CS4ME
CIVIL SOCIETY FOR MALARIA ELIMINATION

# Annual Forum 2023

## Time to deliver Zero Malaria : Innovate, Invest, Implement

JOIN US ! VIRTUAL EVENT

**Monday, April 24th 2023**
**09:00am - 1:00pm GMT**

**Guests Speakers :**

- Peter Sands
  *CEO of the Global Fund,*
- Dr Corine Karema
  *Interim CEO of Roll Back Malaria Partnership to End Malaria*
- Dr Peter Olumese,
  *Global Health Program and*
- Dr Robb Alastair,
  *Global Malaria Program, World Health Organization (WHO) l'Initiative and others*

Limited Spaces
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**ABOUT CS4ME :**

Civil Society for Malaria Elimination (CS4ME) is a global platform of Civil Society Organizations committed to achieving malaria elimination. Our mission is to make malaria control programs and interventions more effective, sustainable, equitable, innovative, inclusive on civil society, community-based, human right-based, gender sensitive and adequately funded.

Find More about CS4ME : www.CS4ME.org, or contact the CS4ME Secretariat secretariat@cs4me.org

CS4ME
CIVIL SOCIETY FOR MALARIA ELIMINATION

# Welcome to the CS4ME annual forum 2023

## Olivia Ngou

Impact Santé Afrique
CS4ME Global Coordinator

# AGENDA

| HOURS (GMT) | SPEAKERS |
|---|---|
| [8:45 – 9:00] | **Interlude 1: Voices from Communities and Civil Society** |
| [09:00 – 09:05] | **Host Olivia Ngou:** Welcome and Introduction |
| [09:05 – 09:10] | **Dr Corine Karema:** The state of malaria and the role of Civil Society Words from the RBM partnership to end malaria |
| [09:10 – 09:20] | **Dr. Peter Olumese:** The malaria situation, strategies and challenges : Where are we now ? |
| **Part1: We must innovate to beat malaria in our generation**<br>Moderator: **Carine Diboue** | |
| [09:20 – 09:30] | **Dr Antonio-Nkondjio Christophe :** Malaria Vector Control : status and challenges |
| [09:30 – 09:40] | **Dr Gosling Roland:** Preventing malaria in newborns IPTn+: a new intervention summary, successes and challenges |
| [09:40 – 09:50] | **Patrick Sieyes :** The new NETs |
| [09:50 – 10:00] | **Dr Lea Pare Toe :** The gene drive:  a potential game changer |

# AGENDA

| HOURS (GMT) | SPEAKERS |
|---|---|
| [10:00 – 10:05] | **Interlude 2: Voices from Communities and Civil Society** |
| **Part 2: Investing in the fight against malaria: from declarations to actions! what needs to be done**<br>Moderator: **Segolène Moussala** | |
| [10:05 – 10:10] | **Peter Sands :** : Improving implementation and funding of malaria programs : challenges opportunities and what needs to be done going forward |
| [10:10 – 10:20] | **Dr Phone Shein:** Issues and challenges in the fight against malaria in Asia |
| [10:20 – 10:40] | **Civil Society Panel 1**: Mobilizing domestic resources for malaria, how civil society engage the private sector, parliamentarians', mayors districts, religious leaders and youths<br><br>**Cecilia Senoo,** Hope For Future Generation, Ghana<br>**Babacar Thiam,** CSVA, Senegal<br>**Amu Mudenda**, FLAME, Zambia<br>**Katarikawe Emily**, InPACT, Uganda |

# AGENDA

| HOURS (GMT) | SPEAKERS |
|---|---|
| [10:40 – 10:55] | **Open discussion** |
| [10:55 – 11:05] | **BREAK** |
| [11:05 – 11:10] | **Interlude 3: Voices from Communities and Civil Society** |
| **Part 3: Implementation of malaria programs for impact**<br>Moderator: **Zeinabou Ide** | |
| [11:10 – 11:15] | **Dr Robb Alastair** : Reaching the unreached! |
| [11:15 – 11:25] | **Dr Jane Deuve** **:** Chemoprevention of seasonal malaria: 10 years of strategy. Where are we today? |
| [11:25 – 11:35] | **Hamza Djibo** :How Community-Led Monitoring is changing the game in conflicts areas |
| [11:35 – 11:45] | **Dr Albert Kalonji:** Why it is increase the actions and coverage of Community Health Workers ? |
| [11:45 – 11:55] | **Professor Charles Wondji:** Artemisinin resistance; what we need to know, challenges and actions to take in the fight against malaria |

# AGENDA

| HOURS (GMT) | SPEAKERS |
|---|---|
| [11:55 – 12:05] | **Sharonann Lynch:** Monoclonal Antibiodies: a revolution in malaria treatment |
| **Part 4: Civil Society Engagement in Global Fund process GC7 now**<br>Moderator: **Fidèle Bemadoum** | |
| [12:05 – 12:25] | **Civil society Panel 2:** Civil Society Engagement in Global Fund process and lessons learned from Window 1 GC7 from Nigeria, Côte d'Ivoire, DRC and Congo Brazzaville<br><br>**Ayo Ipinmoye** – ACOMIN, Nigeria<br>**Gisèle Takaléa** – COLTMR CI, Côte d'Ivoire<br>**Dr Rachel Ndaya** – RACOJ, *DRC*<br>**Ps Kipemosso Premier Claude** – POALP, Congo Brazzaville |
| [12:25 – 12:35] | **Open discussion** |
| [12:35 – 12:40] | **Maxine Whittaker** : Closing Remarks |

## Key note speaker 1: The state of malaria and the role of Civil Society Words from the RBM partnership to end malaria

# Dr Corine Karema

Interim CEO RBM Partnership to End Malaria

## Presentation 1: The malaria situation, strategies and challenges : Where are we now ?


**Dr Peter Olumese**

Global Malaria Program, World Health Organization

# The Global Malaria Situation, strategies and challenges: Where are we now?

*CS4ME Annual Forum 2023*

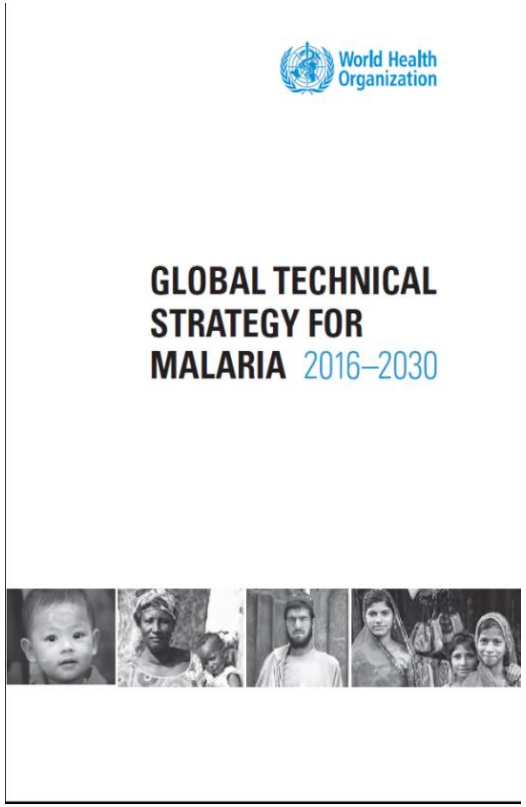
*24th April 2023.*

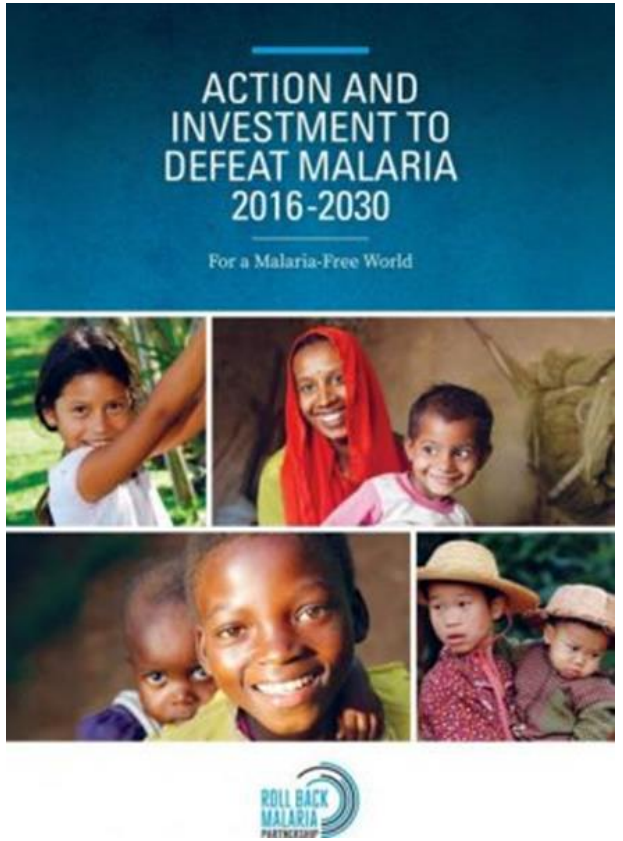
**Dr. Peter OLUMESE,**
**Global Malaria Programme**
**WHO, Geneva, Switzerland.**

Global **Malaria** Programme

World Health Organization

# Global Response (Global Technical Strategy for Malaria, 2016-2030)



# Global Response (GTS, 2015): Vision, goals, milestones and targets

| Vision: A world free of malaria | | | |
|---|---|---|---|
| Goals | Milestones | | Targets |
| | 2020 | 2025 | 2030 |
| 1. Reduce malaria mortality rates globally compared with 2015 | ≥40% | ≥75% | ≥90% |
| 2. Reduce malaria case incidence globally compared with 2015 | ≥40% | ≥75% | ≥90% |
| 3. Eliminate malaria from countries in which malaria was transmitted in 2015 | At least 10 countries | At least 20 countries | At least 35 countries |
| 4. Prevent re-establishment of malaria in all countries that are malaria-free | Re-establishment prevented | Re-establishment prevented | Re-establishment prevented |

## Global response

- All countries can accelerate efforts towards elimination.
- Country ownership and leadership, with participation of communities: multisectoral approach.
- Improved surveillance, monitoring and evaluation.
- Equity in access to services especially for the most vulnerable and hard-to-reach populations is essential.
- Innovation in tools and implementation approaches.

# GTS: -Progress towards first milestone point (2020)

| Goals | Milestones | | Targets |
|---|---|---|---|
| | 2020 | 2025 | 2030 |
| 1. Reduce malaria mortality rates globally compared with 2015 | At least 40% ✖ | At least 75% | At least 90% |
| 2. Reduce malaria case incidence globally comparted with 2015 | At least 40% ✖ | At least 75% | At least 90% |
| 3. Eliminate malaria from countries in which malaria was transmitted in 2015 | At least 10 countries ✓ | At least 20 countries | At least 35 countries |
| 4. Prevent re-establishment of malaria in all countries that are malaria free | Re-establishment prevented ✓ | Re-establishment prevented | Re-establishment prevented |

*Global Technical Strategy for malaria 2016-2030*

- Mortality reduction
  - 18% reduction achieved, but 22% off track
- Malaria cases
  - 3% reduction achieved, but 37% off track

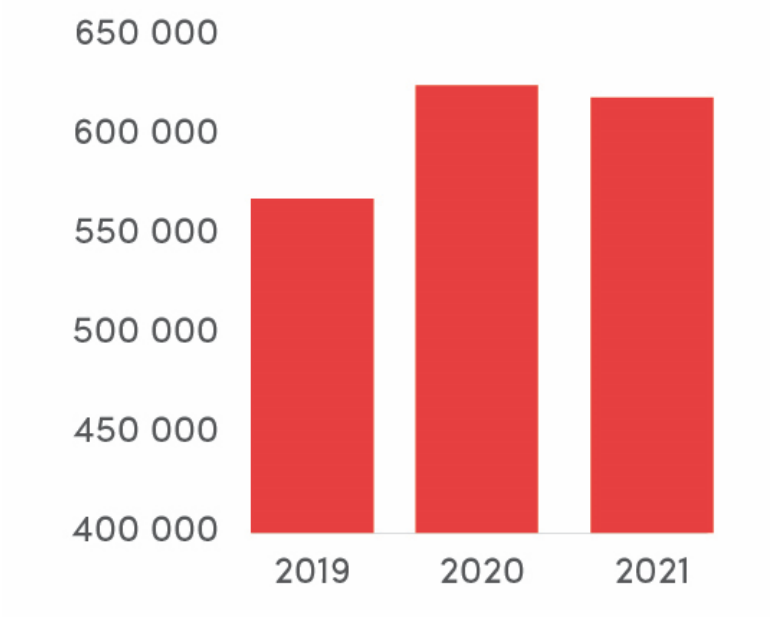
# Off track to meet global targets

# Estimated malaria cases & deaths (2021)


- **The Global Malaria Picture**
  - 84 countries and territories
  - Half world at risk (3.2 billion).
- **highly concentrated in sub-Saharan Africa**
  - Globally, there were an estimated 247 million cases of malaria in 2021 an increase from 245 million in 2020, and 230 million in 2015.
  - ≈ 95% in Africa; 2% in Southeast Asia
  - Globally, 619 000 deaths, a slight decline from 625 000 in 2019
  - ≈ 96% in Africa
  - malaria was the 4th highest cause of death among children in Africa (10% of child death in sub-Saharan Africa), - claiming the life of 1 child every 2 minutes.

