Documentation related to Session 1 of the meeting
Click on the links below to see the pre reads and presentations

Malaria Policy Advisory Committee (MPAC) Meeting, 3–4 December 2020

Documentation for Session 1

Thursday, 3 December 2020			
	Session 1	**Open**	
12:00 – 12:05	Welcome by the ADG, UCN	Dr Ren Minghui	**For information**
12:05 – 12:15	Welcome by the Chair, MPAC	Dr Dyann Wirth	
12:15 – 13:15	Report from the Director, GMP	Dr Pedro Alonso	
13:15 – 13:45	Update on the Malaria Surveillance Assessment Toolkit Background | Presentation	Dr Abdisalan Noor	**For guidance**

Malaria Policy Advisory Group

3 – 4 December 2020

Virtual Meeting

Welcome by the MPAG Chair, Dr Dyann Wirth

Global **Malaria** Programme

World Health Organization

Report from the Global Malaria Programme

Malaria Policy Advisory Group

Geneva, Switzerland

Dr Pedro Alonso, Director

3 December 2020

Global **Malaria** Programme

World Health Organization

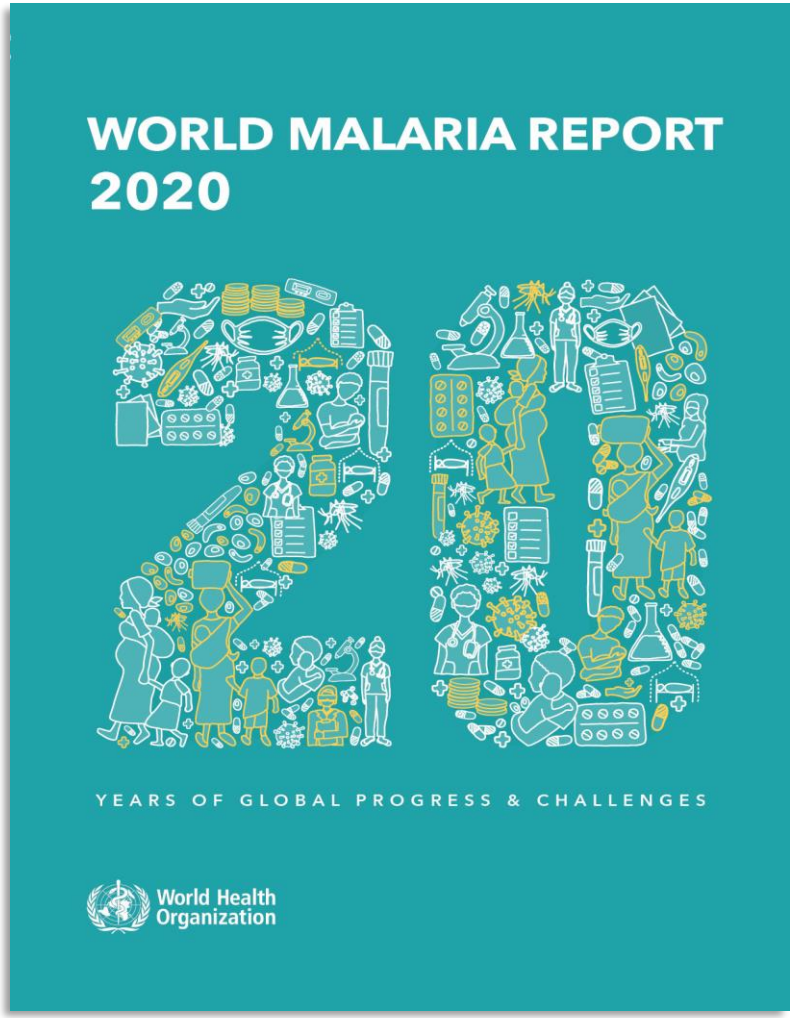
Outline of Report

- World Malaria Report 2020
- COVID-19/WHO Leadership/Rethinking Malaria/High-level webinar (Alastair)
- GMP Policymaking
  - Better Anticipate (PPCs, MALVAC, Jan will share info on the vector control PPCs and the gene-drive position statement, I'll reach out to Jane and copy you on an update for Diagnostics)
  - Develop Policy (High level to introduce the Friday session) include publication of norms & standards doc-Jan
  - Optimize uptake – MAGICapp
- Biological Threats
  - Malaria Threats Map updates including An. Stephensi, DHIS2
  - Drug resistance report
- Elimination
- Vaccine

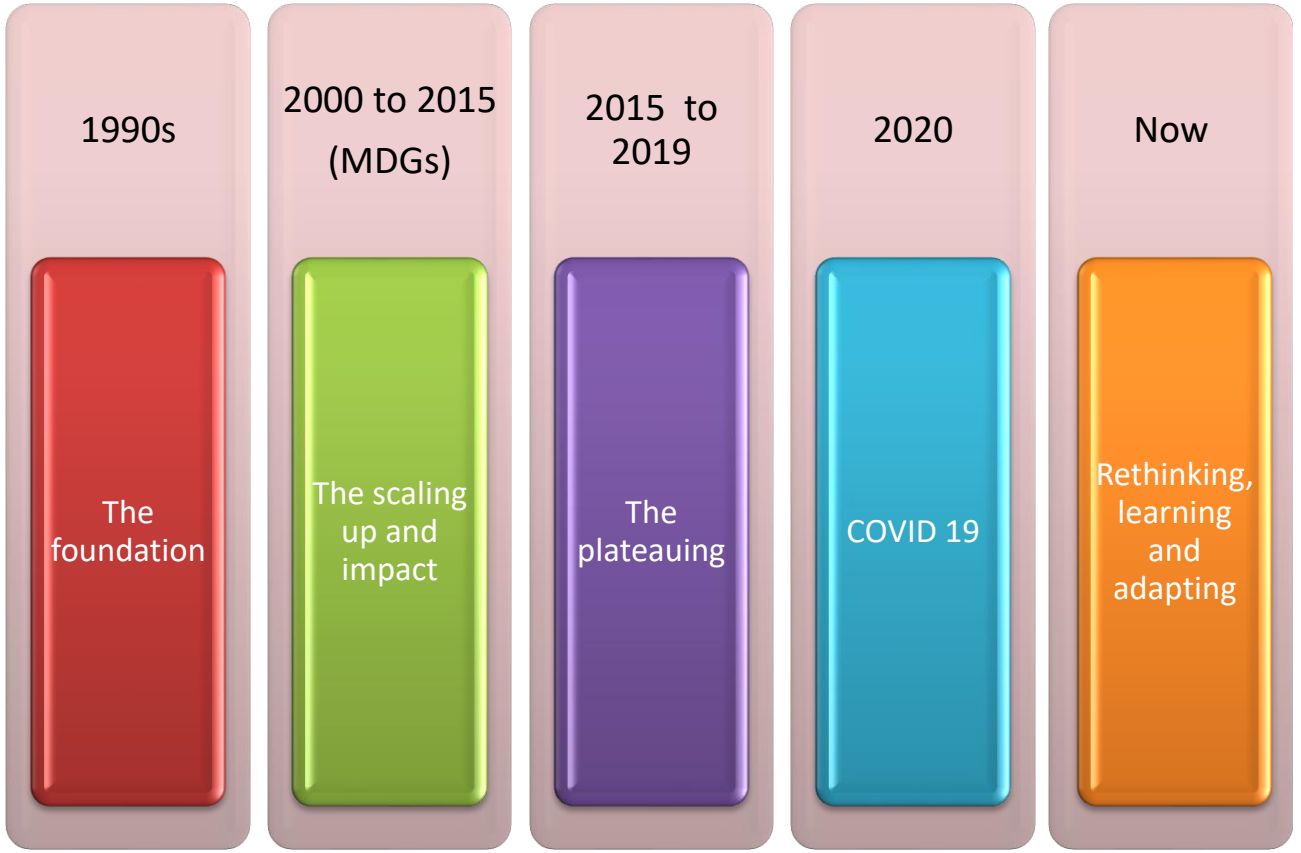
World malaria report 2020: a special edition

This year's report includes several special features:

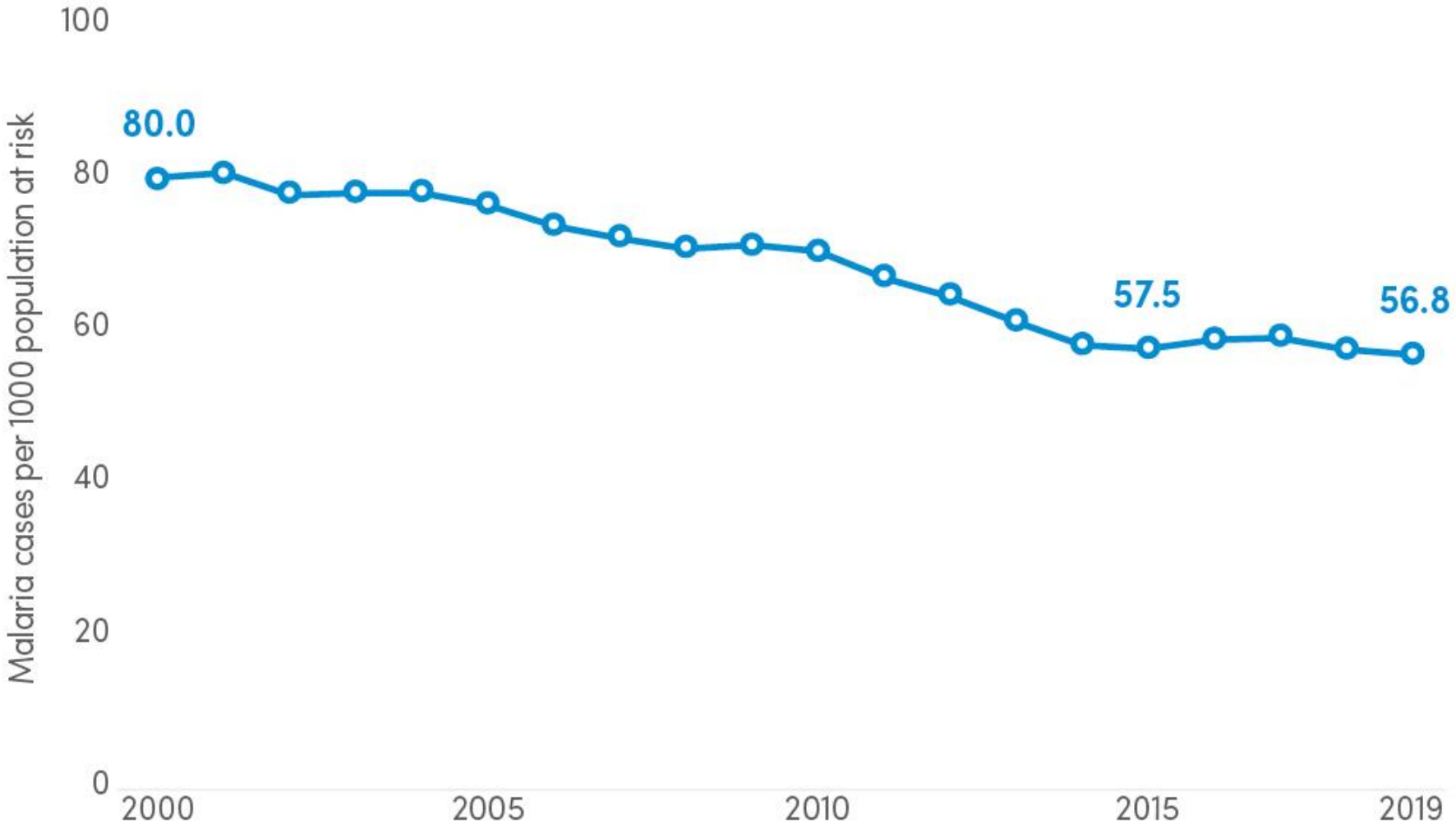
- A look back at key events and milestones that have shaped the global response to malaria over the last 20 years
- A detailed analysis on progress towards the 2020 milestones of the *Global technical strategy for malaria 2016-2030*
- A dedicated chapter on malaria & the COVID-19 pandemic



Recent history of malaria



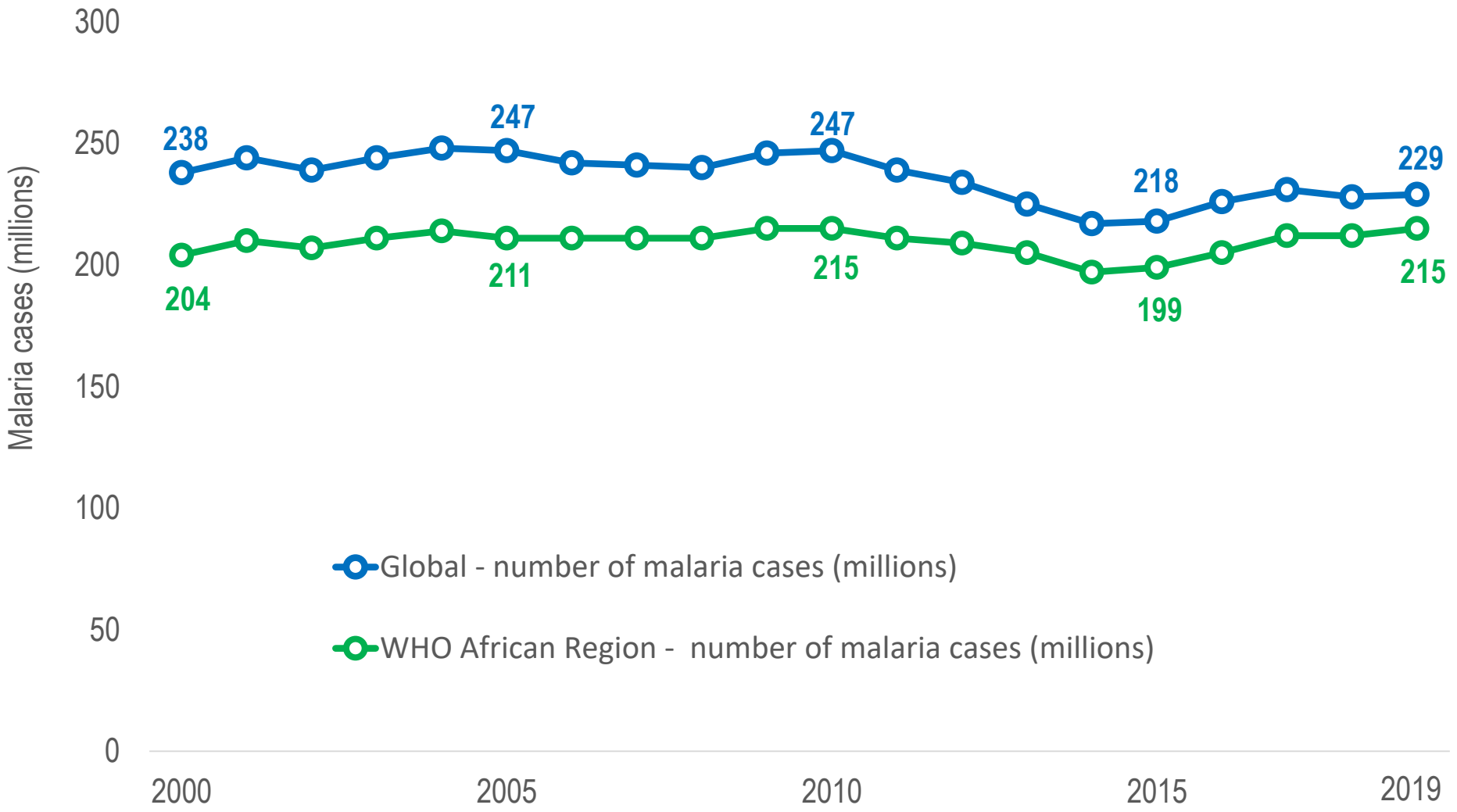
Global trends in malaria case incidence (cases per 1000 population)



