low	8
Moderate	83
High	149
Total	261



Ghana Malaria Strategic Plan 2024-2028



Measurement Optimization

What we changed to reduce duplication and cost

Malaria SME System Optimization – Routine Surveillance & HHS

01

Intervention: Routine health facility

Strategy: Full integration of routine health facility reporting and SOPs into national HMIS

Status: Completed and implementation ongoing



02

Intervention: Sentinel Sites

Strategy: Harmonised epidemiological and entomological sentinel sites in addition to therapeutic efficacy study (TES) sites

Status: Completed and implementation ongoing



03

Intervention: Data Quality Audit

Use of DHIS2 for integrated data quality audit for HIV, TB and Malaria programmes by the policy planning monitoring and evaluation (PPME) department of Ghana Health Service (GHS)

Status: Completed and implementation ongoing



04

Intervention: Household surveys

Harmonise timing malaria indicator surveys to coincide with GDHS and MICS

Status: Worked since 2011 to date except 2016



05

Intervention: Household surveys

Strategy: Explore alternatives for HHS

Status: Ongoing discussions



Malaria SME System Optimization – Campaign Digitalization Under Resource Constraints

01

Intervention: Monitoring Community Intervention coverages

Strategies: Developed electronic data systems for all community interventions; ITN Mass Campaigns, SMC, School distribution, Larviciding

Status: Completed and implementation ongoing



02

Intervention: Monitoring Community Intervention coverages

Harmonize all electronic community intervention data system in one platform called the Ghana Malaria Interventions System (GMIS)

Status: Completed and implementation ongoing

03

Intervention: Supportive supervision

Strategies: Use of electronic data collection for all training and supportive supervision

Status: Completed and implementation ongoing



Ghana Malaria Intervention System (GMIS)

Dashboard

SUMMARY DESCRIPTION OF GHANA

NUMBER OF USERS



66,102

NUMBER OF REGIONS



16

NUMBER OF DISTRICTS



281

NUMBER OF SUBDISTRICTS



5,321

NUMBER OF COMMUNITIES



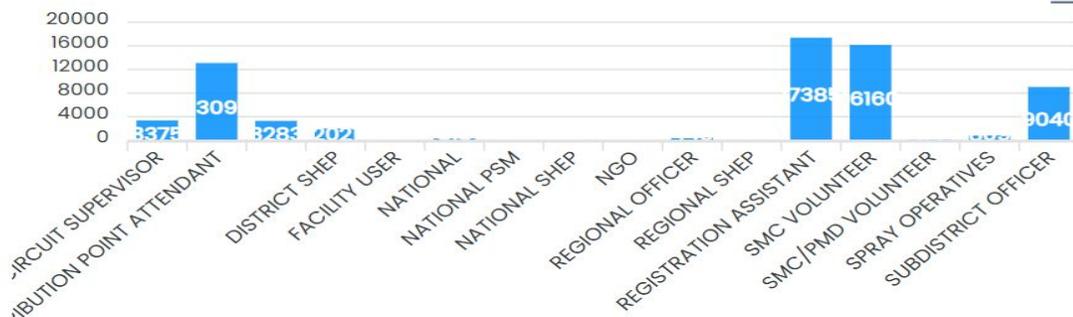
42,587

NUMBER OF HEALTH FACILITIES



1,921

Number of users created per role assigned



Modules Assigned

net4schs

School ITN Distribution

sicapp

Seasonal Malaria Chemporevention

netapp

Point Mass Distribution

lsm

Larval source Management

Ghana Malaria Intervention System (GMIS)

How this improves campaign delivery

- Reduces need for multiple parallel campaign systems
- Standardizes reporting workflows across interventions
- Improves timeliness of supervision feedback
- Facilitates issues identification and response
- Builds reusable capacity across campaigns





Progress in data integration and visualization

National Malaria Data Repository (NMDR)