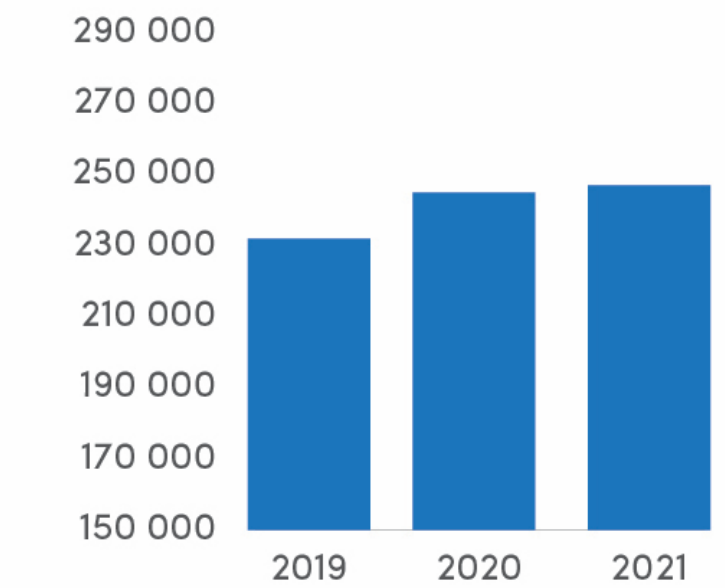
# Endemic countries held the line against further setbacks in 2021

**Deaths**



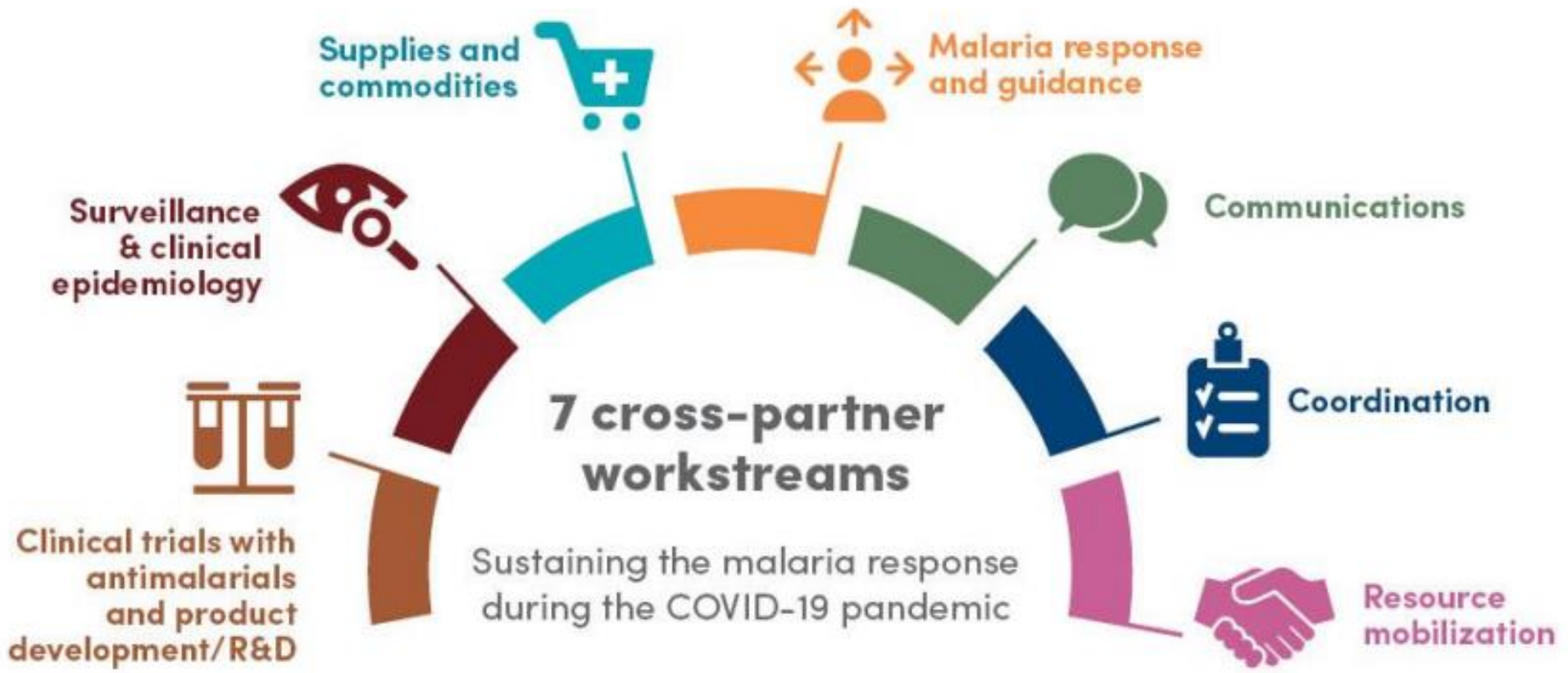

- 568 000 in 2019
- 625 000 in 2020
- 619 000 in 2021

**Cases (000)**




- 232 million in 2019
- 245 million cases in 2020
- 247 million cases in 2021

# Malaria & COVID-19 cross-partner workstreams



# Contributory factors to current situation

- Decreasing efficacy of malaria control tools
  - Resistance to medicines and insecticides
- Implementation challenges
  - Uptake and coverage of interventions
  - Financing
    - Plateauing of donor funding + minimal increase in domestic financing
  - Technical capacity – national, district and community levels
  - Weak surveillance systems
  - Challenging implementation environments
    - Conflicts, humanitarian and fragile settings
- COVID-19
- Emerging biological threats

# Resistance

- Insecticide resistance
- Antimalaria drug resistance
- HRP2 deletion
- Development of the *Strategy to respond to antimalarial drug resistance in Africa.* The strategy was launched in November 2022

# *Anopheles stephensi*

**Initiative launched on 29th September**

- Virtual launch – brochure and stories on WHO website
- Call to introduce initiative – October 10

**Partnership convening – March 2023 (Ethiopia)**

- Building a coordinated response across Africa
- Improving information exchange & evidence-base to develop guidance

**Malaria Threats Map**

- Nigeria collections move the invasion out of the Horn of Africa
- Improving maps with “negative points” to assist in interpretation and modelling

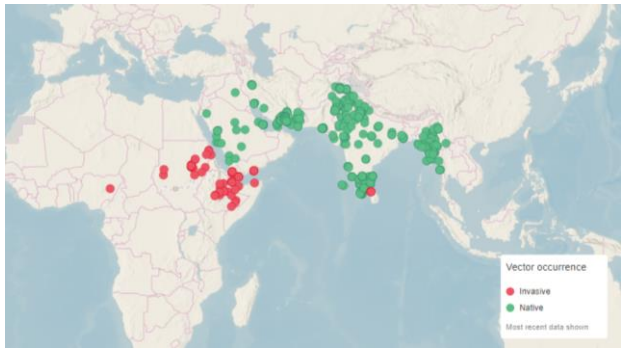



Fig. 3. Survey results showing only positive larval sites (blue stars).

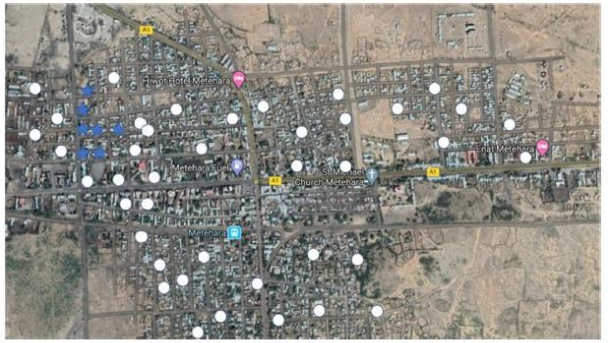


Fig. 4. Survey results showing positive larval sites (blue stars) and negative larval sites (white circles).

# Malaria vaccine - Next steps following the WHO recommendation for use of the first malaria vaccine, RTS,S/AS01

- **Preparation and support for roll-out beyond the pilots**
  - Over 23 countries have expressed interest to introduce the malaria vaccine
  - Mismatch of vaccine supply to demand means countries will have to consider a phased approach, beginning in areas of greatest need
  - Countries are identifying areas of greatest need based on best available local evidence

- **Planning underway for WHO review of next malaria vaccines**
  - R21/MatrixM malaria vaccine review timing dependent on Phase 3 trial data availability
    - Phase 2 data in seasonal use indicate vaccine efficacy may be similar to that of RTS,S/AS01 in seasonal use
  - Second vaccine could help to increase supply and reduce cost

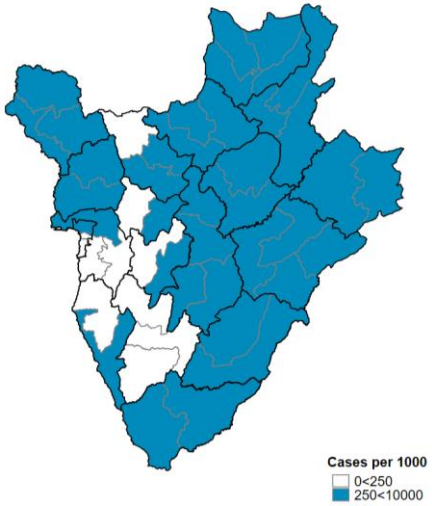
World Health Organization

# Framework for the allocation of limited malaria vaccine supply

**First priority principle of the framework: Greatest need**
Allocate the vaccine to countries with areas of greatest need, where the malaria disease burden in children and the risk of death are highest

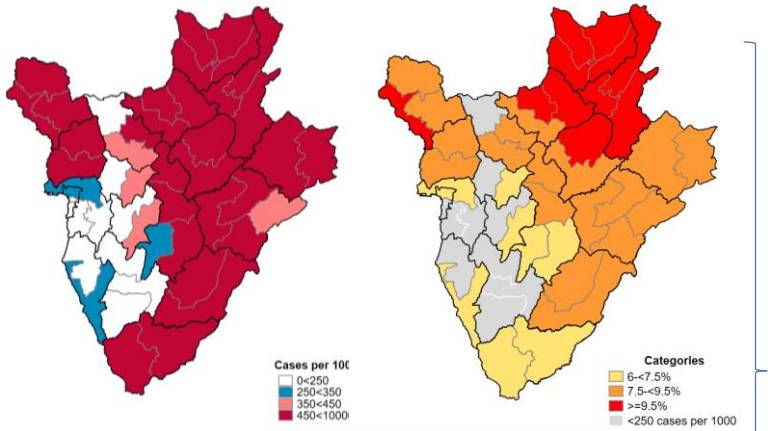
**Other principles**: Maximize health impact and solidarity

**Step 1:** Identification of areas of moderate and high transmission where the vaccine is recommended

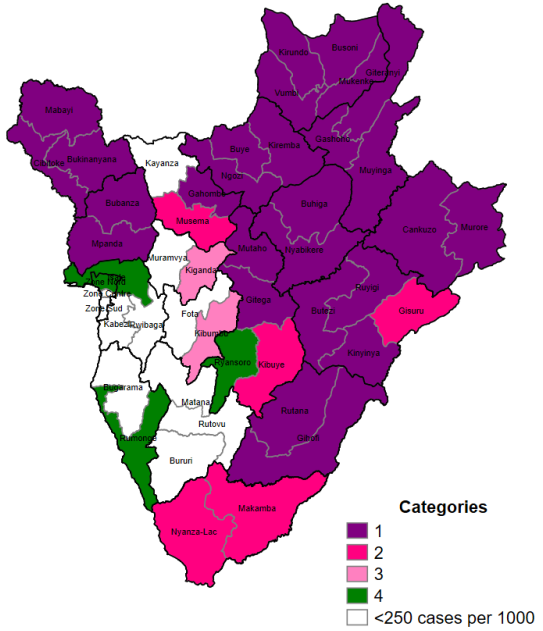



Areas with **>250 cases per 1000** (blue) identified as having moderate or high transmission intensity

**Step 2**: Prioritization of areas of moderate-to-high transmission into **categories of need** for the vaccine according to malaria transmission and mortality.