29% reduction in global malaria case incidence between 2000 and 2019

<2% reduction in malaria case incidence between 2015–2019

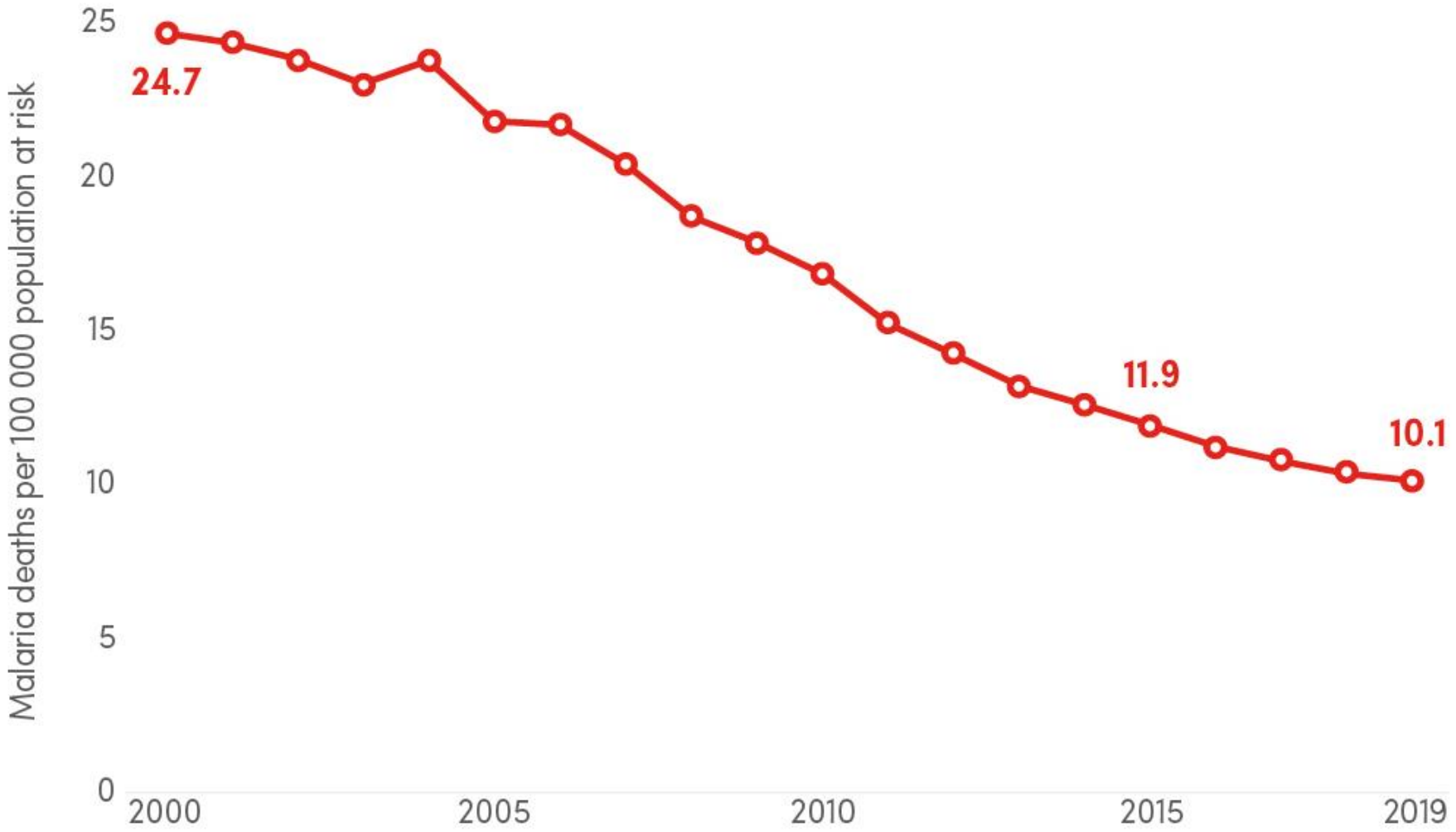
Trends in malaria cases – global and WHO African Region, 2000–2019



Population in sub-Saharan Africa grew from **665 million** in 2000 to about **1.1 billion** in 2019

94% of global malaria cases in 2019 occurred in the WHO African Region

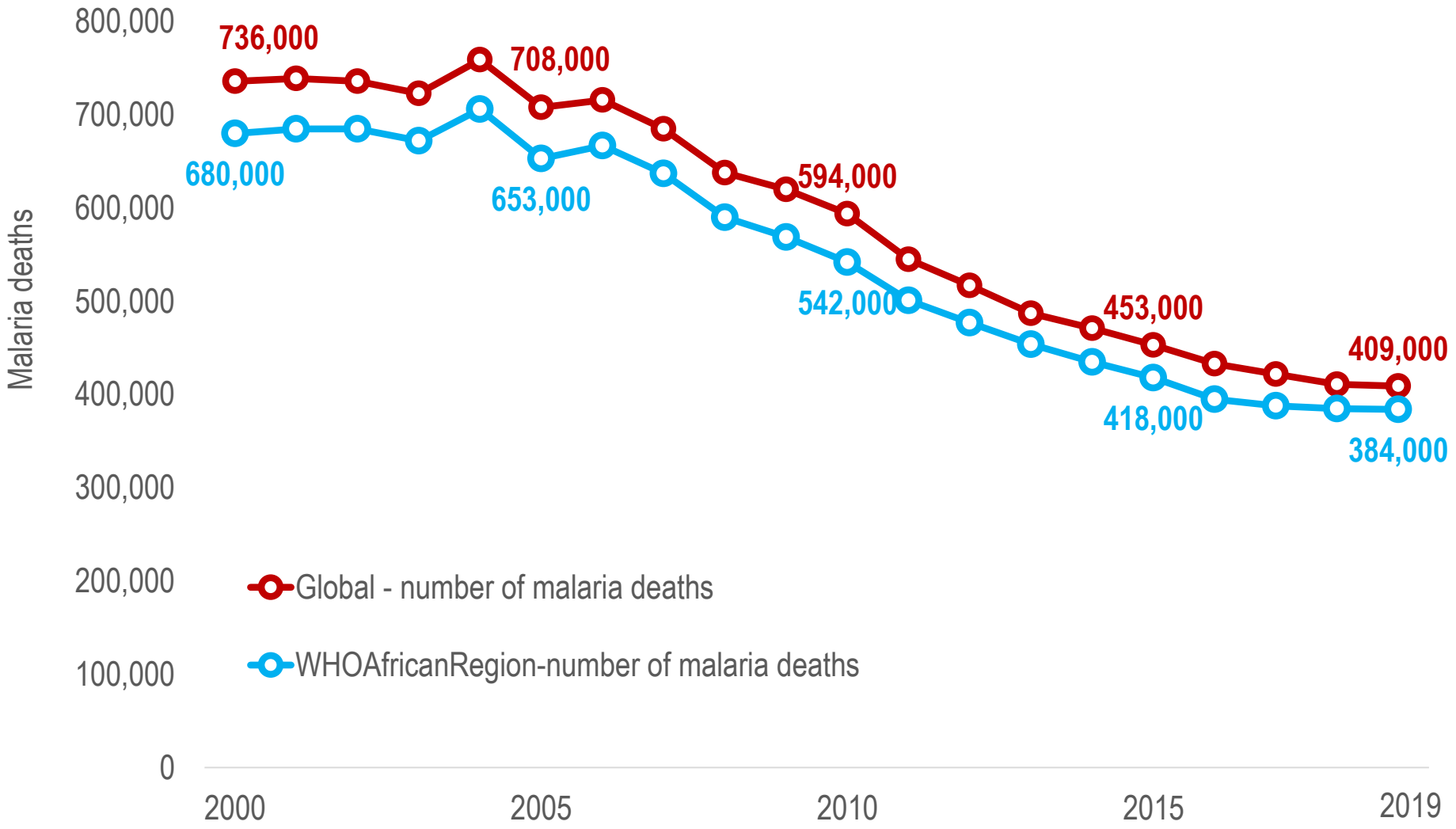
Global trends in malaria mortality incidence rate (deaths per 100 000 population at risk)