Objective

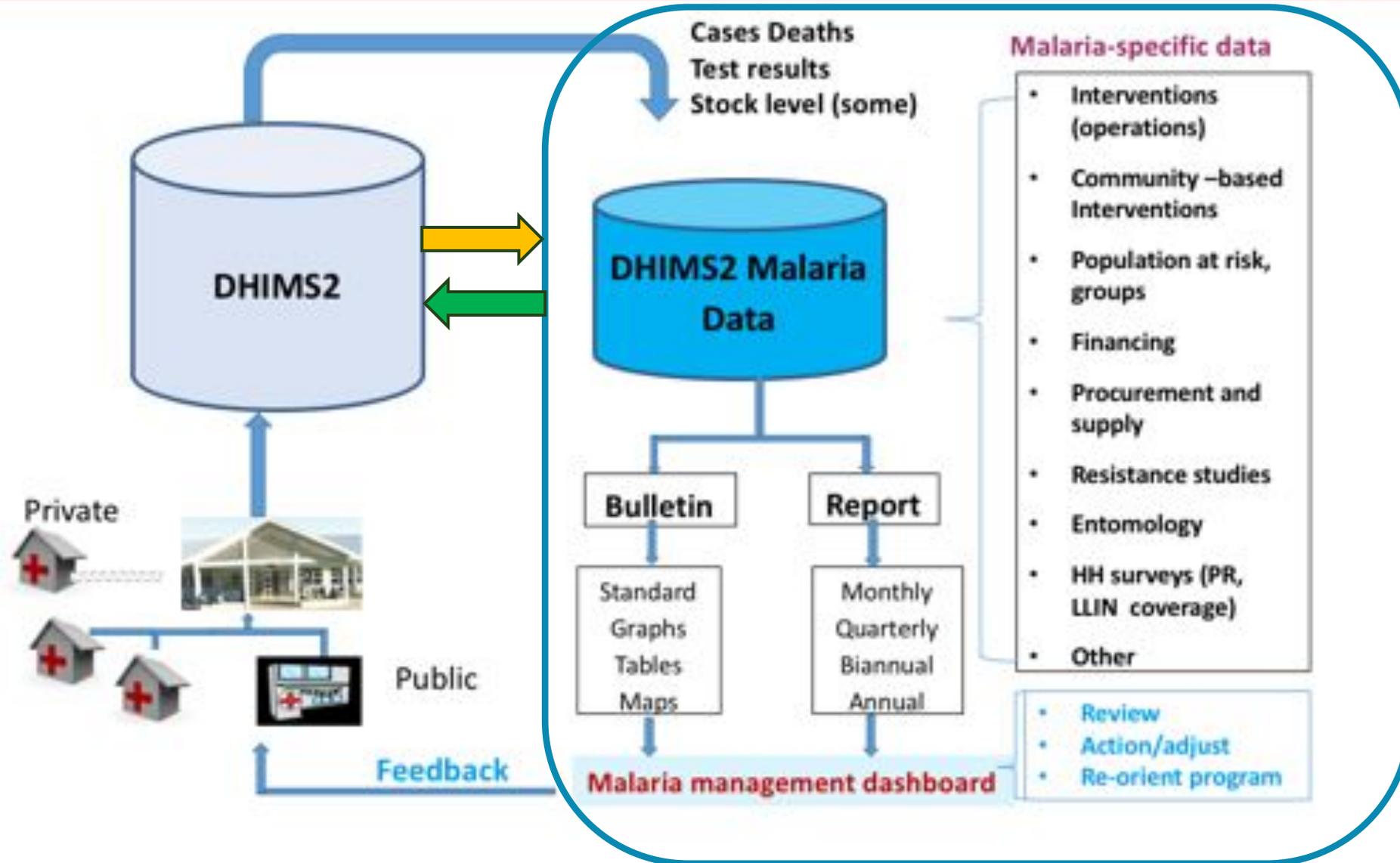
Harmonise all malaria data sources into one platform to ease access and use malaria data for decision making

Rationale

- Centralized data collection and management
- Enhanced surveillance and monitoring
- Informed decision-making
- Improved coordination and collaboration
- Resource optimization
- Strengthening health systems



The vision



COVID19 ALERT: GET VACCINATED, WASH YOUR HANDS AND STAY SAFE

CENTRE FOR HEALTH INFORMATION MANAGEMENT

The Ghana Health Service (GHS) Centre for Health Information Management (CHIM) manages the District Health Information Management System (DHIMS II), the official National HMIS data repository of routine healthcare data from GHS and other agencies of Ministry of Health. DHIMS II collects and centralises health services data across the country, enabling evidence-based decision-making and improved healthcare delivery. The DHIMS2 technical team leads these efforts through comprehensive data analysis, system development, and capacity building initiatives.

-  **DHIMS2** 
-  **e-TRACKER** 
-  **HIV/TB-TRACKER** 
-  **EVENTS** 
-  **TRANSPORT** 
-  **NMEP-MID** 

Health Facility Registry

Comprehensive database of health facilities in Ghana  

 Filter Statistics

Operational Challenges Under Constrained Resources

Challenges	Actions Taken
Cost of procurement and maintenance of electronic devices such as laptops, tablets for data collection i. Health staff ii. Community Volunteers	Guideline for use of electronic devices in GHS Bring-Your-Own Device (BYOD) – data security issues?
Capacity of some staff and community volunteers to use	Encourage community to select volunteers with basic IT skills and bootcamp for volunteers
Internet connectivity and cost	<ul style="list-style-type: none">• Undertook internet connectivity assessment to identify network with better connectivity in each district• Established offline functions for later synchronisation• Provided internet device for all districts –sustainability??• Encourage districts to allocate funding for internetdata



Next Steps– NMDR functionality strengthening

1. Further integration
 - Bring all data from DHMIS into NMDR for triangulations and integrated dashboard
 - Link with Ghana Malaria Intervention System (GMIS)
2. Improve NMDR analytics and dashboards
3. Enhance efficiency of producing products and upstream reporting – surveillance bulletins, funders, WHO WMR, RBM Dashboard
4. Develop integrated SOPs and training materials for use of NMDR for national and subnational capacity development
5. Roll out trainings on NMDR/MID at all levels
6. Enhance data governance, security and data sharing
7. Strengthen hardware and connectivity



Next Steps– Continuous learning and improvements

- Monitor and support use of the NMDR for decision making at all levels through;
 - Periodic updates
 - Data review meetings
 - Data use events
 - Capacity building to sustain utilization
- Conduct evaluation of NMDR for continuous improvement
- Conduct periodic malaria surveillance assessment for improvement of entire malaria surveillance system
- Resource mobilization to implement and sustain NMDR and malaria surveillance system as a whole



Acknowledgement

- WHO
- The Global Fund
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- MAP
- AMP
- SMC Alliance
- AHADI
- Research Partners
- Implementing partners
- GHS
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- Government of Ghana





Thank you