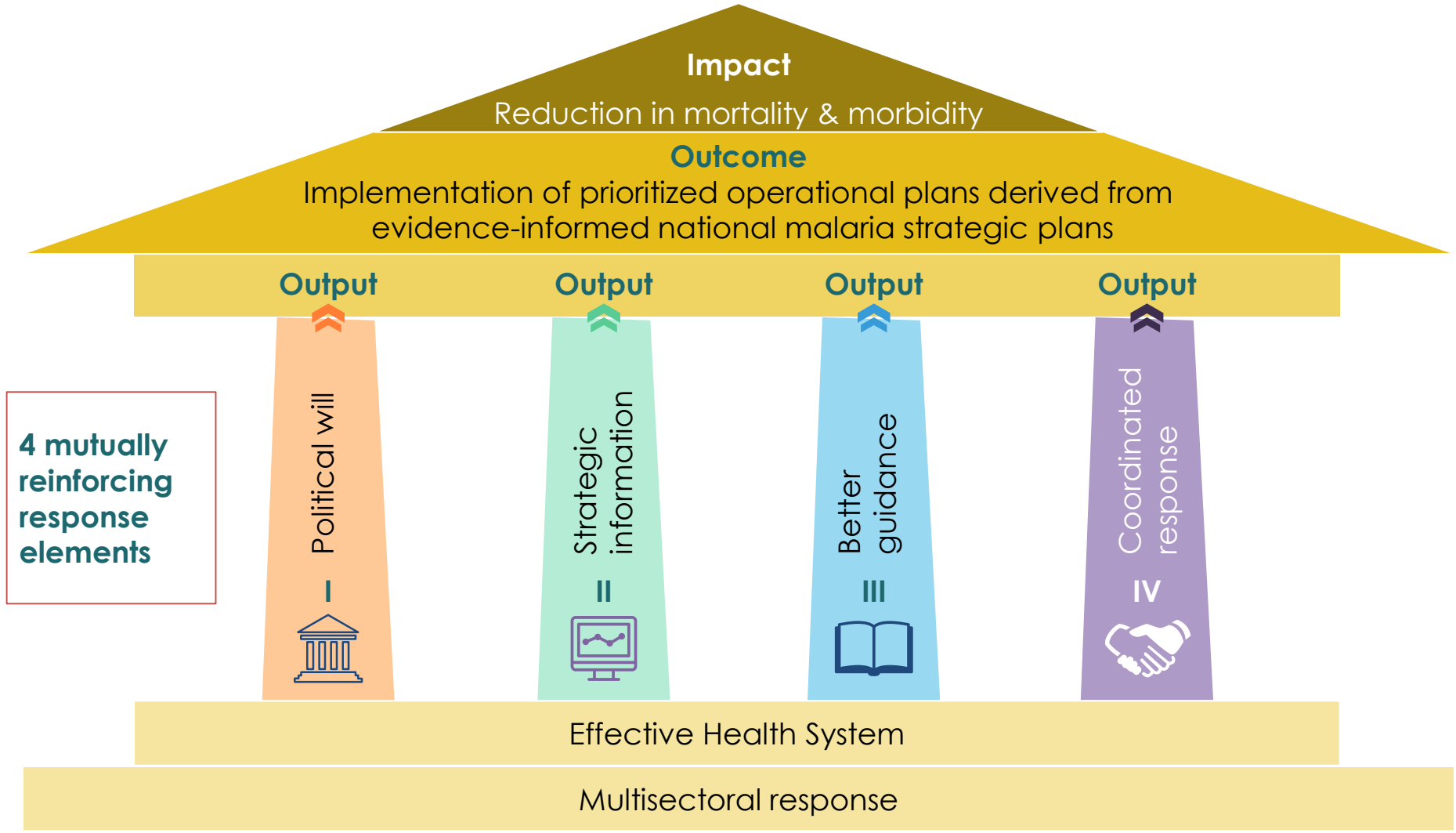

| | Incidence (cases per 1000) | AU5MR (%) |
|---|---|---|
| 1 | 350-<450 | >9.5% |
| 1 | >=450 | >9.5% |
| 1 | >=450 | 7.5%-<9.5% |
| 2 | 250-350 | >9.5% |
| 2 | 350-450 | 7.5%-<9.5% |
| 2 | >=450 | 6.5%-7.5% |
| 3 | 250-<350 | 7.5%-<9.5% |
| 3 | 350-<450 | 6.5%-7.5% |
| 3 | >=450 | <=6.5% |
| 4 | 250-<350 | 6.5%-7.5% |
| 4 | 350-<450 | <=6.5% |
| 5 | 250-<350 | <=6.5% |



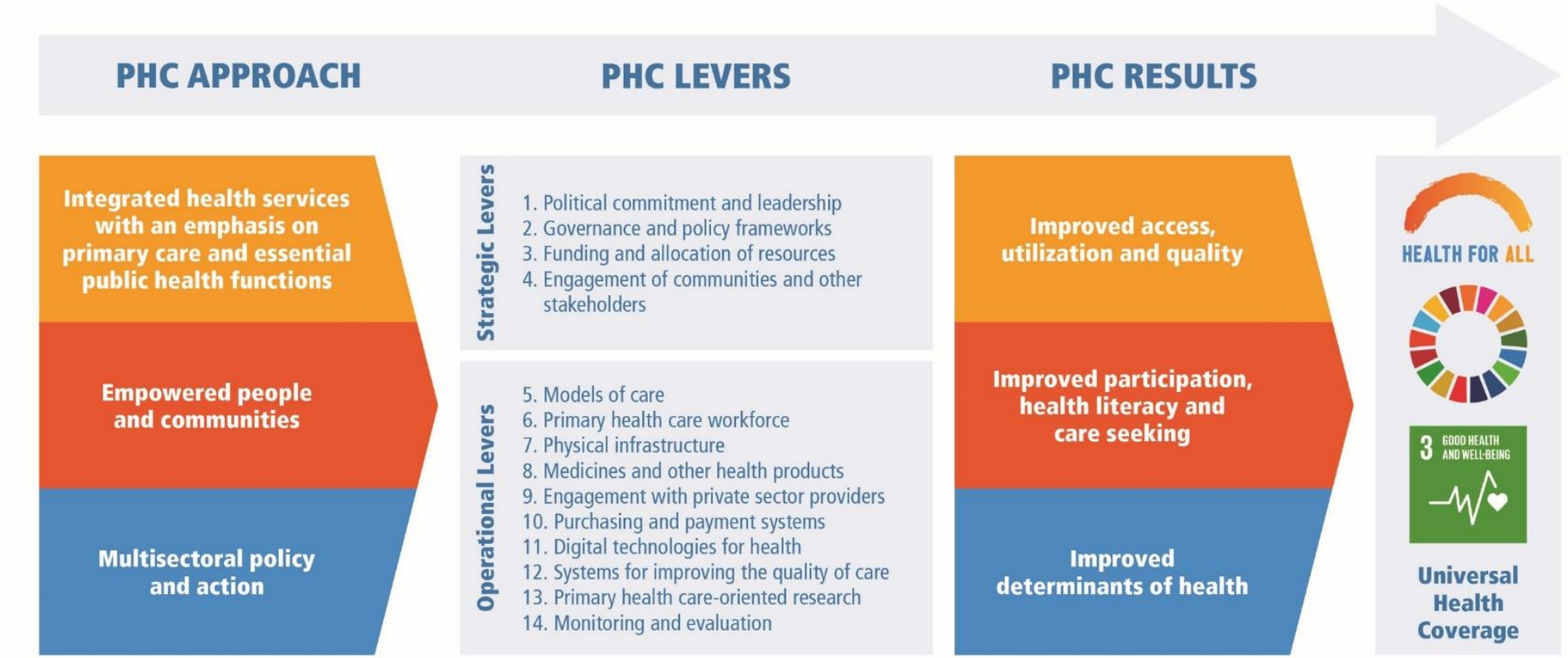

**Category 1** areas (highest need) targeted for the **first phase** of vaccine introduction

**Step 3:** Review categorization guided by additional local data to ensure operational feasibility and coverage of districts within the maximum number of doses available per country as per the solidarity principle

# HBHI is a holistic approach: 4 elements feeding into tangible actions through NSP implementation and concrete outcomes



# Need multisectoral response with trusted national leadership and well-functioning, equitable and resilient health systems




Success in tackling diseases such as malaria requires a solid primary health care system and essential public health programs that support a resilient community response able to adapt to, withstand and overcome adversities

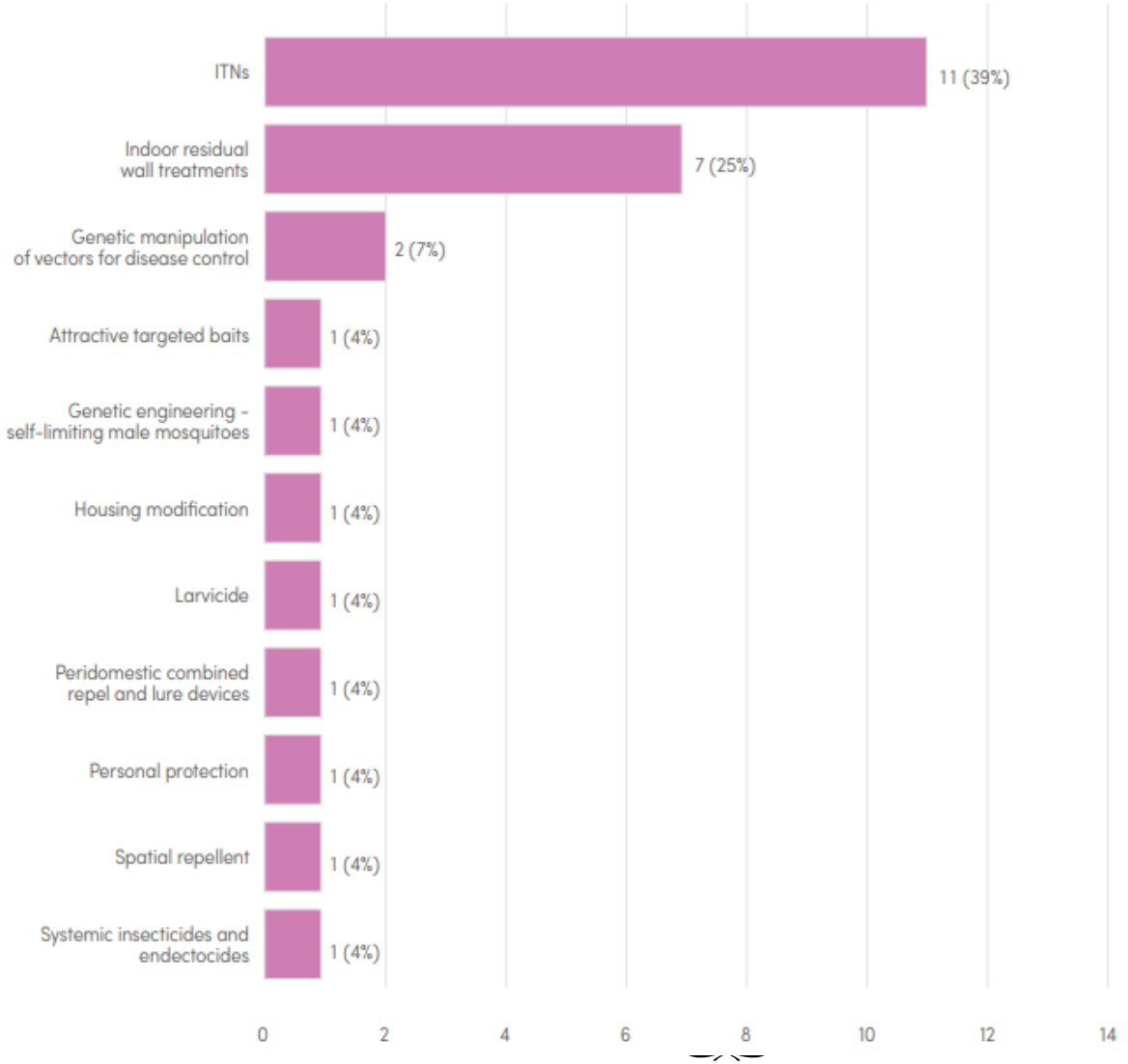
# Promoting innovation

- Better anticipate for new and more effective tools
  - Development of PPCs, working with research and innovative partners
- Innovative delivery systems for current interventions and existing tools
  - Maximal impact and prolong the useful effective life
  - Mix and targeting of existing tools
- Taking advantage of opportunities and lessons from challenges
  - COVID response
  - New delivery opportunities and mechanism in conflict areas

# A promising R&D pipeline will accelerate progress towards global targets

- Investments in R&D yielded the development of RDTs, ACTs and ITNs – the backbone of the global malaria response since 2000
- New types of vector control technologies, diagnostics, malaria medicines and vaccines hold promise

**Distribution of vector control products in the R&D pipeline by intervention type** *Source: WHO (2022) (172).*



# Conclusion

- Though we are currently off-track in meeting the goals and targets of the GTS, past lessons and trajectory of malaria control before 2015, is reassuring that given the right leadership and direction, it is possible to get back on track and achieve the GTS goals and targets
- Effectively deploying and maximizing current tools can already begin to get us back on track while promoting the development of new effective tools
- Country ownership and leadership remains pivotal in the fight against malaria
- A Multisectoral approach must be vigorously pursued with community involvement both in the design and implementation of malaria control efforts.
- Also, funding from both domestic and international sources must increase substantially for the GTS goals to be achieved.