60% reduction in global malaria mortality incidence between 2000 and 2019

15% reduction in malaria mortality incidence between 2015–2019

Trends in malaria deaths – global and WHO African Region, 2000–2019

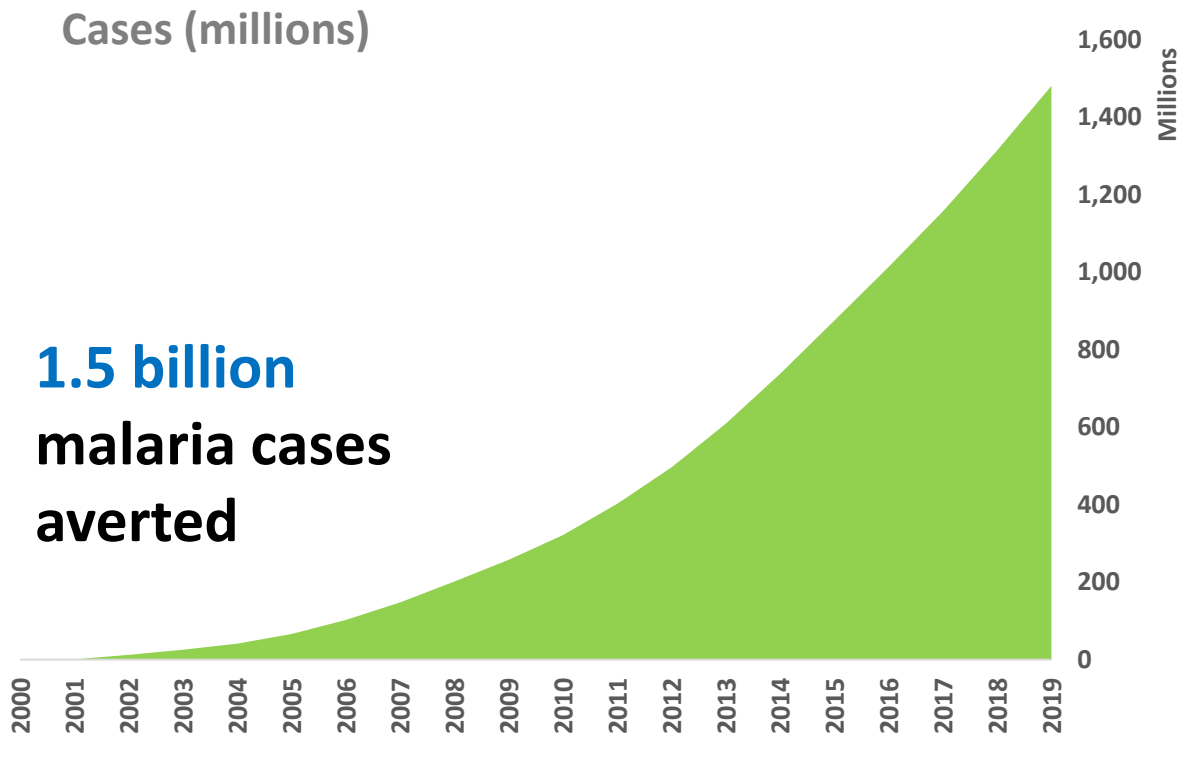


94% of global malaria deaths in 2019 occurred in the WHO African Region

Global **Malaria** Programme

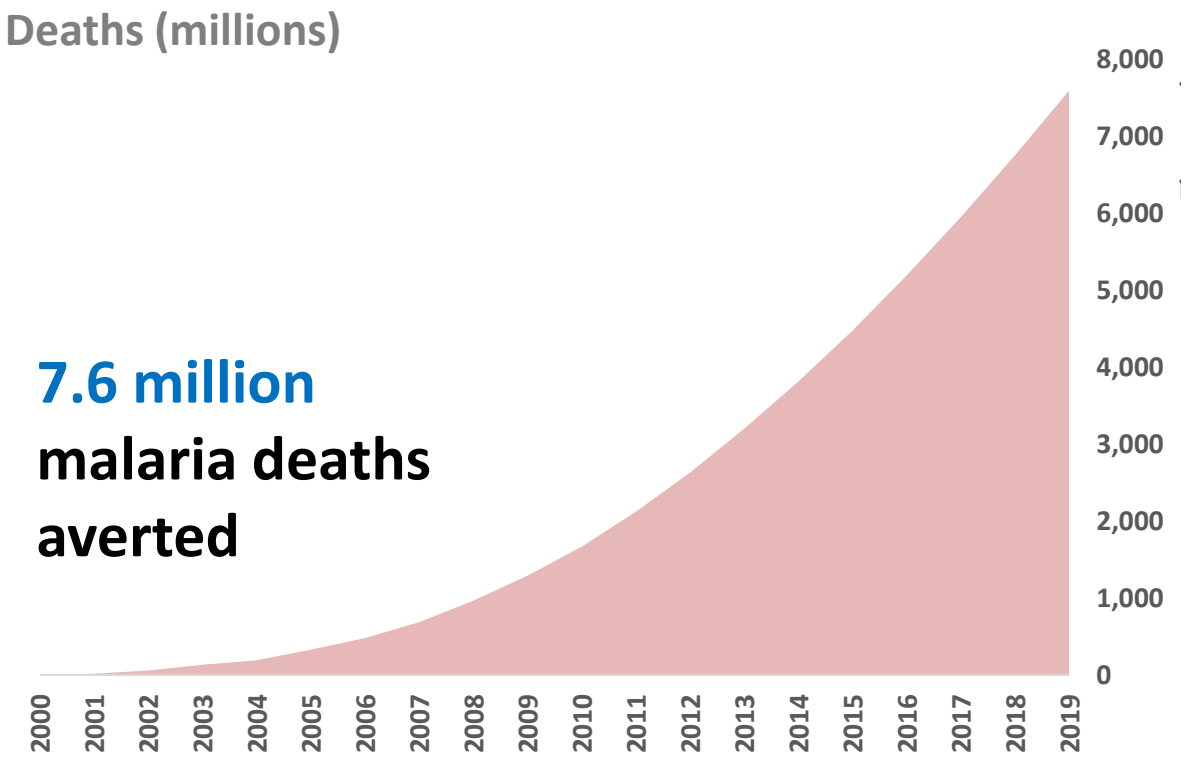
World Health Organization

This *contributed* to one of the biggest returns on investment in global health



1.5 billion
malaria cases averted

82% **in the WHO African Region**



7.6 million
malaria deaths averted

94% **in the WHO African Region**

These efforts coincided with a period of considerable economic growth and development, infrastructure and housing improvements, rapid urbanization, and general improvements in health systems and population health

Global progress toward the 2020 GTS milestones, from 2015 baseline

Goals, milestones and targets for the *Global technical strategy for malaria 2016–2030*

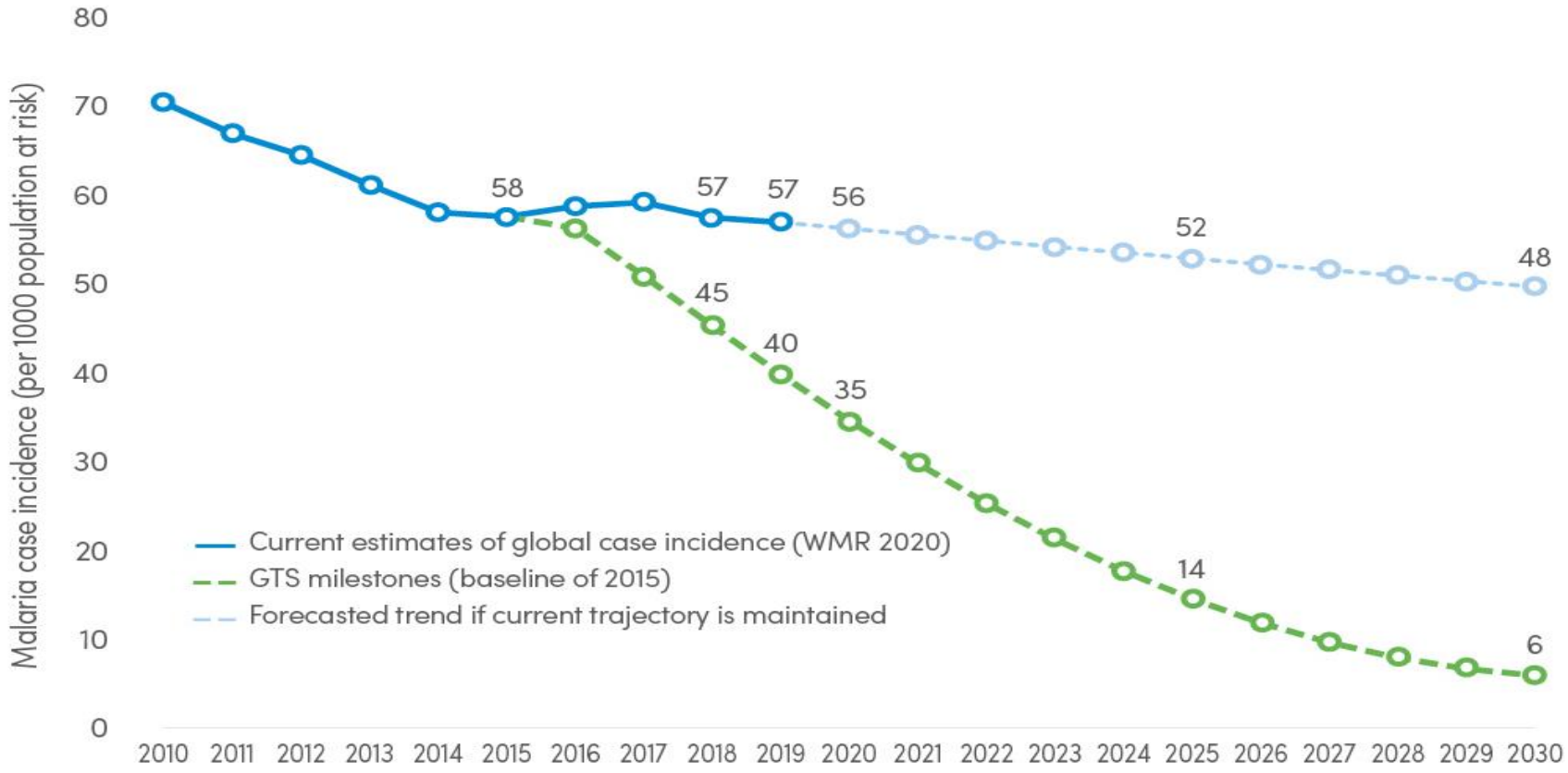
GOALS	MILESTONES		TARGETS
	2020	2025	2030
1. Reduce malaria mortality rates globally compared with 2015	At least 40% 18% reduction achieved 22% off track	At least 75%	At least 90%
2. Reduce malaria case incidence globally compared with 2015	At least 40% 3% reduction achieved 37% off track	At least 75%	At least 90%
3. Eliminate malaria from countries in which malaria was transmitted in 2015	At least 10 countries On track	At least 20 countries	At least 35 countries
4. Prevent re-establishment of malaria in all countries that are malaria-free	Re-establishment prevented On track	Re-establishment prevented	Re-establishment prevented

2000–2019 trends projected to 2020, 2025 and 2030 to track progress toward GTS milestones

Projections DO NOT include potential impact of disruptions due to the COVID-19 pandemic

Global progress toward the 2020 GTS milestones, from 2015 baseline

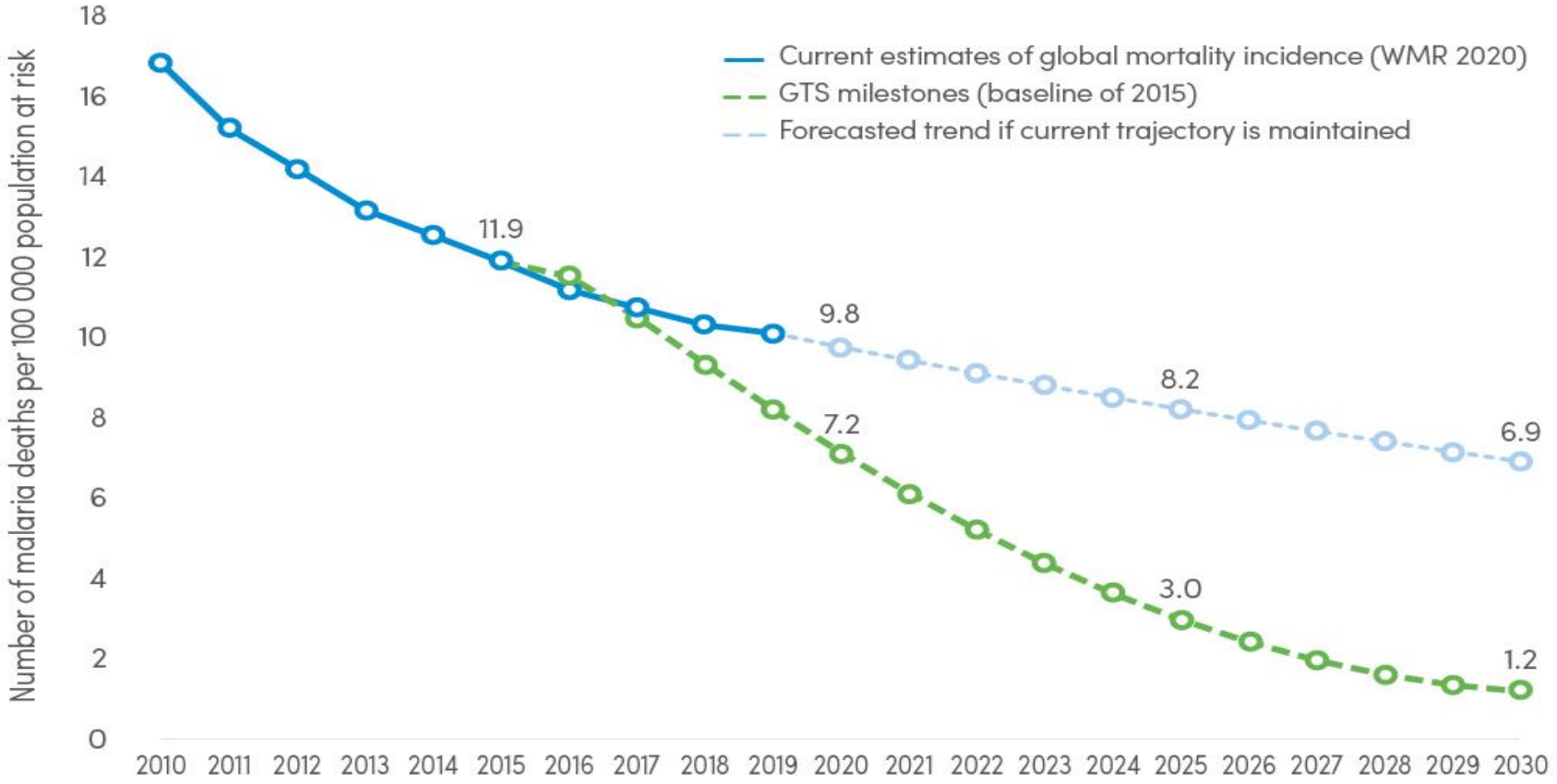
Comparison of global progress in malaria case incidence, considering two scenarios: current trajectory maintained (**blue**) and GTS targets achieved (**green**)



Source: WHO estimates

Global progress toward the 2020 GTS milestones, from 2015 baseline

Comparison of global progress in malaria mortality incidence rate, considering two scenarios: current trajectory maintained (**blue**) and GTS targets achieved (**green**)



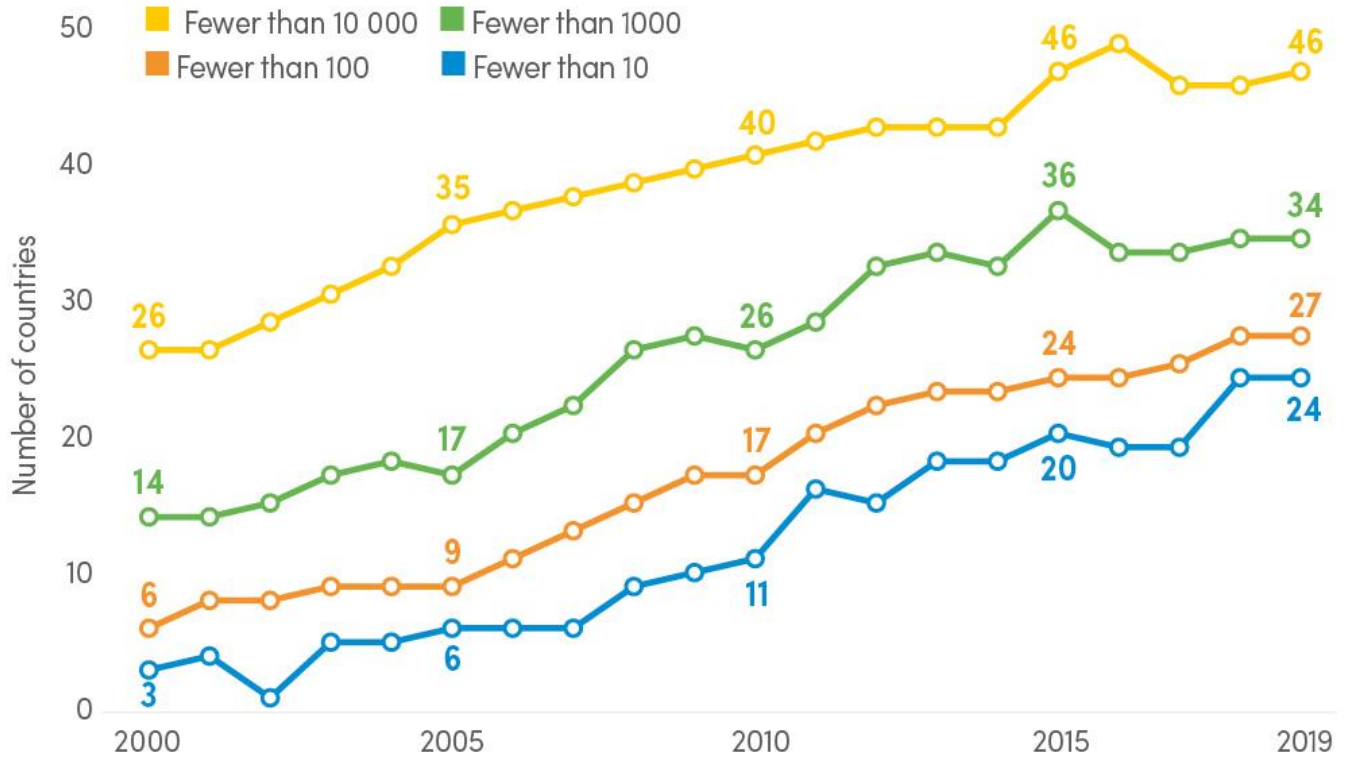
Source: WHO estimates

Global progress in eliminating malaria, 2000–2019

- **21 countries** have eliminated malaria (3 consecutive years of zero indigenous cases) since 2000, and 10 were certified malaria-free by WHO
- **China** and **El Salvador** have submitted an official request to WHO for malaria-free certification
- The number of countries with **<100** cases of malaria has increased from **6** in 2000 to **27** in 2019

Number of countries that were malaria endemic in 2000, with fewer than 10, 100, 1000 and 10 000 indigenous malaria cases between 2000 and 2019

Sources: NMP reports and WHO estimates.

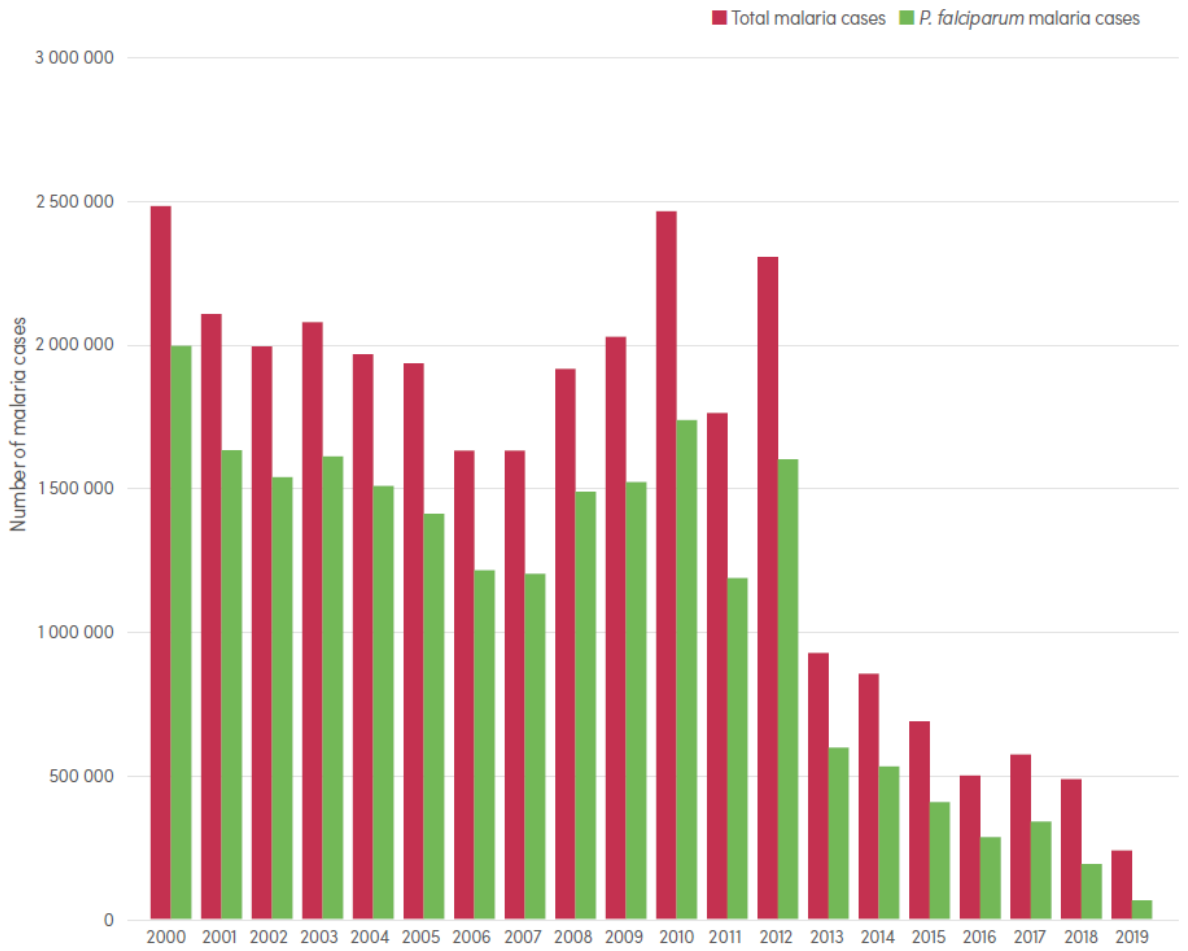


NMP: national malaria programme; WHO: World Health Organization.

Progress in eliminating malaria, Greater Mekong subregion, 2000–2019

- In the 6 countries of the Greater Mekong subregion – Cambodia, China (Yunnan Province), Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam – malaria cases have been reduced by **90%** since 2000, while *P. falciparum* cases have declined by **97%** from 2000 to 2019.
- The accelerated decrease in *P. falciparum* cases is notable in view of the threat posed by antimalarial drug resistance in the subregion.

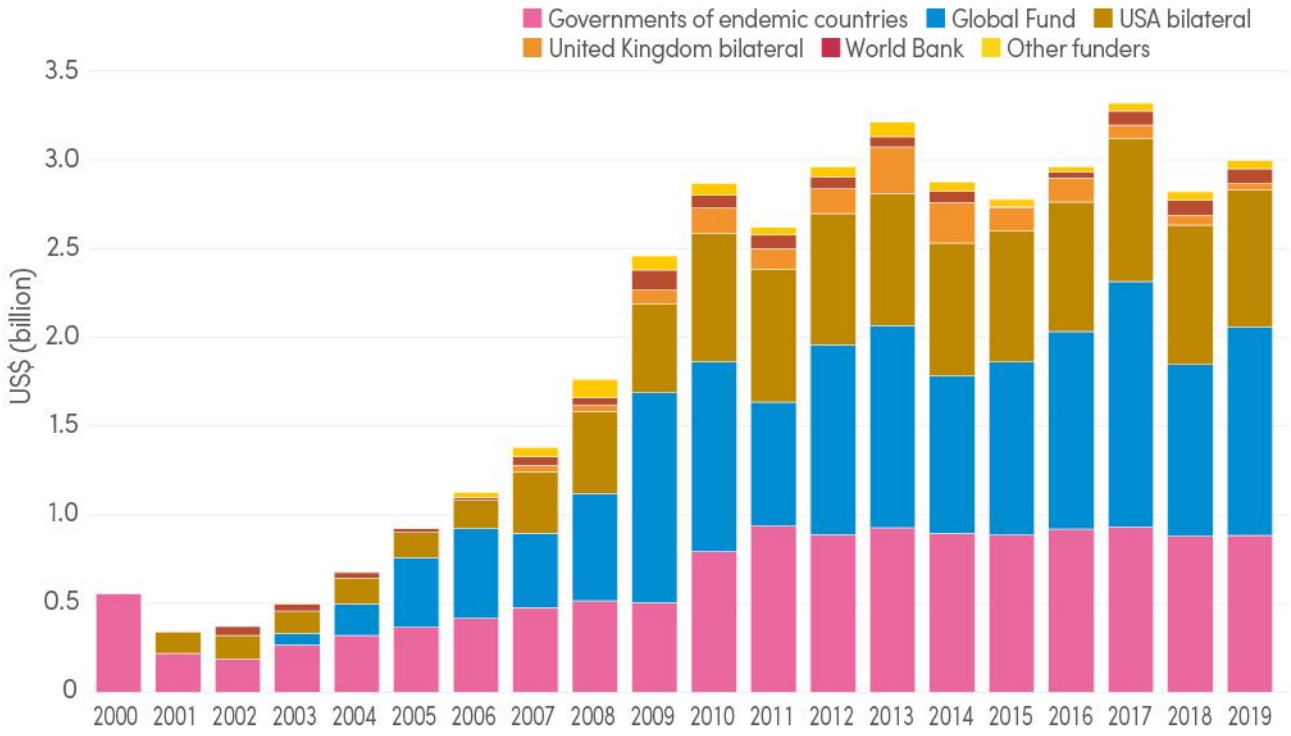
Total malaria and *P. falciparum* cases in the GMS, 2000–2019 *Sources: MME programme database and NMP reports.*



GMS: Greater Mekong subregion; MME: Mekong Malaria Elimination; NMP: national malaria programme; *P. falciparum*: *Plasmodium falciparum*.

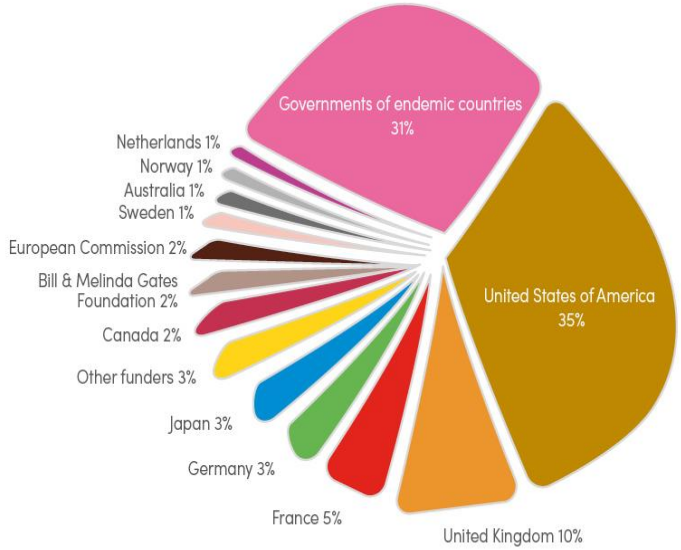
Malaria funding, 2000–2019

Funding for malaria control and elimination, 2000–2019, by channel (constant 2019 US$) *Sources: ForeignAssistance.gov, Global Fund, NMP reports, OECD creditor reporting system database, United Kingdom Department for International Development, WHO estimates and World Bank DataBank.*



Global Fund: Global Fund to Fight AIDS, Tuberculosis and Malaria; NMP: national malaria programme; OECD: Organisation for Economic Co-operation and Development; United Kingdom of Great Britain and Northern Ireland; USA: United States of America; WHO: World Health Organization.

Funding for malaria control and elimination, 2010–2019 (% of total funding), by source of funds (constant 2019 US$) *Sources: ForeignAssistance.gov, Global Fund, NMP reports, OECD CRS database, United Kingdom Department for International Development, WHO estimates and World Bank DataBank.*



CRS: creditor reporting system; Global Fund: Global Fund to Fight AIDS, Tuberculosis and Malaria; NMP: national malaria programme; OECD: Organisation for Economic Co-operation and Development; United Kingdom: United Kingdom of Great Britain and Northern Ireland; WHO: World Health Organization.

- **US$ 39 billion** invested in malaria response since 2000
- **US$ 26 billion** from external sources
- **US$ 3 billion** invested in 2019 – 45% short of the **US$ 5.6 billion** target

Malaria prevention: intervention delivery and population coverage

Insecticide treated nets (**ITNs**), indoor residual spraying (**IRS**), seasonal malaria chemoprevention (**SMC**) and intermittent preventive treatment in pregnancy (**IPTp**) in sub-Saharan Africa

Number of ITNs delivered globally, **2000–2019**	**2.2 billion (>80% in SSA)**
% of households with at least one ITN, **2000 vs 2019**	**5% → 68%**
% of children under age of 5 (and pregnant women) sleeping under ITNs in sub-Saharan Africa, **2000 vs 2019**	**3% → 52%**
Number of children protected with SMC in sub-Saharan Africa, **2012 vs 2019**	**0.2 million → 21 million**
% of women receiving 3 or more doses of IPTp in sub-Saharan Africa, **2010 vs 2019**	**2% → 34%**

Still inadequate progress on management of febrile illness

TABLE 7.3.

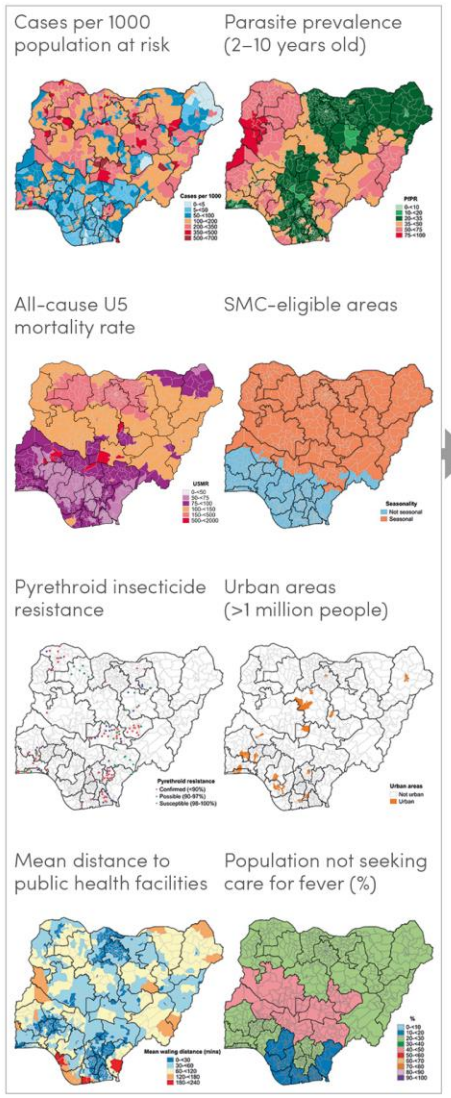
Summary of coverage of treatment seeking for fever, diagnosis and use of ACTs for children aged under 5 years from household surveys in sub-Saharan Africa, at baseline (2005–2011) and most recent (2015-2019) *Source: household surveys.*