# Keep our eye on the prize: a world free of malaria

Thank you

# Part1: We must innovate to beat malaria in our generation

## Moderator: Carine Diboue

Impact Santé Afrique

CS4ME Secretariat

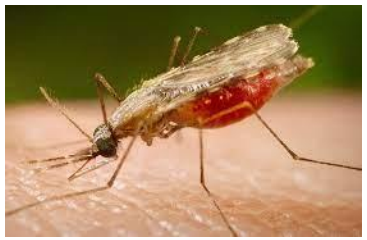
# Presentation 2: Malaria Vector Control : status and challenges

**Dr Antonio-Nkondjio Christophe**

Pan African Mosquito Control Association

(PAMCA)

# Malaria vector control in Africa: Situation and challenges



By

Antonio-Nkondjio C (PhD)

Researcher OCEAC Yaoundé Cameroon

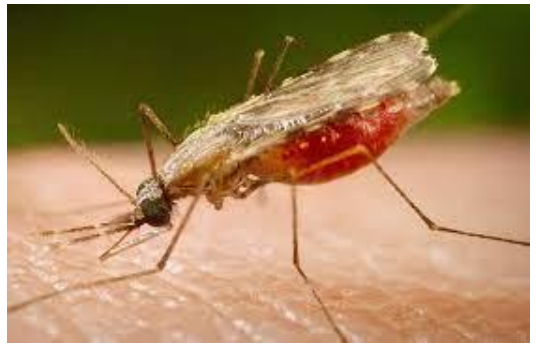
***World Malaria day 2023***

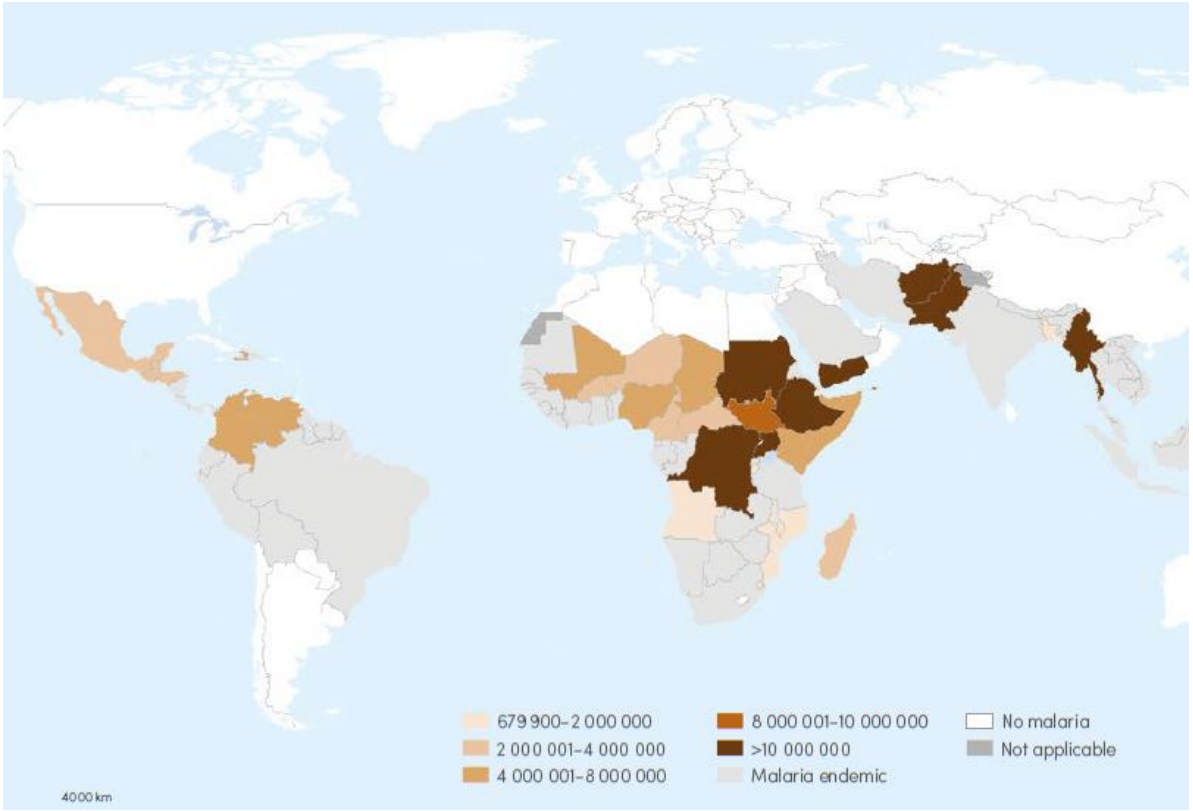
# Outline

- Situation of malaria in the world
  - Evolution in Africa
  - Targets and milestones for elimination
  - Trend of morbidity & mortality
  - Main control measures
- Challenges
  - Challenges of current vector control measures
- Other threats
- News advances in malaria prevention

# Malaria Situation

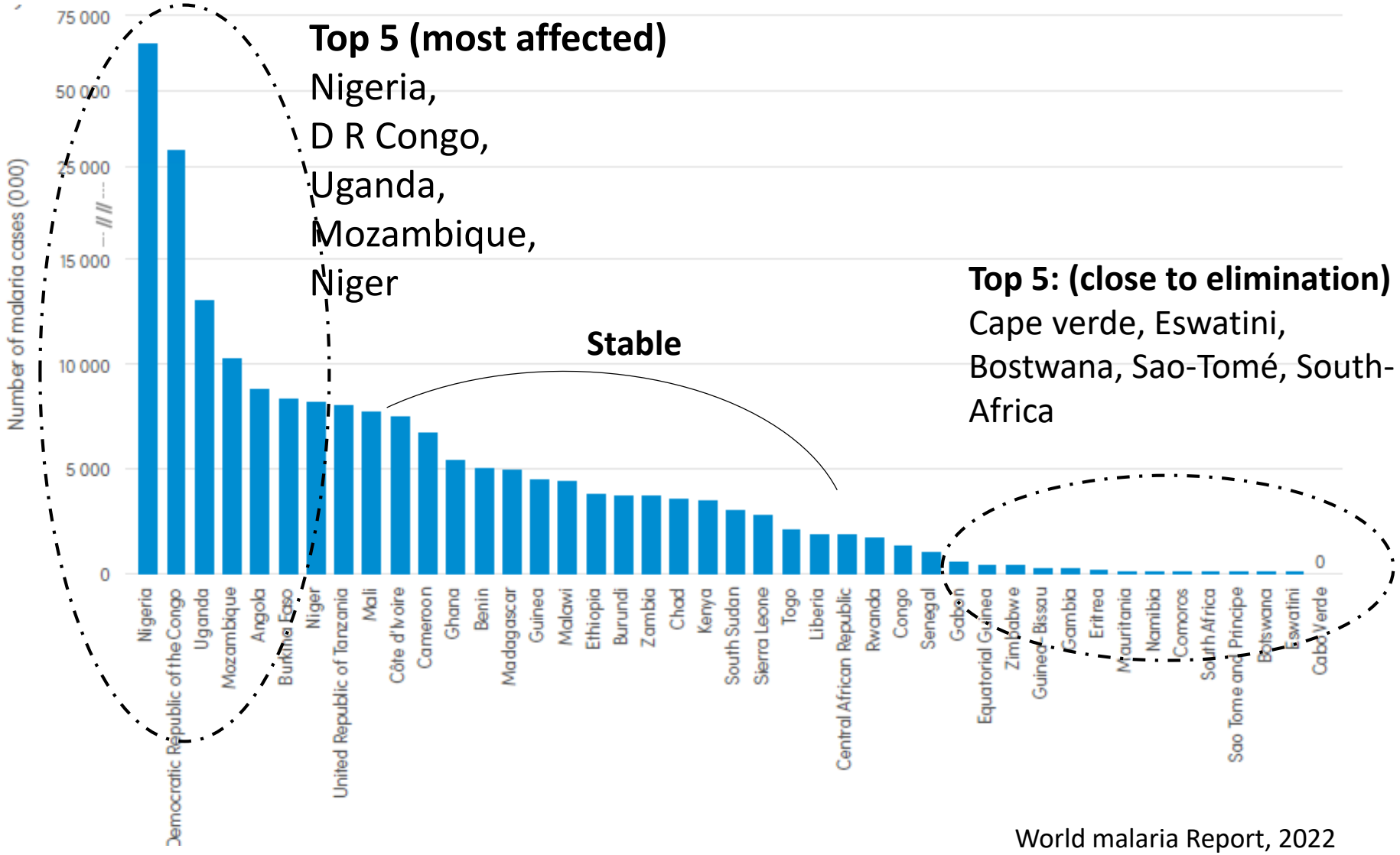
- 247 million cases worldwide in 2021 (>90% in Africa)
- 619 000 deaths (>90% in Africa)
- Investment on malaria control ~US$ 3.5 billion per year
- Lost of 1.3% growth of the GDP in Africa
- > 40% of the world population is exposed to the risk of malaria






World malaria Report, 2022

# Situation : Countries affected (WMR, 2022)



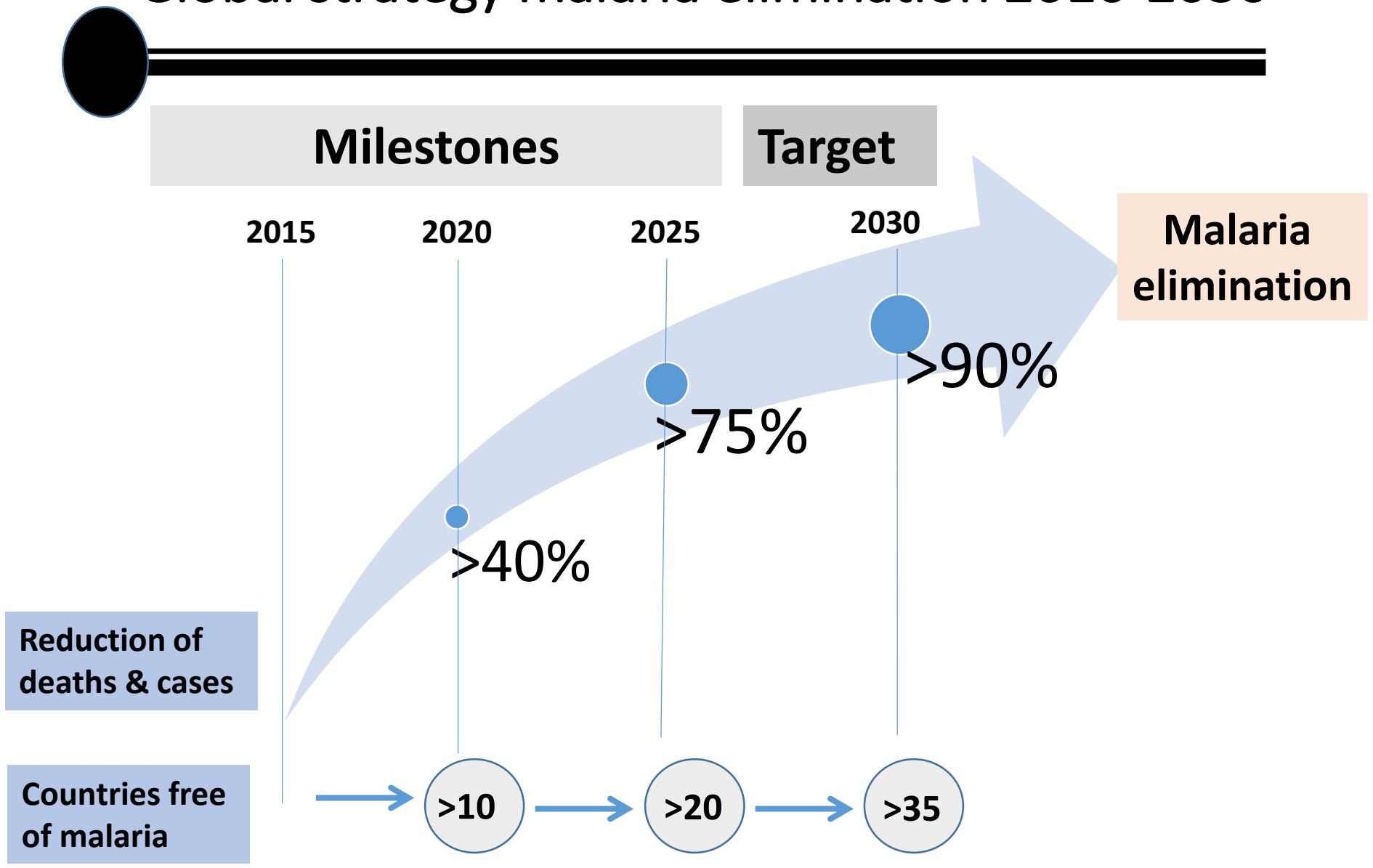

**Top 5 (most affected)**
Nigeria,
D R Congo,
Uganda,
Mozambique,
Niger

**Stable**

**Top 5: (close to elimination)**
Cape verde, Eswatini, Bostwana, Sao-Tomé, South-Africa

World malaria Report, 2022

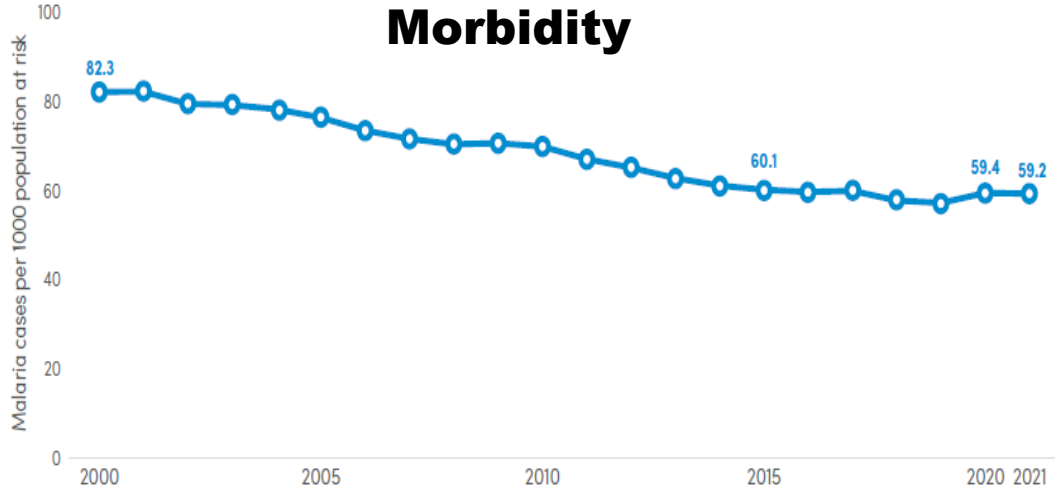
# Global strategy malaria elimination 2016-2030