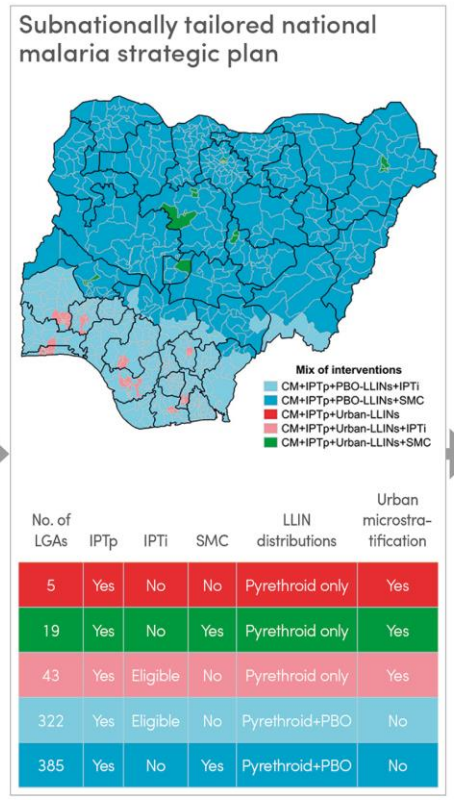
Children aged under 5 years	Baseline (2005-2011)			Most recent survey (2015-2019)		
Indicator	**Median estimate**	**Lower bound**	**Upper bound**	**Median estimate**	**Lower bound**	**Upper bound**
Prevalence of fever						
With fever in past 2 weeks	24.1%	18.3%	34.3%	20.6%	16.1%	30.9%
Treatment seeking for fever						
With fever in past 2 weeks for whom treatment was sought	63.5%	57.7%	71.6%	69.1%	56.3%	73.8%
Source of treatment for fever among those who were treated						
Public sector (health facility)	62.9%	52.8%	80.3%	71.0%	49.0%	85.0%
Public sector (community health worker)	2.0%	0.2%	3.4%	1.3%	0.4%	4.9%
Private sector (formal and informal)	39.1%	21.6%	50.3%	30.2%	16.3%	51.9%
Diagnosis among those with fever and for whom care was sought						
Received a finger or heel prick	15.4%	6.5%	26.9%	37.7%	17.8%	49.1%
Use of ACTs among those for whom care was sought						
Received treatment with ACTs	38.9%	23.6%	68.2%	80.5%	30.6%	93.4%
Use of ACTs among those for whom care was sought and received a finger or heel prick						
Received ACTs	18.9%	14.3%	37.7%	42.4%	17.1%	58.7%

ACT: artemisinin-based combination therapy.

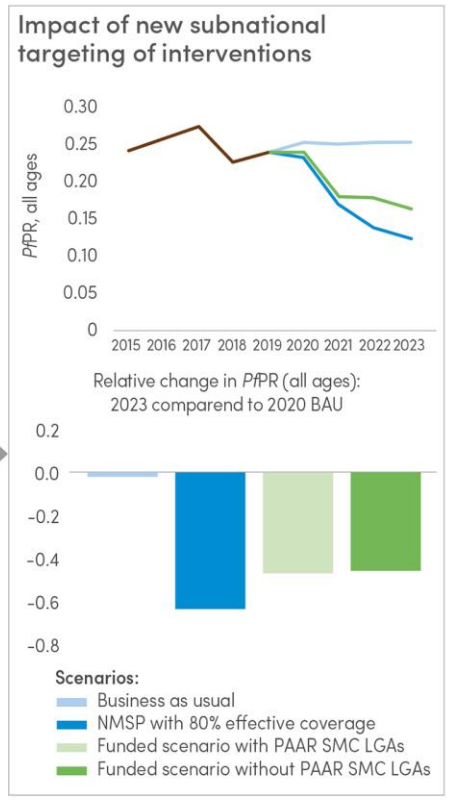
Household surveys from 21 countries in SSA, comparing period 2005-2011 to 2015-2019

High Burden to High Impact Response – Nigeria case study





No. of LGAs	IPTp	IPTi	SMC	LLIN distributions	Urban microstra-tification
5	Yes	No	No	Pyrethroid only	Yes
19	Yes	No	Yes	Pyrethroid only	Yes
43	Yes	Eligible	No	Pyrethroid only	Yes
322	Yes	Eligible	No	Pyrethroid+PBO	No
385	Yes	No	Yes	Pyrethroid+PBO	No



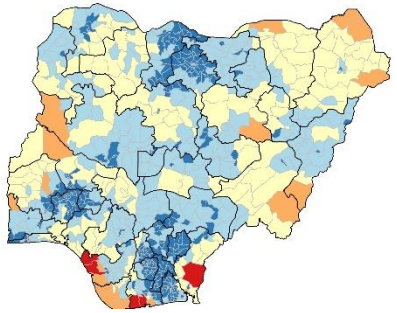
Scenario	Cases and deaths averted compared to a business as usual scenario, 2020–2030			
	Cases: all ages	Cases: U5	Deaths: all ages	Deaths: U5
Full implementation of NMSP	103 000 000	32 000 000	90 000	75 000
Funded scenario with priority above allocation request (PAAR) SMC LGAs	73 000 000	24 000 000	66 000	54 000
Funded scenario without PAAR SMC LGAs	71 000 000	23 000 000	64 000	53 000

The new sub-nationally tailored plan, if delivered optimally, is likely to reduce malaria prevalence by up to **40%** by 2023 and avert up to **90,000** deaths.

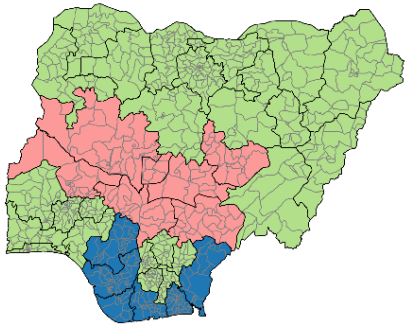
Requires adequate funding and optimized delivery, including considerable expansion of access to quality care for malaria fevers

Using data to improve service delivery

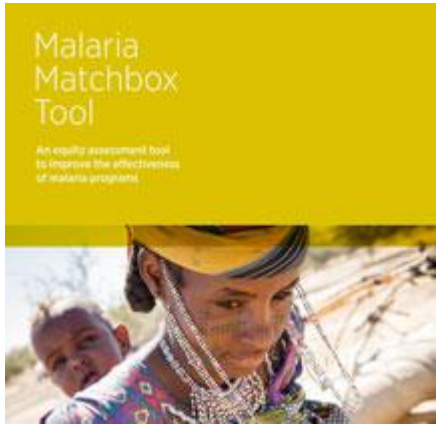
- 74% of fevers in Nigeria seek treatment
- Of those:
  - 62% use private sector
  - 38% use public sector
  - Few use community
- Diagnosis and treatment is free in public sector
- Overall, only 13% of fevers are diagnosed
- Data is needed to identify who is missing out and the barriers they face and to assess the quality of care



Mean distance to public health facilities



Population seeking care for fever (%)



Equity assessment

The challenge of COVID 19: The world responded

- Cross partner effort, led by WHO to tackle malaria and COVID 19
- A call in March, by WHO, to maintain core malaria control services while protecting health workers and communities against COVID-19 transmission
- Modelling analysis from WHO and partners to reinforce the urgent call to maintain essential malaria control services
- Technical guidance from WHO on how to safely maintain malaria control services in the context of the COVID-19 pandemic
- Monitoring of disruptions and identifying mitigation measures

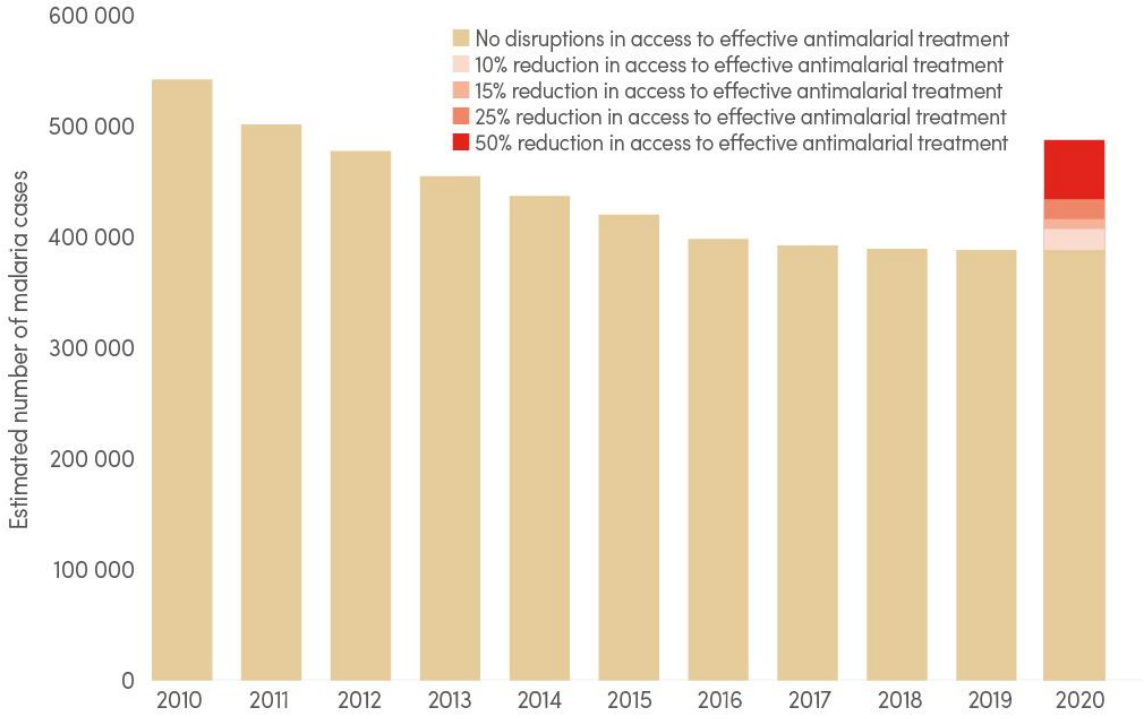
Listening and learning from countries and securing high level political commitment

The malaria response during COVID-19 pandemic – impact projections

Level of disruption of access to effective treatment with antimalarials in 2020	Projected excess malaria deaths due to disruption in sub Saharan Africa
No disruptions	391 000
10%	+ 19 000
15%	+ 28 000
25%	+ 46 000
50%	+100 000

Estimated potential increase in malaria deaths in sub-Saharan Africa (excluding Botswana, Eswatini, South Africa and Namibia) corresponding to varying levels of disruptions of access to effective antimalarial treatment

Source: WHO estimates.



WHO: World Health Organization.

Lessons for malaria from the COVID-19 response

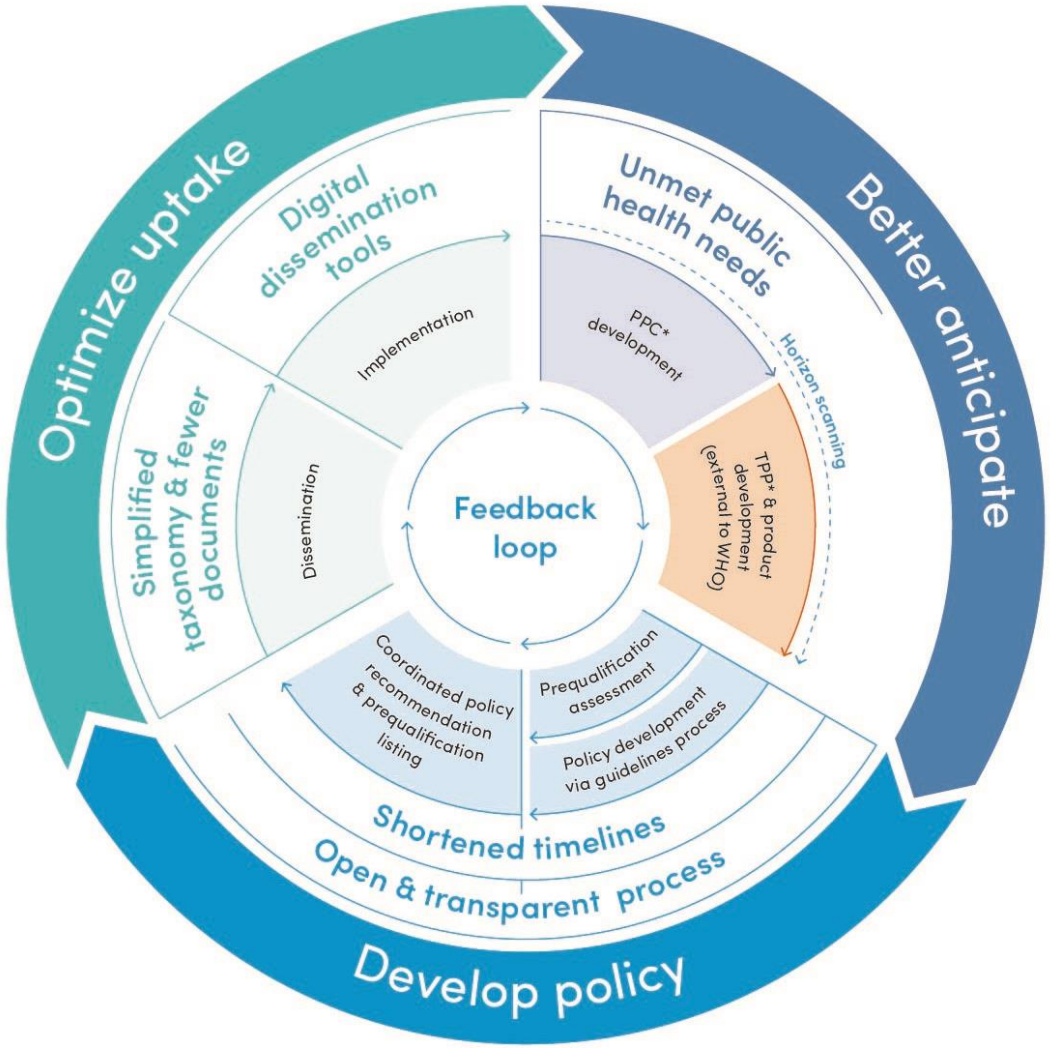
- There is huge value in protecting people from infectious diseases, as they can have catastrophic health and economic impact, particularly for the poorest
- Health systems have been challenged and will need strengthening to address existing public health priorities and new threats
- Global solidarity is essential and the benefits should extend to protecting everyone
- Leadership needs to be adaptable, authentic and accountable, drawing upon science and learning
- COVID 19 demonstrates the valuable principle of subsidiarity, and the importance of local data, local intelligence and local decision making.

Rethinking malaria

- The why
  - Off track
  - COVID 19 as a new threat and an opportunity
- The how
  - By listening and learning from the frontline
  - Learning lessons from HBHI
  - Engaging those responsible for strengthen the delivery systems and addressing the determinants of disease
  - Complemented by a global process of review
  - Who is deciding?
    - How do we more effectively—and more equitably—deliver services (everyone, but not everything)?
    - What is the current and necessary capacity to solve problems at the country-level?

Policy recommendations, norms and standards

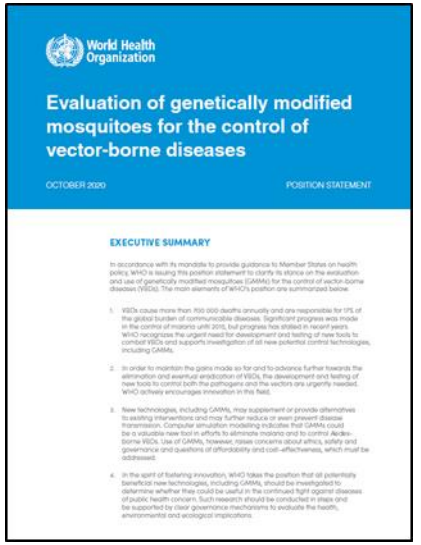
Enhanced public health impact through better policy making and dissemination



*PPC: Preferred product characteristic
*TPP: Target product profile

Better Anticipate

- WHO position statement on genetically modified mosquitoes published in October. https://www.who.int/publications/i/item/9789240013155
- Existing guidance framework for testing of genetically modified mosquitoes is under revision in collaboration with FNIH and TDR.


World Health Organization

Evaluation of genetically modified mosquitoes for the control of vector-borne diseases

OCTOBER 2020 POSITION STATEMENT

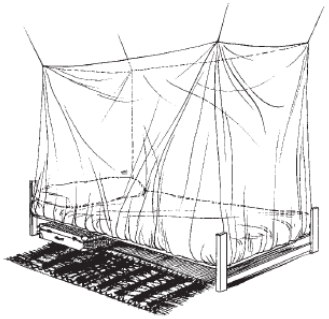
EXECUTIVE SUMMARY

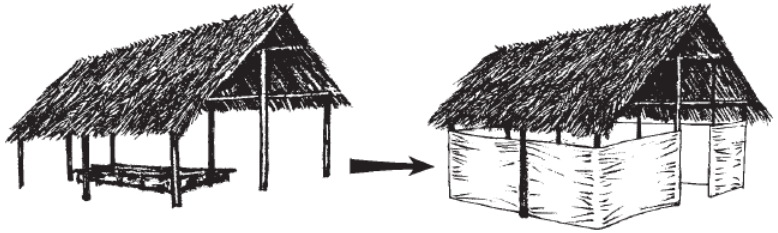
- Preferred product characteristic development - Diagnostics
  - Two target product profiles drafted for POC G6PD tests for two different use case scenarios – 1) triage to inform treatment with 8-aminoquinolines for *P. vivax* radical cure; and 2)to predict G6PD genetic status.
  - Landscape review of malaria image recognition products completed
  - TPP for POC hemoglobin to be drafted by end 2020

Preferred Product Characteristics – vector control

Progress in 2020:

- Two draft PPCs developed and public consultation completed
- PPC on ITNs in areas with insecticide resistance mosquito populations finalized and undergoing layout)
- PPC on vector control in complex emergencies being finalized

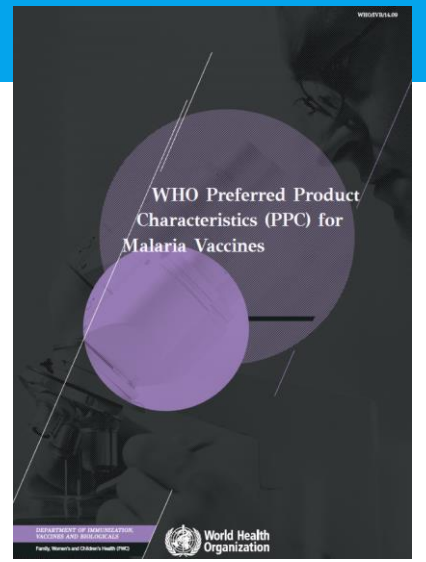




New/revised PPCs planned for 2021:

- New chemicals for IRS
- Tools to control outdoor biting
- Updated of existing PPC on endectocides

Preferred Product Characteristics – vaccines



- Malaria Vaccine Advisory Committee (MALVAC)* 27-28 October 2020
  - Reviewed priority use case scenarios - disease burden reduction, transmission reduction
    - Special considerations – species, pregnancy, emergencies, seasonality of transmission
  - Considered implications for preferred product characteristics (PPCs)
  - Reviewed R&D pipeline – to what extent might products in the pipeline meet vaccine PPCs
- Key issues
  - Anticipate public health impact: balance vaccine efficacy vs other characteristics (e.g. duration of efficacy, dose regimen)
  - Target groups – identification of high-risk populations
  - Accelerate clinical development: surrogate endpoints, study designs (e.g. use of CHMI)
  - Access & affordability: think ahead to ensure scalable manufacturing, programmatic suitability
- Next steps
  - Updating 2014 PPC prior to online public consultation

** Jointly convened by GMP and IVB*

CHMI: Controlled Human Malaria Infection

Preferred Product Characteristics – preventive chemotherapies

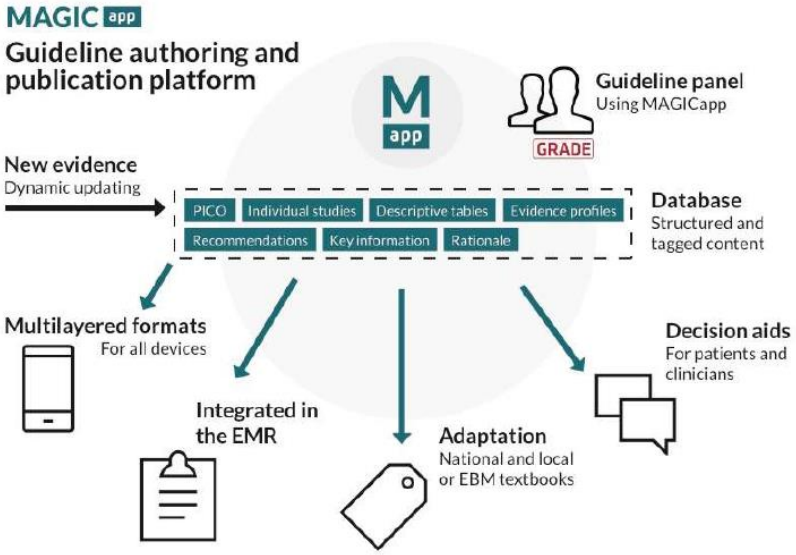
- Currently recommended use cases target women in pregnancy (IPTp), infants (IPTi), children living in intensely seasonal transmission settings (SMC)
  - Mass Drug Administration (MDA) for disease reduction considered in epidemics or complex emergencies (e.g. civil unrest, Ebola outbreaks)
- Technical Consultation scheduled for 15-16 December 2020 objectives:
  1. Agree the most important performance and operational characteristics (preferred product characteristics) of medicines to be used for malaria chemoprevention
  2. Consider relevant measures of efficacy and the quantity and type of safety data needed to support a WHO policy recommendation
  3. Review the knowledge gap to support inclusion into public health policy, specifically around standard of care, efficacy and safety considerations, for:
     a) Currently approved medicines which could be used for malaria chemoprevention, including drug combinations currently approved for malaria treatment
     b) New combinations of existing approved molecules which could be used for malaria chemoprevention

Develop Policy

- WHO Guidelines for Malaria
  - 4 Guidelines Development Groups convened – Vector control, Elimination, Chemoprevention & Vaccines (this week)
  - 1 Planning proposal submitted – Treatment
  - 3 additional planned in 2021 – Diagnosis, Vivax, and Anaemia (cross-department)
- Document on norms, standards and processes underpinning WHO vector control policy development is being finalized and will be online by mid-December 2020; a collaborative effort with PQT-VCP and NTD to update 2017 document on the vector control evaluation process.

Optimize Uptake

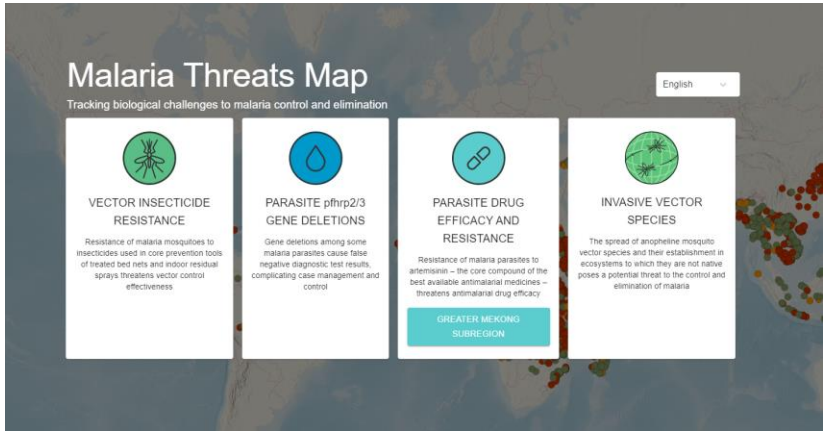
- Online web-based platform for consolidating Guidelines – MAGICapp
  - enables rapid update of recommendations approved by GRC
  - Guidelines available online and through pdfs on the GMP website
  - Translations will be available in French, Spanish and Arabic
  - Implementation guidance will be linked to recommendations
- Key dissemination plans for 2021
  - Innovative infographics for recommendations
  - Training modules to support problem solving approach and enable national decision making on optimal mix of interventions



Biological Threats – Malaria Threats Map

Biological Threats – Malaria Threats Map

- Includes vector insecticide resistance, parasite pfhrp2/3 gene deletions, parasite drug efficacy and resistance, and invasive mosquito vector species
- New version launched including:
  - district level maps to guide PBO net deployment
  - data download feature
  - animated time slider
  - treat status summary tables
  - map export function
  - user subscription & user feedback functions
- Data on drug efficacy and resistance and hrp2/3 gene deletions highlight increased this year
- *An. stephensi* inter-regional coordination calls initiated to support a coordinated response in the Horn of Africa

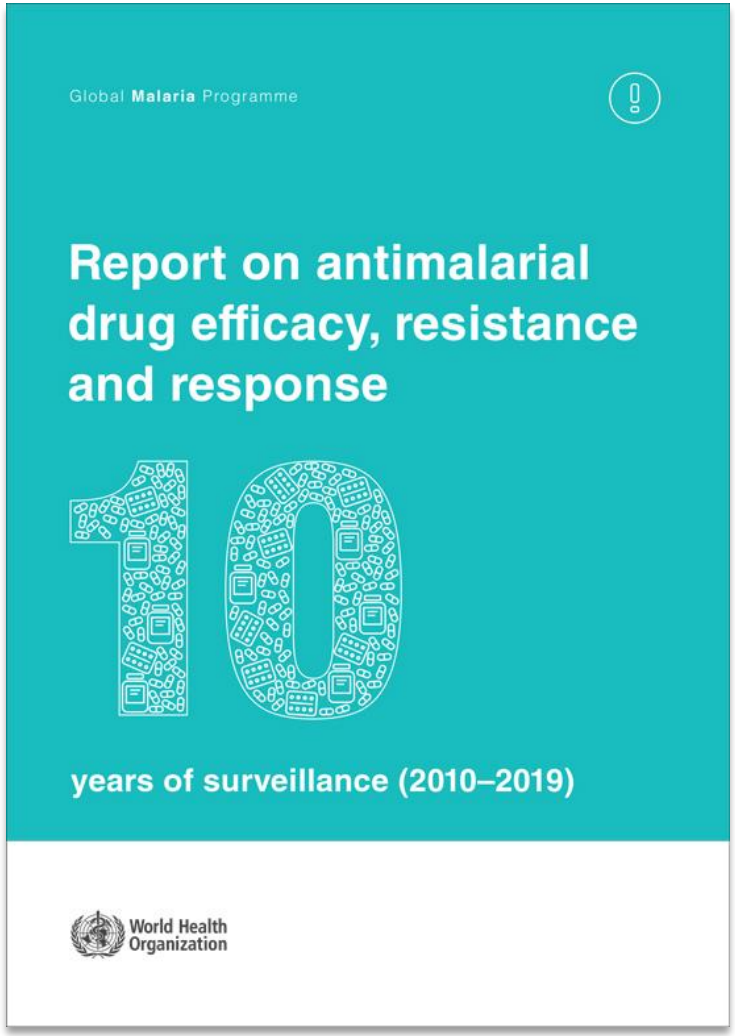


https://apps.who.int/malaria/maps/threats/

Biological Threats – DHIS2

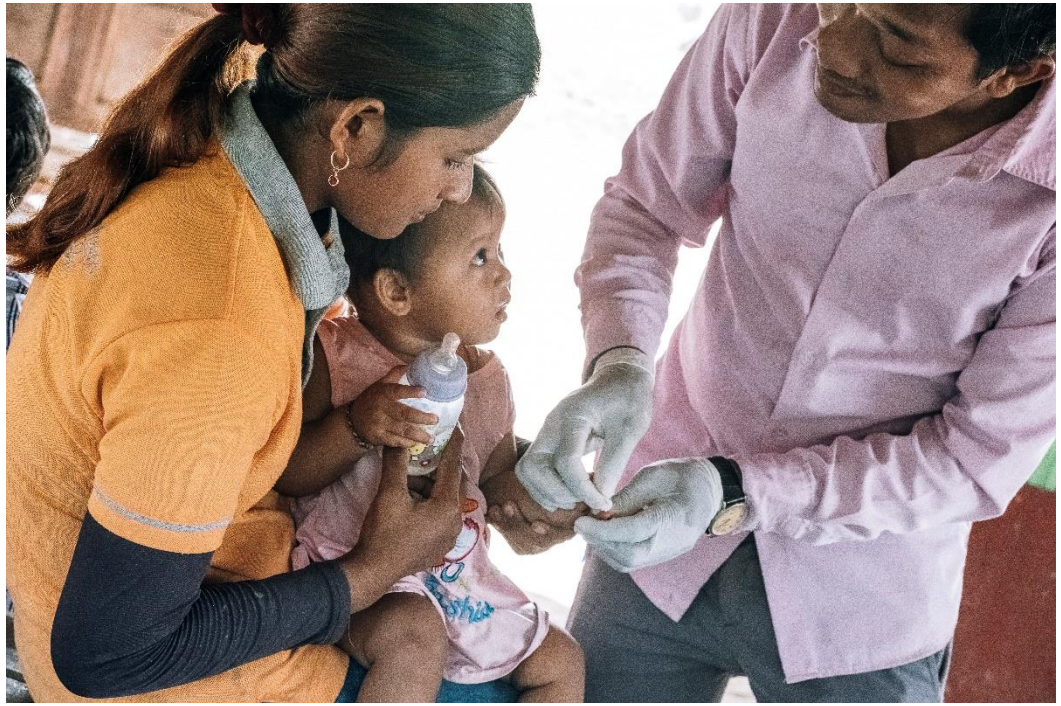
- DHIS2 standard entomology and vector control modules expanded to include individual mosquito data collections (morphological and molecular species ID, sporozoite rates, blood meal analysis, resistance mechanisms and gen sequencing)
- Application to report data from country DHIS2 instances to central (global) DHIS2 instance developed to facilitate data reporting (this applies to epi and ento)
- Applications to facilitate data import from excel to support collection of data from partners and import of historical data developed.
- Interactive training tutorial to build country capacity to use these modules developed.