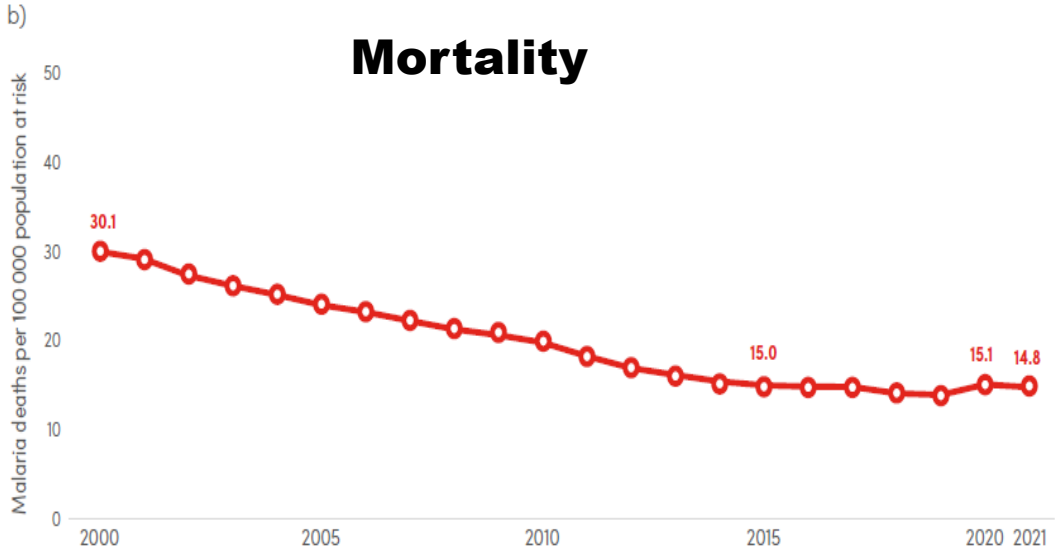



*World Malaria Report 2016*

# Trend of morbidity & mortality (WMR, 2022)

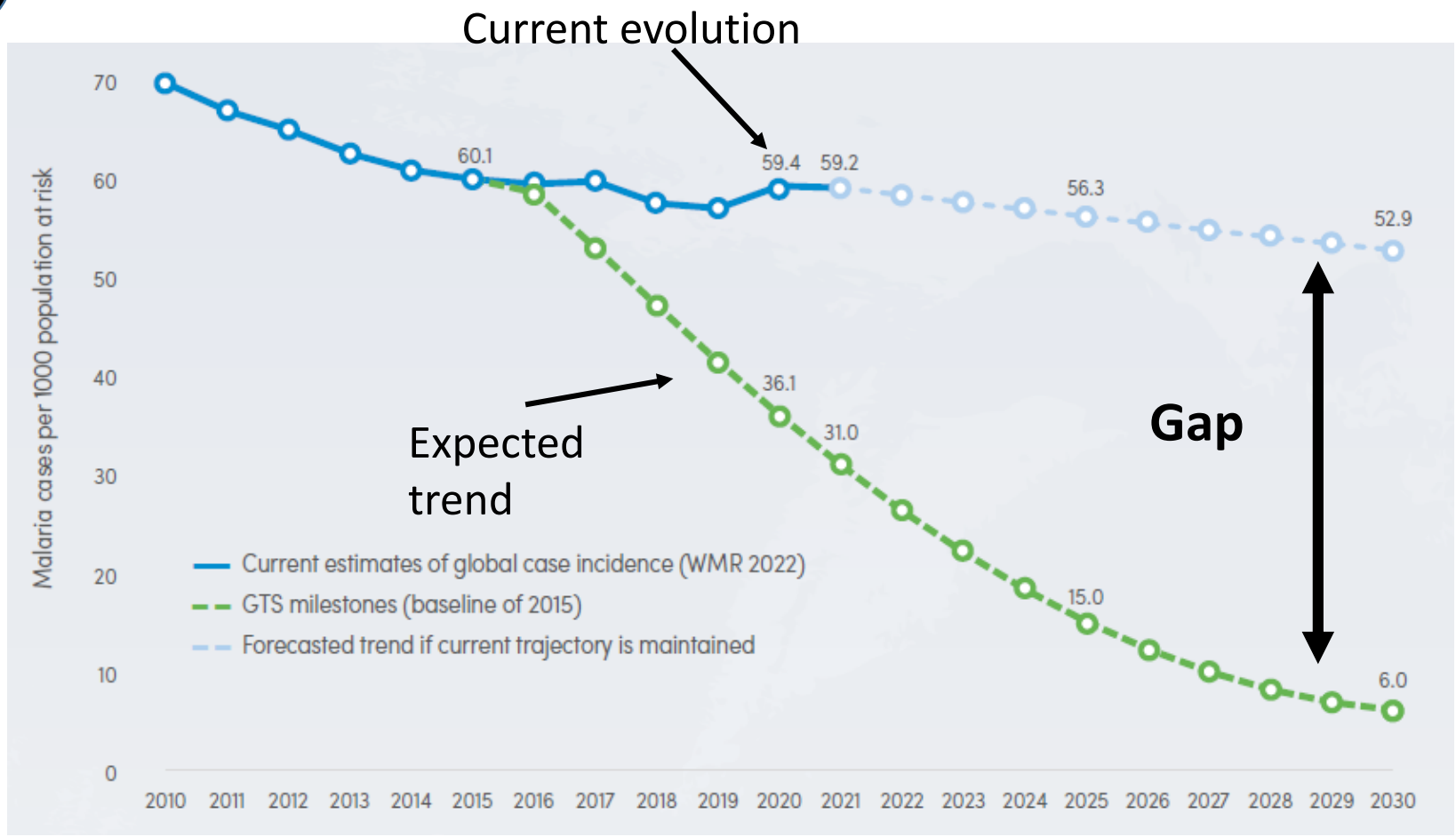
- Stagnation in malaria morbidity and mortality




World malaria Report, 2022

# Progress towards malaria elimination goals

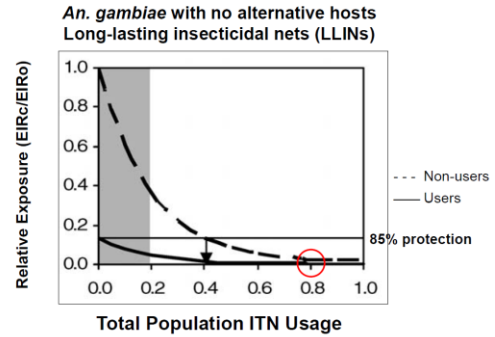



*World Malaria Report 2022*

# Main interventions

- **Treated bed nets (ITNs)**
  - 2004 to 2021 over 2.2 billion ITNs distributed in Sub Saharan Africa
  - Ownership in 2021 about 68% of households have at least one ITN
  - Usage in 2021 about 47% of people used nets

Personal protection and the mass effect

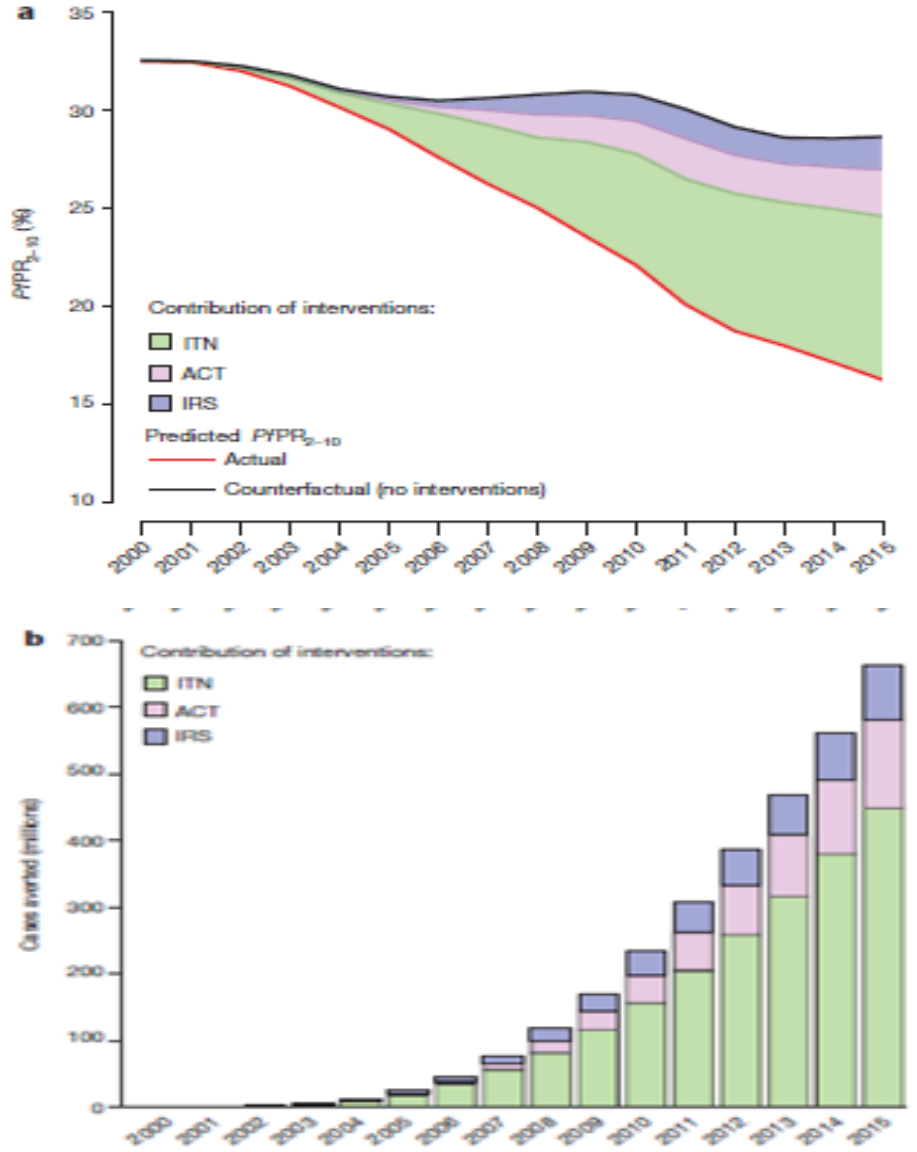



Source: Killeen *et al.* PLoS Med. 2007

- **Indoor Residual Spraying** (IRS)
  - Population protected by IRS declined from 5.5% in 2004 to 2.4% in 2021
  - Less than 6% of the population protected by IRS in endemic settings

# Importance of vector control

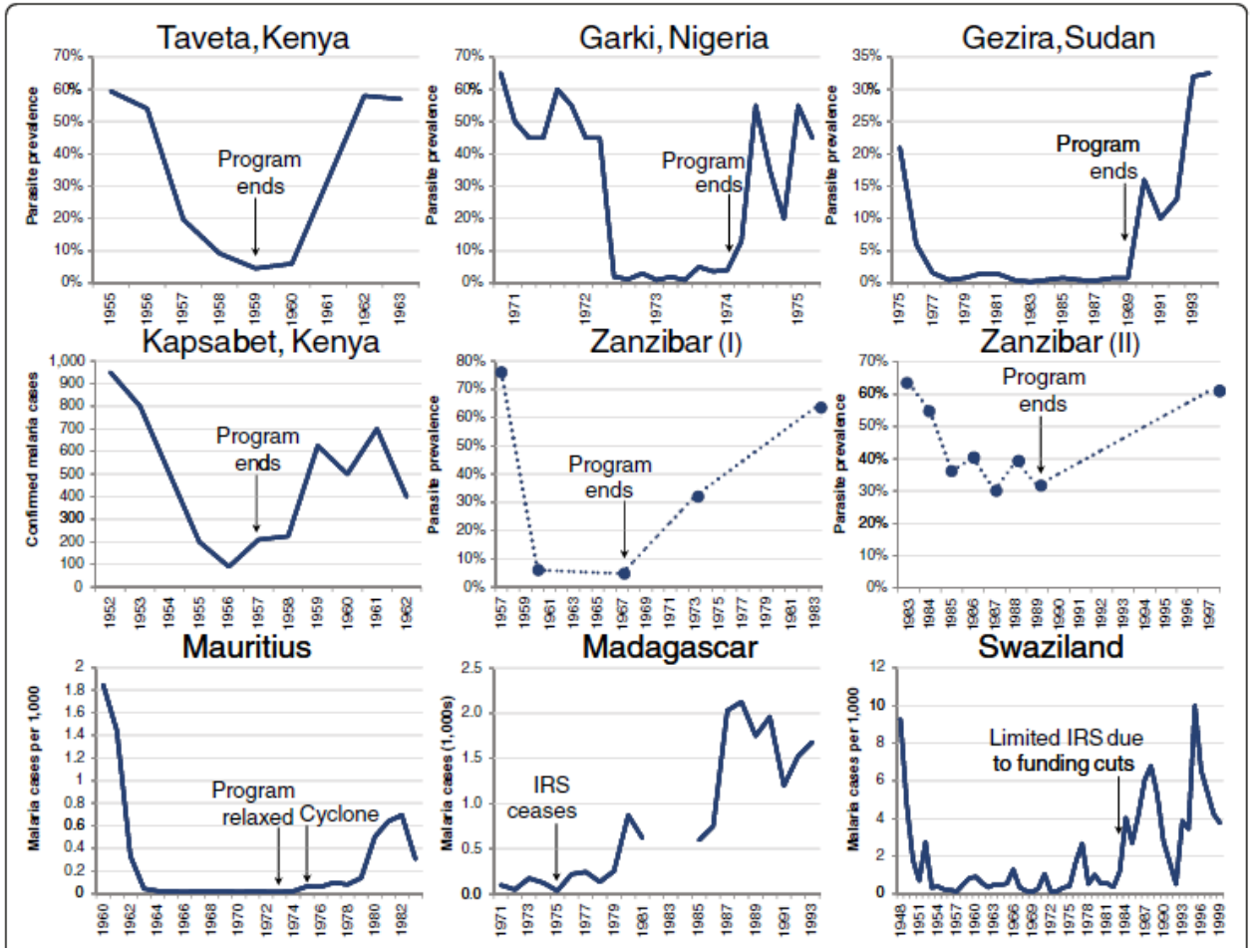
Contribution of vector control to the decline of malaria burden