Demo: https://extranet.who.int/dhis2-ento-vc/


Global Malaria Programme
Report on antimalarial drug efficacy, resistance and response
10
years of surveillance (2010–2019)
World Health Organization

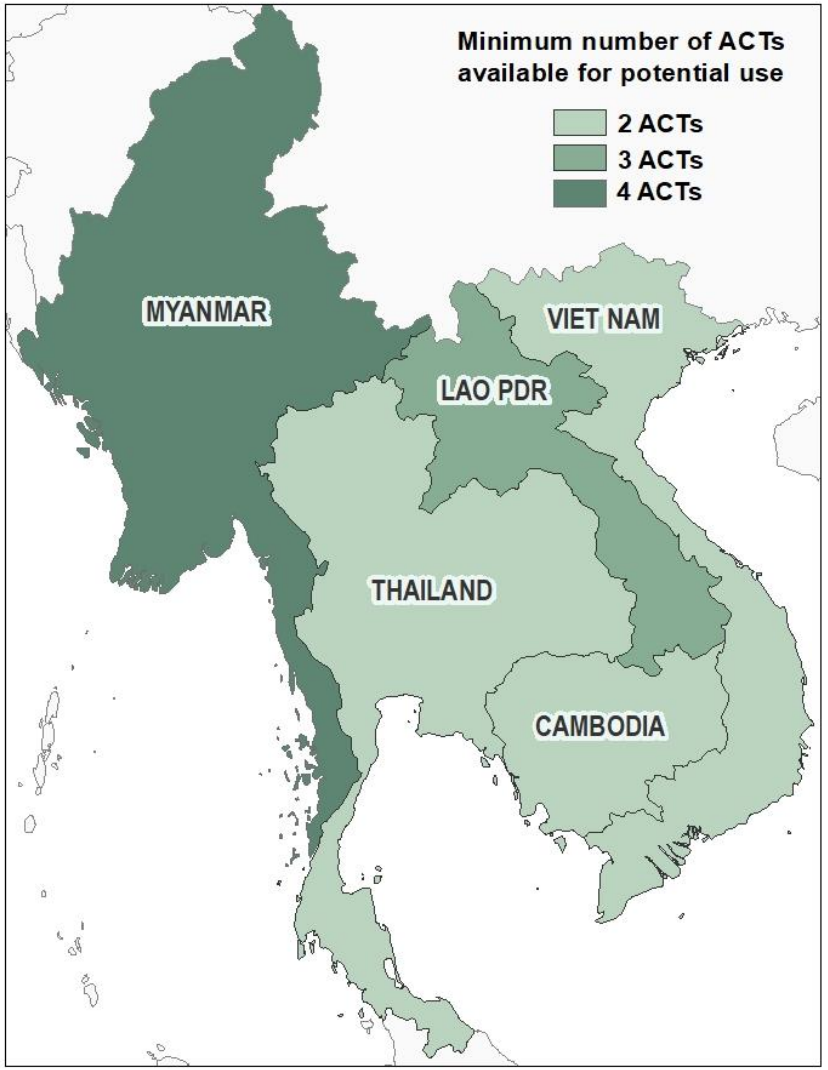
Key findings

- Overall, first- and second-line ACTs remain effective in curing *P. falciparum* malaria.
- Where high treatment failure rates were reported, policy changes have been made or are ongoing.



Key findings

- In 4 GMS countries, high treatment failure rates were detected after patients were treated with some ACTs.
- However, there were at least two other ACT options to treat *P. falciparum* malaria in all countries.



Key findings

- In Africa, the overall average efficacy rates of the 3 most commonly used ACTs were consistently high:
  - AL (98.0%)
  - AS-AQ (98.4%)
  - DHA-PPQ (99.4%)

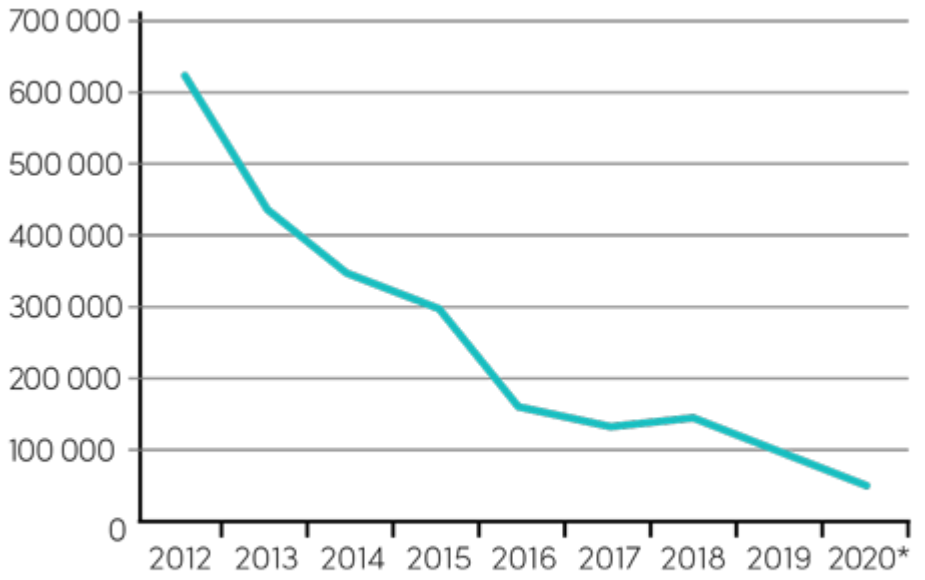
Key findings

- Outside the GMS, the findings from 2 countries are a cause for concern.
- Rwanda and Guyana have both reported validated markers for artemisinin partial resistance.
- However, ACTs remain effective in both countries.

Global context

- Countries in the Greater Mekong are winning the battle against malaria.
- Since 2012, there has been an 83% decline in malaria cases in the 6 GMS countries.
- *P. falciparum* malaria cases fell by 93%.

Malaria cases in the 6 GMS countries (2012–2020)



The year 2020 covers January to October

Malaria elimination

Malaria Elimination Updates

- Launch of the E-2025 planned in 2021: 28 countries (19 from the E-2020 and 9 new countries) have been invited to participate for support to reach the 2025 milestone of an additional 10 countries having eliminated malaria.
- Certifications: El Salvador's independent certification mission from 30 November – 8 December. The MECP will review the application in early 2021. China has requested WHO certification; GMP developing a timeline for certification in 2021.
- Launch of 2nd STOP-malaria cohort: 5 STOP-malaria volunteers deployed, all in Africa. Eswatini and Sao Tome and Principe, were added in 2020.

New tools

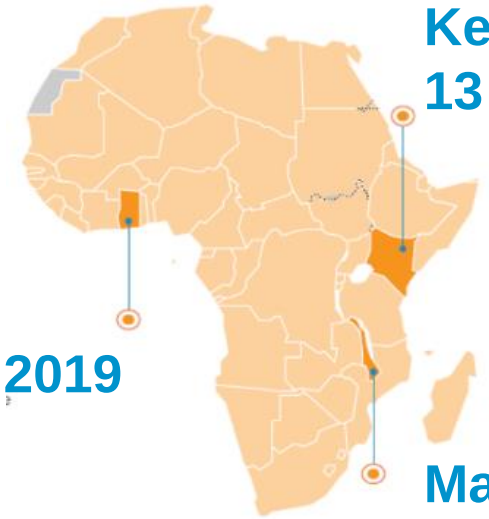
Malaria Vaccine Implementation Programme update

From launch to November 2020:

~1.3 million – Total number of doses administered

~500,000 – Children received dose 1

Ghana:
30 April 2019



Kenya:
13 September 2019

Malawi:
23 April 2019

RTS,S/AS01 risk-benefit analysis from MVIP expected to be presented for review by SAGE and MPAC in October 2021 for a potential policy recommendation

Technical Consultation on Seasonal Malaria Chemoprevention: Evidence for Policy Review

Draft Recommendations and Conclusions

14-15 October 2019, Room D23016, World Health Organization, Geneva, Switzerland

Global **Malaria** Programme

World Health Organization

Special Programme for **Research** and **Training** in **Tropical Diseases** (TDR)

TDR For research on diseases of poverty

UNICEF • UNDP • World Bank • WHO

Specific Objectives of the WHO/TDR Consultation

1. to review the evidence generated since 2012, collated and compiled by TDR, with specific focus on coverage, impact, safety and cost-effectiveness;
2. to identify research priorities for increasing SMC reach in target age-groups and eligible geographical areas as per current WHO recommendation;
3. to identify evidence-base requirements to support new recommendations to extended age groups, rounds of implementation and expanded geographical areas beyond the present WHO recommendation on SMC;
4. to update the WHO SMC field implementation manual published in 2013 (in a follow-up meeting on 16-17 October 2019)

Malaria – a problem to be solved not simply a task to be performed

Malaria Policy Advisory Committee Meeting
3—4 December 2020, Geneva, Switzerland
Background document for Session 1

Overview of the Malaria Surveillance Assessment Toolkit

The *Global technical strategy for malaria 2016–2030*, published by the World Health Organization (WHO) in 2015, emphasizes surveillance as a core intervention for accelerating progress towards malaria elimination across endemic settings. *Malaria surveillance, monitoring & evaluation: a reference manual* published by WHO in 2018, provides guidance on the principles and requirements for a strong malaria surveillance system. However, there is a lack of coordination and standardization of tools to monitor the quality of malaria surveillance and to understand its strengths and weaknesses.

What is a malaria surveillance assessment?

A malaria surveillance assessment is a systematic approach to measuring the performance of malaria surveillance systems (i.e., their quality), and identifying and evaluating the determinants of that performance. Malaria surveillance assessment results can be used to provide actionable and prioritized recommendations on how to strengthen the surveillance system for malaria control and elimination. A malaria surveillance assessment can be undertaken at any time. However, to ensure that its findings can inform future activities, it is recommended that an assessment be implemented as part of key national malaria control programme (NMCP) planning milestones, such as during malaria programme reviews (MPRs) and National Strategic Plan (NSP) development.

What are the gaps in malaria surveillance assessments?

To date, malaria surveillance assessments have been implemented in multiple countries, using a variety of tools to assess systems. The shared goal of these assessments has been to enable NMCPs to improve their performance towards achieving control and elimination goals. However, past approaches and tools have not been standardized across assessments, making it difficult to compare results between countries, between regions within a country, or over time in any select geographical region.

To address this issue, WHO has developed a standardized Malaria Surveillance Assessment Toolkit to align and adapt available tools into a single set of best practices, and to provide guidance for conducting comparable and replicable malaria surveillance assessments across multiple countries and partners.

What is the Malaria Surveillance Assessment Toolkit?

The Toolkit consists of multiple tools, including question banks, an implementation protocol template, a final report template, etc. A complete list of tools and corresponding links is given in **Table 1**. These tools can be used throughout the implementation of an assessment – from initiation of the project, to data collection, analysis and output generation, and prioritization and dissemination of results.

There are multiple potential users of the Toolkit (WHO, donors, implementing partners, and NMCPs). Each potential user has different goals for their assessment and for the use of the Toolkit in general.

WHO/UHC/GMP/MPAC/2020.06

As such, this Toolkit has been designed to reflect a multiplicity of purposes through the following characteristics:

- **Adaptability**: A malaria surveillance assessment conducted using the Toolkit can address a range of possibilities by customizing the assessment scope, defined as the framework and surveillance strategies[1] to be covered by the assessment. The data collection tools within the Toolkit can be tailored accordingly by filtering the content of each tool to include only relevant aspects.
- **Standardization:** To enable findings to be comparable across countries and between assessments within a country over time (e.g., for longitudinal assessments), any malaria surveillance assessment conducted using the Toolkit will include a minimum set of priority indicators and generate consistent expected outputs.