Bhatt et al., 2016 Nature

# Lessons from past elimination trials

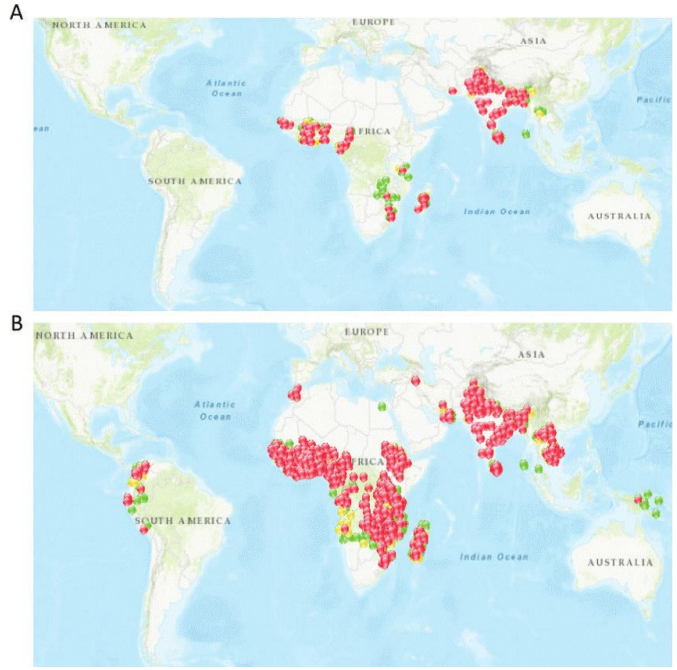
- ✓ Major role of vector control in the elimination of malaria
- ✓ Achieving large coverage of the population with available tools
- ✓ **Sustainability of control interventions**




Cohen et al., 2011 Mal J

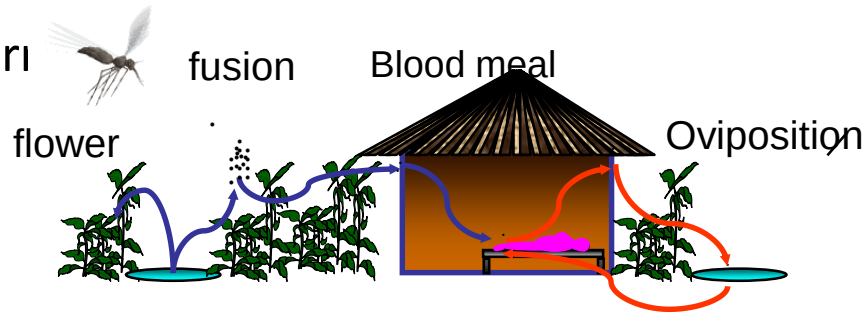
# Challenges of vector control

- **Limited number of insecticides**
  - LLINs (Pyrethrinoids)
  - IRS (pyrethrinoids, organophosphates, carbamates)




- **Insecticide resistance**
  - selection of resistance genes, mutations…

- **Change in vector behaviour**
  - Biting: Indoor to outdoor
  - Resting: endophilic to exophilic
  - Biting cycle : early evening/early morı
  - Change in the dynamic of species




- **Human related factors**
  - Non use of ITN, LLINs

# Addressing insecticide resistance

- ❖ Rotation of insecticides of different families
- ❖ Combine used of LLINs and IRS
- ❖ The implementation of integrated management of vector population

**Example: The Onchocerchiasis Control Programme in West Africa (OCP)**

1974 – 2002

**Problem:**

- Resistance to temephos in Black flies

**Solution to the problem :**

- Three unrelated insecticides were used to manage insecticide resistance (Temephos, Chlorphoxim, Bti H14)

**Result**

- This halted the spread of resistance in black flies for nearly 20 years

Hougard et al., 2002 Parasite

# Addressing: shortage of insecticides

❑**28 vector control products are in research and development pipeline**

- 11 (39%) new ITNs,
- 7 (25%) are insecticide for IRS
- 13 (46%) products are in the data generation stage (entomological efficacy)
- 7 (25%) undergoing epidemiological trials
- 6 assess by WHO for prequalification

❑**New insecticides approved for vector control**

- Chlofenapyr
- Clothianidin
- Pyriproxifen

❑**New monitoring procedures for new insecticides now available**

❑ **Other products:**

New larvicides, lethal house lures (eaves tubes), Attractive Targeted Sugar Bait.

World malaria Report, 2022

# Other opportunities

❖ **Larviciding**

- ✓ Synthetic organic chemicals (organophosphate),
- ✓ Oils and surface films,
- ✓ Bacterial larvicides (Bti, Bsph, Bs) ,
- ✓ Spinosyns,
- ✓ Insect growth regulators (pyriproxyfen…)

❖ **House improvement**

- Screens on windows
- Eaves tubes
- Block eaves spaces
- Improved doors

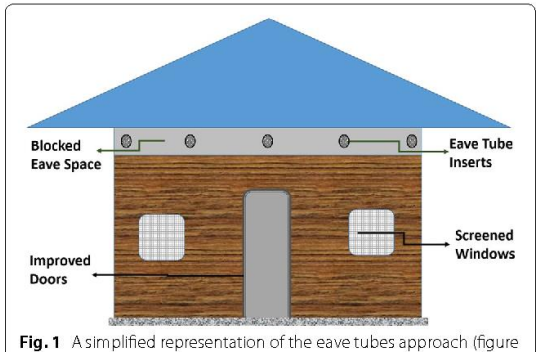
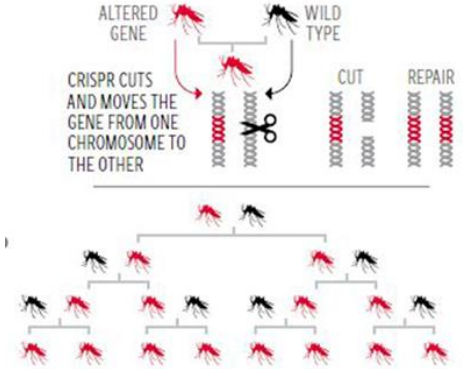



**Fig. 1** A simplified representation of the eave tubes approach (figure

❖ **Gene drive**

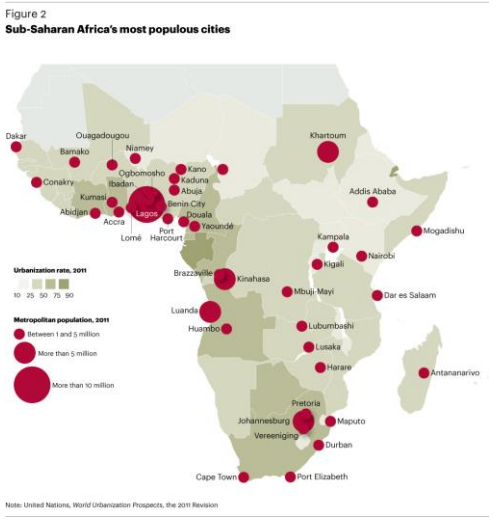
- Population suppression
- Population replacement



# Addressing urban malaria threat

- **Facts**
  - ✓ In 2050 about 70% of the population in SSA will live in cities
  - ✓ Urban area differ from rural area in transmission dynamic
  - ✓ Unplanned urbanization will lead to focal transmission
  - ✓ Invasion by new species could increase transmission pattern

- **Global framework for malaria control in urban settings by WHO & UN habitat**
  - ❑ Malaria response is part of a broader urban development and health agenda
  - ❑ Data driven targeted response in the design of malaria interventions
  - ❑ Framework will improve health and wellbeing





World malaria Report, 2022

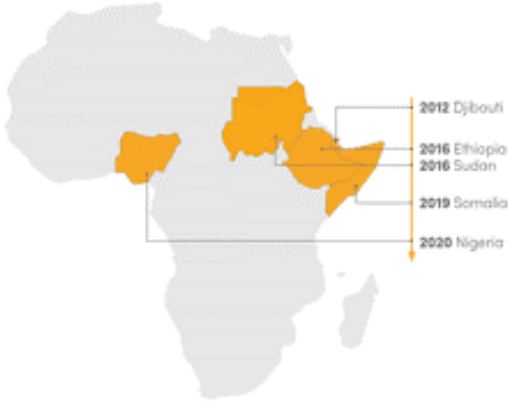
# Other threats: *An. stephensi*

- **Invasion of Africa by *Anopheles stephensi***
  - The species has driven the resurgence of malaria in Djibouti
  - Countries invaded (Sudan, Djibouti, Ethiopia, Kenya, Erythrea, Somalia, Nigeria)
  - Rapid adaptation of the species to different type of habitats
  - Resistant to different insecticides

**Way forward**

- In September 2022 a new initiative launched to stop the spread of *An stephensi* in Africa
  - Enhancing collaborations,
  - increasing surveillance,
  - develop guidance
  - prioritizing research

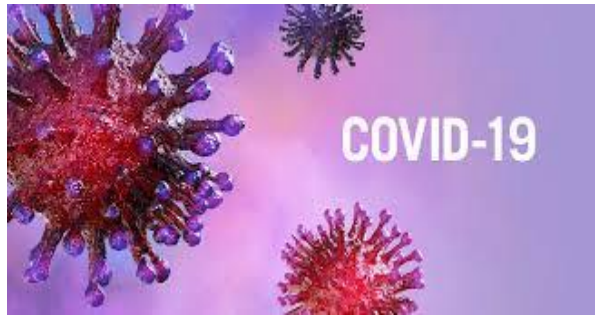
Spread of *Anopheles stephensi* in Africa




World malaria Report, 2022

# Other threats : Pandemics

- **The covid 19 pandemic**
  - 13.5 millions more cases in 2020 due to disruptions associated with covid-19 pandemic
  - Of the 171 millions nets to be distributed in 2021, 70 millions were carried over from 2020 campaigns
  - Disruption in diagnosis and treatment 16 countries reported disruption in 2020 compared to 7 in 2021




World malaria Report, 2022

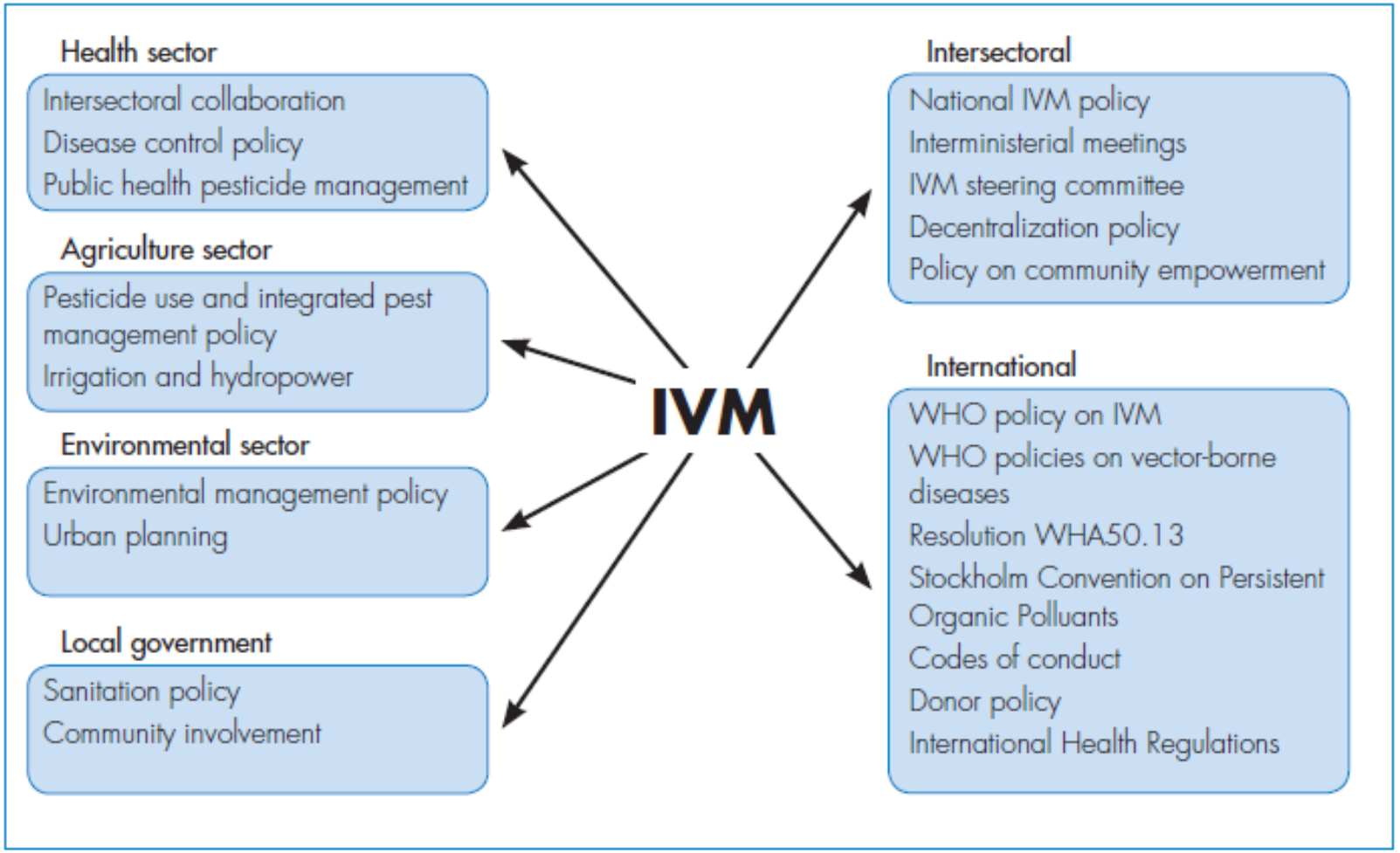
# Progress in malaria prevention

## Two paediatric malaria vaccine now available

- The RTS,S/ASO1 vaccine recommended for the prevention of *P falciparum* malaria in children in region with moderate to high transmission
  - About US$160 million from 2022 to 2025 to support the broader rollout of the vaccine in Gavi eligible countries
- GSK produced vaccine
  - (18 millions doses available for 2018 to 2025)


World malaria Report, 2022

# Integrated Vector Management (IVM)




WHO Handbook for integrated vector management, 2012

# Thank you

# Presentation 3: Preventing malaria in newborns IPTn+: a new intervention summary, successes and challenges


**Dr Gosling Roland**

The London School of Hygiene & Tropical Medicine

# Perennial Malaria Chemoprevention (PMC)

Prof Roly Gosling,
Unitaid Plus Project
London School of Hygiene and Tropical Medicine,
March 2023

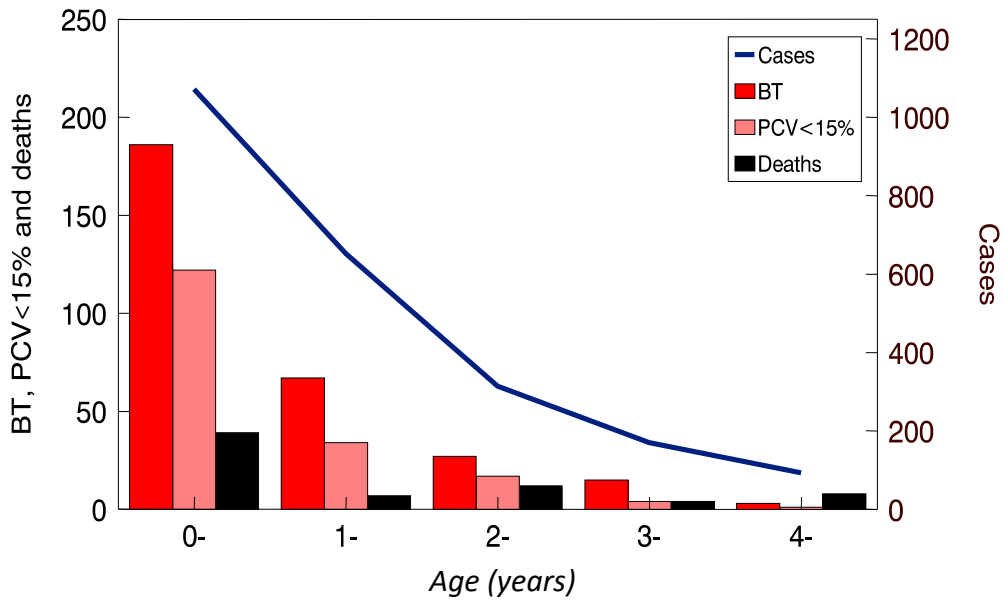
# Malaria in infants and children

*Kilombero Valley, Southern Tanzania 1999-2000*

## *Burden concentrated in infants*

- *Intense perennial transmission*
  - *1 infectious bite/person/night*
- *Infants accounted for 44% of paediatric malaria admissions and 54% of inpatient malaria deaths*

***Malaria Admissions by age in Ifakara, southern Tanzania: Cases, blood transfusions, severe anaemia and deaths***

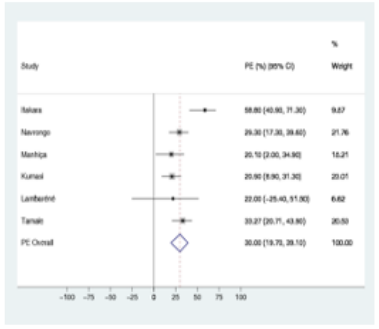



Acknowledgement: Prof D Schellenberg

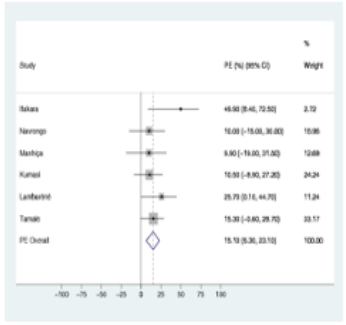
# What is PMC?

- Built on the platform of Intermittent Preventive Treatment of Malaria in infants – IPTi
  - Provision of Sulfadoxine Pyrimethamine (SP) at times of immunization (PENTA 2 (PENTA 2  & 3) and Measles 1 @ approx. 10, 14 weeks and 9 months of age
  - In areas of non-seasonal malaria with moderate and high endemicity
  - Implement in areas where genetic marker of SP resistance (540E) less than 50% 50%
  - Implemented only in Sierra Leone

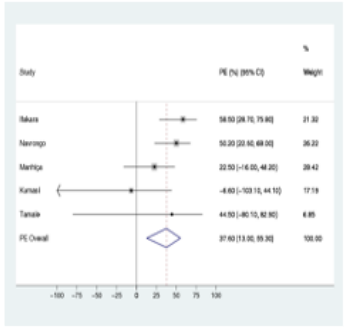
Combined estimate of effect up to age 12 months (random effects meta-analysis)



**30% reduction in malaria incidence**
p-value < 0.001



**21% reduction in anaemia**
p-value = 0.001



**38% reduction in hospital admissions**
p-value = 0.005

*Aponte JJ et al. Lancet 2009 DOI:10.1016/S0140-6736(09)61258-7*

# What is PMC?

- Built on the platform of Intermittent Preventive Treatment of Malaria in infants – IPTi
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- **PMC Extends IPTi (WHO Guideline change June 2022)**
  - **Beyond the age of 1 year (upto 2 years recommended but can go higher)**
  - **Increase number of contacts (no maximum) and delivery channel (EPI, Vitamin A, Community health workers being used in PMC pilot projects)**
  - **Can use any drug but SP recommended**
  - **Can use in areas where 540E is more than 50%**

# What is PMC?

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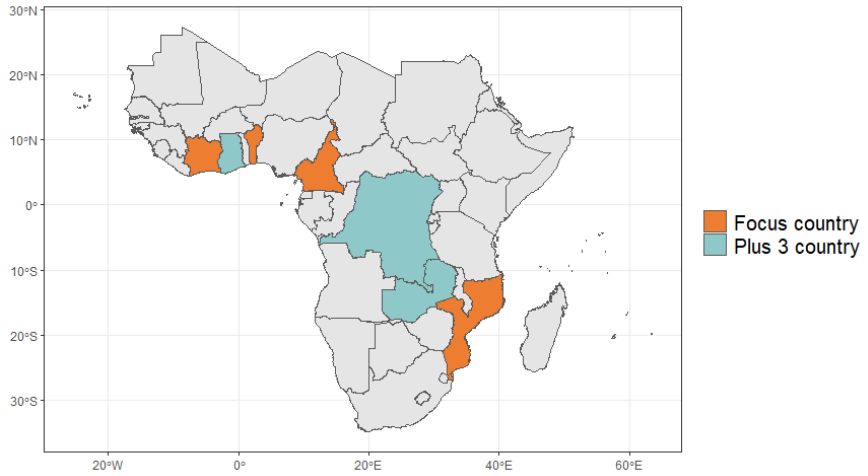
# Current PMC implementation & research projects

- **Plus Project**: Benin, Cameroon, Cote d'Ivoire & Mozambique
- **Malaria Consortium**: Nigeria
- **PATH**: DRC
- **MULTIPLY Project (ISGLOBAL):** Mozambique, Sierra Leone and Togo

# The Plus Project

- In Benin, Cameroon, Cote d'Ivoire and Mozambique, **co-design, implement and evaluate country-adapted models** of PMC integrated into existing health systems.
- Light-touch evaluations & policy adoption support in DRC, Ghana, and Zambia.



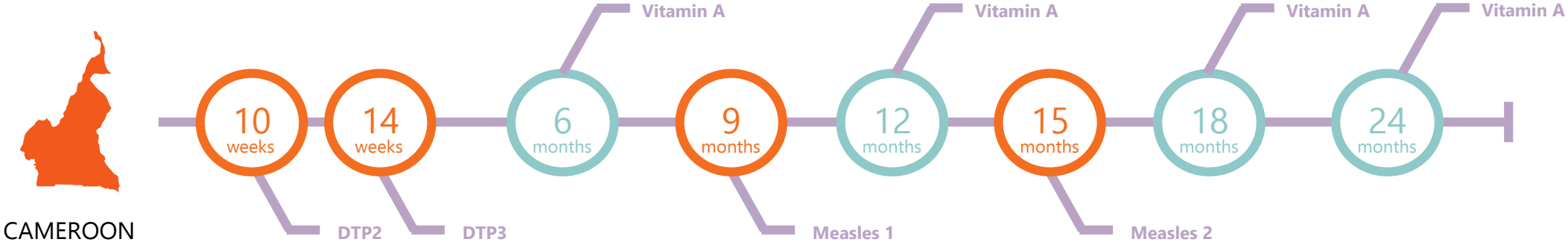

- Conduct a package of evaluations to help countries decide where and how to scale PMC.
- Share learnings from implementation experience and research evidence

# Plus Project innovation: Co-design

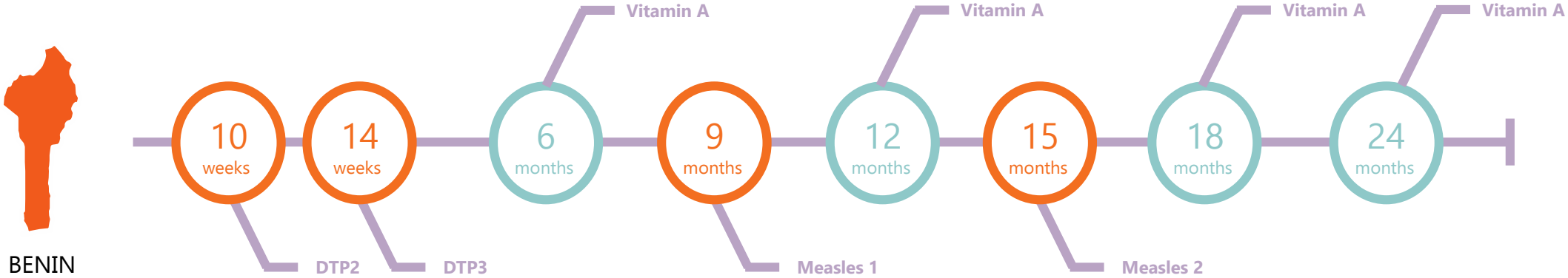
- WHO Guidelines are very flexible countries need to select:
  - Age limit of intervention
  - Number of contacts and channels of delivery
  - Drug used
  - Where to implement

- To support design of strategy tailored to each country
  - **Co design workshop**
  - Multiple stakeholders – Malaria, EPI, district and provincial health system etc
  - Mapped out possible contacts
  - Chose PMC model for country

# PMC Models in Plus Project Countries




In addition, once child > 6 months Community Health Workers can deliver PMC



# PMC Models in Plus Project Countries

MOZAMBIQUE

- 4 months — DTP3
- 9 months — Measles/Rubeola 1 (MR1) and pneumococcal conjugate vaccine (PCV13)
- 12 months — **Vitamin A,** deworming, micronutrients powders (MNP)
- 18 months — Measles, Rubeola 2 (MR2), Vitamin A, deworming, & micronutrient powders (MNP)

COTE D'IVOIRE

- 10 weeks — DTP2
- 14 weeks — DTP3
- 9 months — Measles 1
- 15 months — Measles 2
- 18 months — Vitamin A

# Implementation of country-adapted PMC models

*Provider dissolving the SP before giving it to a child. Abengourou, Cote d'Ivoire. Dec 2022.*

- PMC started in late 2022 in Cote d'Ivoire, Benin, and Cameroon; started in March 2023 in Mozambique.
  - Anecdotally, PMC is widely accepted by caregivers (majority are women, many took IPTp)
- Routine M&E data on number of PMC contacts by SP dose, stock of SP
- Supervisions of PMC started in Cote d'Ivoire, Benin, and Cameroon.
  - Early feedback that PMC is being delivered in line with training and without significant concerns.
  - Very few reports of vomiting.
  - Some confusion identified about catch-up schedules and data collection
- Routine data quality activities will start in Q2.

# Planned evaluations

# Learnings & evidence dissemination to support wide adoption, scale-up, and sustainability.

- **PMC Community of Practice**.
  - Next meeting is **April 12th from 13:00 – 15:00 GMT** (virtual)
- Website (https://www.psi.org/project/plusproject/) – available in English & French
- Webinars, implementation tools, lessons learned, etc forthcoming.
- Evidence from research to be shared broadly when available.