TABLE 1.
Malaria Surveillance Assessment Toolkit content by implementation phase

IMPLEMENTATION PHASE		TOOL*	TOOL DESCRIPTION
Phase 1 – Country-specific project initiation	1	Indicator Table	A compilation of key objectives, sub-objectives and indicators that can be used to quantify and/or qualify gaps in surveillance
	2	Protocol Outline	Template and guidance for a protocol for implementing a malaria surveillance assessment using this Toolkit
Phase 2 – Data collection*	3	Desk Review Guide	Template and guidance for conducting a literature review supported by key informant interviews to compile, summarize, analyse and organize what is known about malaria surveillance
	4	Data Quality Assessment Guide	Templates and guidance for gathering, analysing and presenting data that will be assessed for data quality
	5	Question Banks	Question banks for data collection at service delivery and subnational/intermediary levels
Phase 3 – Data analysis and output development	6	Analysis Tools	Excel tools and code (in statistical software, e.g., STATA) that can be adapted for data analysis of all data collected during a surveillance assessment
Phase 4 – Prioritization of recommendations and dissemination	7	Report Outline	Suggested outline for presenting the final results from the assessment, including templates to organize, visualize and interpret results
	8	Assessment Evaluation Plan	Protocol for evaluating the quality of the surveillance assessment implementation itself, including an expenditure tracking template and guidance
	9	Assessment Implementation Log	A log for tracking surveillance assessments that have been implemented using the Toolkit

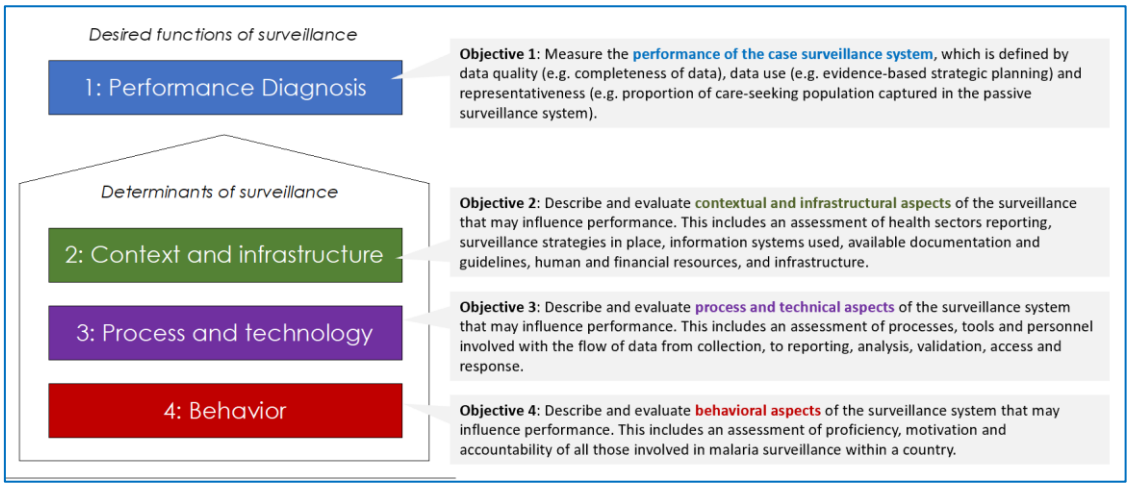
**Materials that can be used for each implementation phase will need to be prepared and reviewed during earlier phases/time periods in order to avoid delays.*

[1] The primary focus of the Toolkit is case surveillance in public, private and community sectors in both high-burden and low-burden settings. However, the Toolkit can also be applied to assess additional malaria surveillance strategies using priority indicators from Objectives 2–4. These include entomological surveillance, commodities tracking, and intervention monitoring and evaluation. The goal of an assessment of these strategies is to understand what information is being collected and how, and if it is being integrated and used along with case surveillance data. Currently, the Toolkit does not explicitly enable the assessment of drug resistance monitoring systems (i.e., therapeutic efficacy studies) or early warning detection systems. Other available tools may need to be leveraged for comprehensive assessment of these additional strategies.

Framework

The Toolkit builds on the PRISM (Performance of Routine Information System Management) model by having a framework based on four objectives that a surveillance assessment can address (Fig. 1).

FIG. 1.
Malaria Surveillance Assessment Toolkit objectives



In the Indicator Table, each objective is built out into **sub-objectives** for which qualitative and quantitative **indicators** are provided. These indicators further detail the components or factors that make up malaria surveillance performance or determinants, and can be measured by one or more of the data collection tools within the Toolkit. A subset of indicators have been flagged as 'priority indicators', representing the minimum set of metrics to be included in any assessment conducted using the Toolkit.

Methodology

Implementation of a malaria surveillance assessment supported by this Toolkit can include various activities, including desk-level data gathering and analysis, as well as primary data collection, e.g., a health facility level survey. **The assessment scope will determine which of the nine tools are required,** e.g., whether a survey at the service delivery level is needed.

➔ *For example, an NMCP may only be interested in conducting a quarterly desk-level analysis of surveillance data, in which case it will select indicators and associated questions related to the sub-objective "measuring data quality" of Objective 1 "**performance diagnosis**". Data collection may be restricted to desk-level analysis of retrospectively compiled data and audits at the health facility level. Such an assessment may be implemented once every quarter, alongside routine supervision.*

Moreover, depending on the assessment goals, **there are three general approaches to conducting a surveillance assessment using the Toolkit**; tools can be selected and adapted accordingly:

	RAPID	TAILORED	COMPREHENSIVE
Scope	*Only* priority indicators from all four objectives for *only* case surveillance	*Selected* indicators of all four objectives and *selected* surveillance strategies	*All* indicators of all four objectives and *all* surveillance strategies
Methods	Primarily limited to desk review only	Desk review and surveys at different levels of the health systems (i.e., central, subnational, a sample of facilities and communities)	Desk review and surveys at different levels of the health systems (i.e., central, subnational, a sample of facilities and communities)

	RAPID	TAILORED	COMPREHENSIVE
Access	Tool[2] can be downloaded off-the-shelf	Data collection tools are customized then downloaded	Data collection tools can be downloaded off-the-shelf
Estimated resource requirement	Low: up to 4 months depending on context	Medium/High: up to 12 months depending on context	High: up to 12 months depending on context
Suggested frequency	Once every year, such as during annual programme reviews	Every 3–5 years to establish a baseline or to assess the system comprehensively	

Expected outputs

To facilitate comparability between assessments over time and across geographies, a set of results expected from all assessments conducted using the Toolkit has been defined. These results include a cascade diagram of the representativeness of surveillance data, a dashboard of charts and tables for all data quality indicators, and a score card that quantitatively summarizes findings from priority indicators from Objectives 2–4. These outputs provide a high-level understanding of or first glance at the context, infrastructure, process, and technical and behavioural aspects that may be driving the surveillance system's poor performance.

The in-depth findings from the malaria surveillance assessment can be presented using the Report Outline, which includes a summary of the methods, a more in-depth description of the assessment results, and recommendations for surveillance strengthening actions based on key findings.

Upon completion of an assessment, recommendations should be developed based on the assessment results and prioritized in consultation with the NMCP and other stakeholders based on their impact and feasibility for strengthening the surveillance system.

Limitations

- It may be required to align the assessment with other assessment activities that are ongoing/planned in the country in order to ensure that outputs are not duplicated. This may require significant stakeholder coordination and cause delays in implementation. However, individual assessments may be driven by specific donor commitments, and therefore some activities and outputs from parallel assessments may be duplicated.

- The Toolkit provides indicators that are useful for measuring and understanding expected operational research questions; however, this list of indicators is not exhaustive and all aspects of a country's context may not be captured. Additional indicators may need to be added for specific contexts.

Next steps

The following will be addressed in the next version of the Toolkit:

- Content relevant for elimination settings is incomplete in the current version. This will be developed and incorporated into the Toolkit and tools within.

- Additional indicators (per partner feedback) will be included in the Surveillance Assessment Indicator Table to ensure that all aspects of surveillance are assessed as per the scope of this Toolkit. This will prompt updates to the data collection tools, e.g., question banks and questionnaires.

[2] For ease of use, content for a rapid assessment of priority indicators has been compiled in to one workbook

- Priority indicators that should be assessed across all country settings will be refined.
- Data quality assessment (DQA) tools within DHIS2 (e.g., DQA app.) that are currently being refined will be included once finalized.
- Data analysis code will be developed for data gathered through health care worker interviews at service delivery levels (as per data analysis of data gathered through one or two country implementations that have yet to be completed).
- The user interface and navigation of the tools within the Toolkit will be improved. A web-based interface will be developed.
- Training materials will be developed for easier access/use of the Toolkit.

Additional links

Malaria Surveillance Assessment Toolkit version 1.0	https://clintonhealth.box.com/s/cfz464rir5oitqd2qusz2c432u871h1p
Request for Proposals for the development of a web-app for the Malaria Surveillance Assessment Toolkit	https://www.ungm.org/Public/Notice/116331

Malaria Surveillance Assessment Toolkit

MPAG December 2020

Abdisalan Noor

Global **Malaria** Programme

World Health Organization

- **Lack of standardization** between tools and approaches used in the past - **difficult to compare over time/ between countries**

- **Existing tools were compiled and reviewed to identify gaps** for where new tool development was required

- The surveillance assessment toolkit is a **single, standardized set of tools** for malaria aims to support **identification of key actionable gaps in malaria surveillance across any malaria endemic setting**

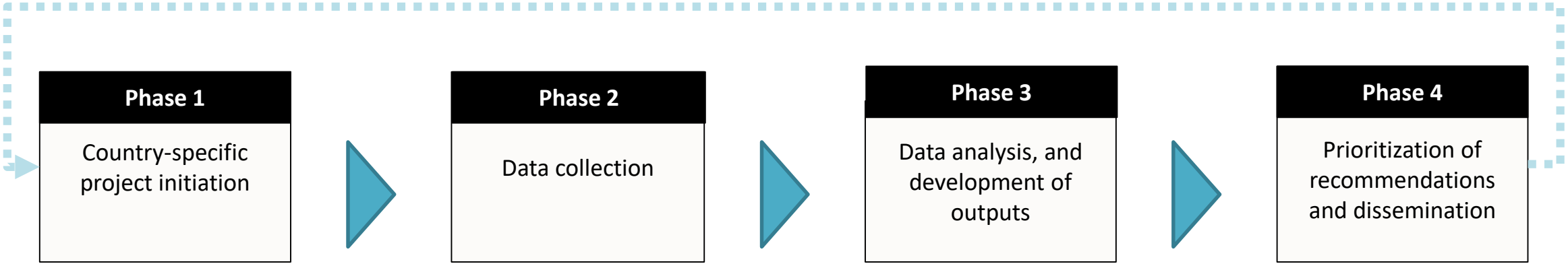
- Modularity: the content relevant to each objective and scope can be implemented independently.
- Adaptability: the content can be removed or added as relevant to specific implementation contexts.
- Standardization to allow the findings to be comparable between countries and between evaluations within a country over time.
- Reproducibility: some objectives may be repeated over time as part of longitudinal evaluations, whilst others may be conducted infrequently based on country needs.

- Assessments to include **data quality and data use** as the core focus of the toolkit.

- Assessments should be conducted as per country needs, however guidance will be provided for **institutionalization within routine Malaria Program Reviews, National Strategic Plan updates and Global Fund applications**.

What is a surveillance assessment and how can it be implemented?

- A malaria surveillance assessment is **a systematic approach to assess the performance of existing systems and understand determinants of this performance (strong or weak), in order to provide actionable and prioritized recommendations** on how to strengthen surveillance systems for malaria control and elimination
- An assessment can be implemented in 4 main phases:



- **Baseline/ period assessments** (every 3-5 years), **rapid assessments** (can be implemented yearly) as well as **routine assessments** (every quarter) can all follow similar phases of implementation however scope/ objectives and resources required would vary

Within each objective, sub-objectives/ operational research questions (and indicators) can be selected to tailor the assessment

Table 1 Malaria Surveillance Assessment objectives and research questions

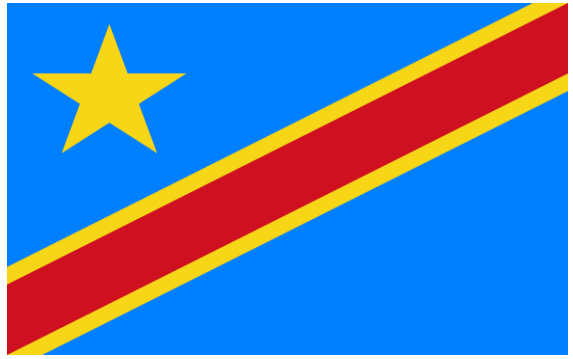
OBJECTIVE	SUB-OBJECTIVE	OPERATIONAL RESEARCH QUESTION
1 Performance diagnosis	1.1 Representativeness	*Are case surveillance data representative of the true burden of malaria (e.g. are all symptomatic malaria infections reported)?*
	1.2 Quality	*Are case surveillance data of good quality?*
	1.3 Use	*Are data demonstrably used to inform strategic planning, decision making, and action?*
2 Context and Infrastructure assessment	2.1 Strategies	*What malaria surveillance strategies (including case surveillance sectors and elimination activities, entomological surveillance, intervention M&E, and commodities tracking) are implemented at each level of the health system?*
	2.2 Systems	*What information systems are used for malaria surveillance and how are they integrated?*
	2.3 Documentation	*What key documents (guidelines, procedure manuals, and regulations) exist and are key documents available to staff?*
	2.4 Support	*What is the support (financial and partners) landscape for malaria surveillance and what are the gaps?*
	2.5 Resources	*What resources (staff, equipment, and infrastructure) are required for malaria surveillance and what are the gaps?*
3 Technical and Process assessment	3.1 Recording	*How are data recorded and what are the gaps?*
	3.2 Reporting	*How are data reported and what are the gaps?*
	3.3 Analysis	*How are data analyzed and outputs (dashboards, reports, data visualizations) disseminated and what are the gaps?*
	3.4 Validation	*How are data quality checked and what are the gaps?*
	3.6 Response	*How are data used to inform response processes (e.g. notification and investigation) and what are the gaps?*
	3.5 Access	*How are data accessed and what are the gaps?*
4 Behavioral assessment	4.1 Proficiency	*Do surveillance staff know designated surveillance tasks and how to do them?*
	4.2 Motivation	*Do surveillance staff feel motivated to complete designated surveillance tasks?*
	4.3 Accountability	*Do surveillance staff feel accountable for designated surveillance tasks?*

The toolkit is currently being implemented in 4 countries: Burkina Faso, Benin, DRC and Ghana

Burkina Faso: primary data collection (survey) completed, analysis ongoing

Ghana: primary data collection (survey) to begin Q1 2021

DRC: primary data collection (survey) to begin Q1 2021



Cameroon: primary data collection (survey) to begin Q1 2021

Benin: primary data collection (survey) to begin Q1 2021