BULLETIN PROJET PLUS

Numéro 4 : Q4 2022

Mises à jour du Projet Plus

NOUVELLES REGIONALES

Sur la base de la récente mise à jour des recommandations de l'Organisation Mondiale de la Santé (OMS) pour la chimioprévention du paludisme, qui ne fait plus référence au TPIn, mais à la chimioprévention du paludisme pérenne (CPP), nous nous sommes renommé le Projet Plus. Les but et objectif du projet restent les mêmes.

Le Dr William Houndjo, chef du département de chimioprévention du Programme national de lutte contre le paludisme (PNLP) du Bénin, a donné son point de vue sur le processus de co-conception de la CPP et l'appropriation du CPP par le gouvernement. Interrogé sur ses réflexions à propos de cette session, le Dr Houndjo a déclaré ceci : « C'est un honneur pour mon pays, le Bénin, et une occasion pour moi d'expliquer comment le PNLP entend mettre en œuvre cette nouvelle stratégie, en plus des autres interventions préventives dans la lutte contre le paludisme. »

Le Dr. Thérèse Bleu, responsable de la communication et des partenariats pour le PNLP de la Côte d'Ivoire, a parlé du rôle du gouvernement dans la conception de l'engagement communautaire pour la CPP. Elle a déclaré que : « ce panel nous a donné une satisfaction morale pour la reconnaissance de notre contribution à la lutte contre le paludisme [en Côte d'Ivoire]. Nous sommes toujours heureux de contribuer au bien-être des enfants qui sont le bonheur, la joie et la fierté d'une famille ».

Parmi les nouvelles passionnantes enregistrées, nous pouvons mentionner le lancement officiel de la CPP au Bénin, au Cameroun et en Côte d'Ivoire avec l'administration des premières doses de sulfadoxine-pyriméthamine (SP) livrées fin novembre dans les premiers districts sanitaires de mise en œuvre. Cette mise à disposition a été possible grâce au partenariat et à la coordination de la logistique avec le PNLP et le Programme Elargi de Vaccination (PEV).

Lily Claire Ekotoka, responsable nationale pour le Cameroun, présentant le poster sur la co-conception de la CPP à l'ASTMH

Le Projet Plus a eu le plaisir de participer à la réunion annuelle 2022 de la Société Américaine de Médecine Tropicale et d'Hygiène (ASTMH) du 30 octobre au 4 novembre à Seattle, WA, USA. Le Projet Plus a présenté un poster sur le processus de co-conception intitulé : *Engaging national stakeholders in the co-design of Perennial Malaria Chemoprevention (PMC) intervention : the experience of the Plus Project in Benin, Cameroon, Cote d'Ivoire, and Mozambique [L'engagement des parties prenantes nationales dans la co-conception de l'intervention de chimioprévention du paludisme pérenne (CPP) : l'expérience du Projet Plus au Bénin, au Cameroun, en Côte d'Ivoire et au Mozambique]*.

CÔTE D'IVOIRE

En préparation à la mise en œuvre du Projet Plus et à l'administration de la CPP, l'équipe de Côte d'Ivoire a organisé plusieurs réunions avec les parties prenantes régionales, districts, et communautés dans les villes de Séguéla et Bouaflé. Deux réunions ont eu lieu dans les districts choisis. La première a rassemblé les autorités sanitaires régionales. Puis la seconde s'est concentrée sur les autorités sanitaires du district, les prestataires de santé et les agents de santé communautaires.

Les réunions de district ont été présidées par les directeurs régionaux de la santé et ont rassemblées environ 50 parties prenantes chacune, représentant tous les niveaux de santé du district et de la communauté à Séguéla et Bouaflé. La forte participation à ces réunions a démontré et renforcé l'enthousiasme pour l'intervention CPP à venir.

Au cours de celles-ci, des présentations ont été faites aux participants pour présenter le Projet Plus, revoir le processus de co-conception et orienter les parties prenantes vers les activités de la CPP en Côte d'Ivoire. Ensuite, une discussion énergétique a eu lieu sur les critères de sélection des districts, la résistance à la SP, le dosage de la SP, l'engagement communautaire, la gestion des données et la prévention du paludisme.

# Thank you - merci!

Contacts for further information:

| | | |
|---|---|---|
| Plus Project Technical Director | Prof Roly Gosling, LSHTM | Roly.Gosling1@lshtm.ac.uk |
| Plus Project Director | Meredith Center, PSI | mcenter@psi.org |
| Plus Project Deputy Director | Dr Jacques Kouakou, PSI | jkouakou@psici.org |

https://www.psi.org/project/plusproject

# Presentation 4: The new NETs

## Patrick Sieyes

Vestergaard

# PermaNet Net by VESTERGARD

## About PermaNet Dual

- PermaNet Dual is a long-lasting insecticide net that provides *the highest protection* against pyrethroid-resistant mosquitoes. PermaNet Dual combines two insecticides with two modes of action, chlorfenapyr and deltamethrin, that have proven to be the most effective type of mosquito net for people living in areas with high malaria prevalence and high pyrethroid resistance.
- Its launch opens up access to the new dual active ingredient LLIN segment and will accelerate the deployment of a new generation of tools to achieve faster malaria elimination.

# PermaNet Net by VESTERGARD

## About PermaNet Dual

- PermaNet leads the LLIN industry with its relentless drive for innovation and impact in malaria endemic regions. It is the brand of choice for donor organizations, malaria control programmes, and end users, because it offers the most comprehensive portfolio of performance-proven products.
- Our nets are manufactured using leading-edge science and technology, and industry best practice quality management system, to protect millions of people's lives. We have a proven track record of on-time delivery promising risk-free, reliable solutions, for national malaria campaigns and maximizing long term impact against malaria.

# PermaNet Net by VESTERGARD

## About PermaNet Dual

- PermaNet mosquito nets are engineered based on advanced understanding of vector control science and technology to lead the industry's response to stay ahead of insecticide resistance in malaria mosquitoes, making PermaNet the preferred LLIN partner for innovation
- PermaNet best-practice quality management systems combine quality assurance and quality control. Quality assurance and quality control both play vital and distinct roles in quality management and our commitment to quality includes both. Quality assurance is the assurance that we design and manufacture safe and effective product by building quality controls into the product manufacturing process. Quality control is the test procedures we use to verify that a product is safe and effective when manufacturing is complete.

# PermaNet Net by VESTERGARD

## About PermaNet Dual

- PermaNet unique formulations and soft, polyester fabric, lead to sustained performance and usage leading to greater customer value
- All PermaNet mosquito nets are designed to stand the test of real life use as verified in our post-market monitoring activities – as part of our product stewardship / commitment to responsibility
- We support National Malaria Control Programs (NMCP) through technical working groups, leveraging our proprietary tools such as IR Mapper, to support their deployment decisions of vector control tools for maximum impact.
- Our dedicated customer service ensures worry-free on time delivery of bed nets (even when demand is high, and in times of disruptions)

# PermaNet Net by VESTERGARD

**PermaNet Dual**

- Introduces a novel mode of action by combining the chlorfenapyr (pyrrole) and deltamethrin (pyrethroid) modes of action.
- is designed to combat pyrethroid resistant mosquitoes showing multiple resistance mechanisms
- laboratory tests and experimental hut trials have proven dual active ingredient nets kill up to 70 percent more mosquitoes than the pyrethroid-PBO nets
- The new dual active nets are expected to achieve a significant reduction of malaria indicators, in line with randomised control trial (RCT) results

# PermaNet Net by VESTERGARD

**PermaNet Dual**

- manufacturing platform will enable Vestergaard to open up access to new market opportunities to support the expansion of the dual AI net segment
- is made from a multifilament polyester net using Vestergaard's latest proprietary technology for the insecticidal impregnation
- is made with soft polyester fabric, that leads to sustained performance and usage
- It contains 200 mg/m2 chlorfenapyr and 84 mg/m2 deltamethrin. Like PermaNet® 2.0 and PermaNet® 3.0, PermaNet® Dual offers the highest level of user comfort, and is made from the softest, most breathable polyester mesh, thus increasing the likelihood of utilisation

# PermaNet Net by VESTERGARD

**Two modes of action, maximum protection** PermaNet® Dual is a new generation mosquito net that controls mosquito populations in two ways

- **About chlorfenapyr**
- Chlorfenapyr is in the pyrrole class of insecticides, adopted to combat mosquitoes in public health. Its mode of action is new to vector control
- Unlike pyrethroids, pyrroles disrupt cellular respiration and oxidative phosphorylation in the mosquito's mitochondria
- After absorption into the mosquito body, chlorfenapyr is converted into its toxic form within the mosquito cells. This disrupts their energy production, resulting in eventual death.
- Chlorfenapyr's unique mode of action makes it unlikely to show cross-resistance in mosquitoes that are resistant to currently registered public health insecticides.

- **About deltamethrin**
- Deltamethrin is a fast-acting insecticide belonging to the pyrethroid family, which continues to offer valuable personal protection against mosquito bites
- It plays a key role in controlling malaria vectors and is used in the manufacturing of long-lasting insecticidal nets

# PermaNet Net by VESTERGARD

**For more information** info@vestergaard.com

## Presentation 5: The gene drive: a potential game changer

# Dr Lea Pare Toe

Institut de Recherche en Sciences de la Santé (IRSS)

TARGET MALARIA
Burkina Faso
A Vector Control Research Alliance

# Target Malaria: La recherche sur le gene drive pour l'élimination du paludisme

**Dr Léa PARE/TOE**
*Responsable d'engagement des parties prenantes*
IRSS-CNRST, Burkina Faso

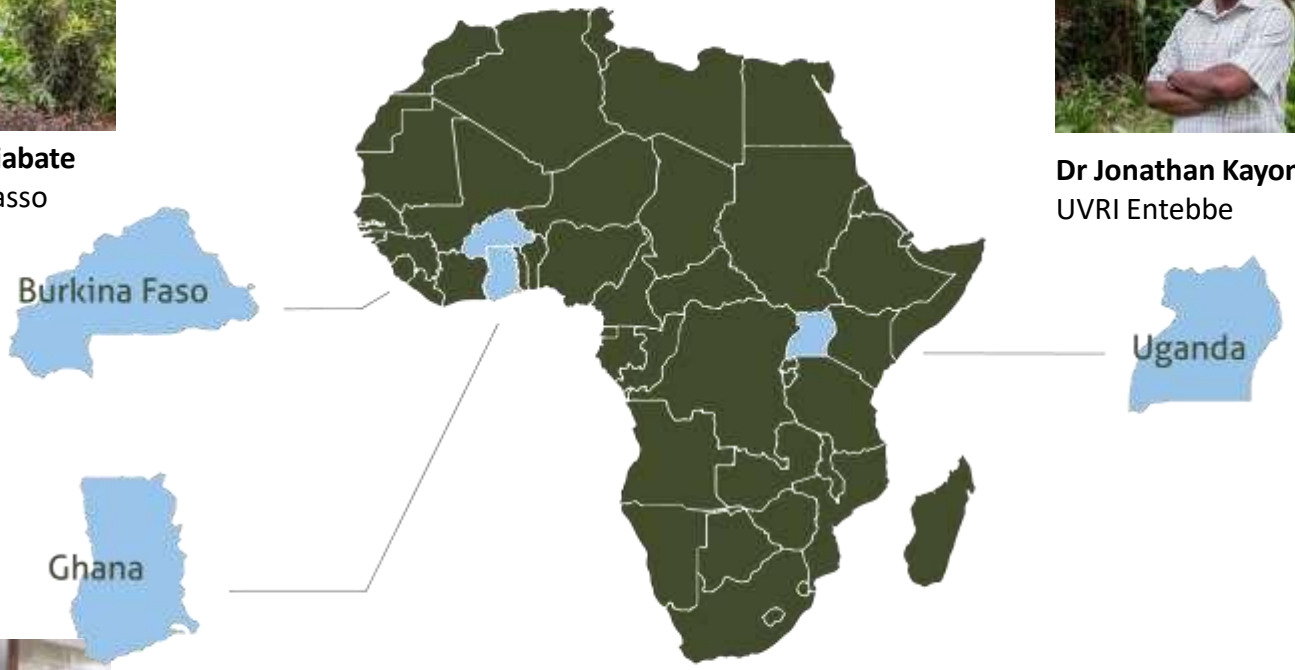
**Ouagadougou**

**24 avril 2023**

# Le consortium : nos équipes en Afrique

**Dr Abdoulaye Diabate**
IRSS Bobo Dioulasso

**Dr Jonathan Kayondo**
UVRI Entebbe



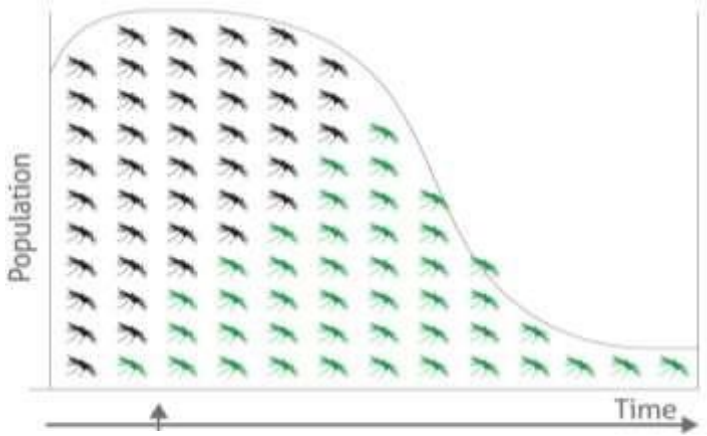

**Dr Fred Aboagye-Antwi**
University of Ghana, Accra

TARGET MALARIA

# Vision, objectif

## Notre vision:

Un monde sans le paludisme.




Lâcher de
moustiques modifiés

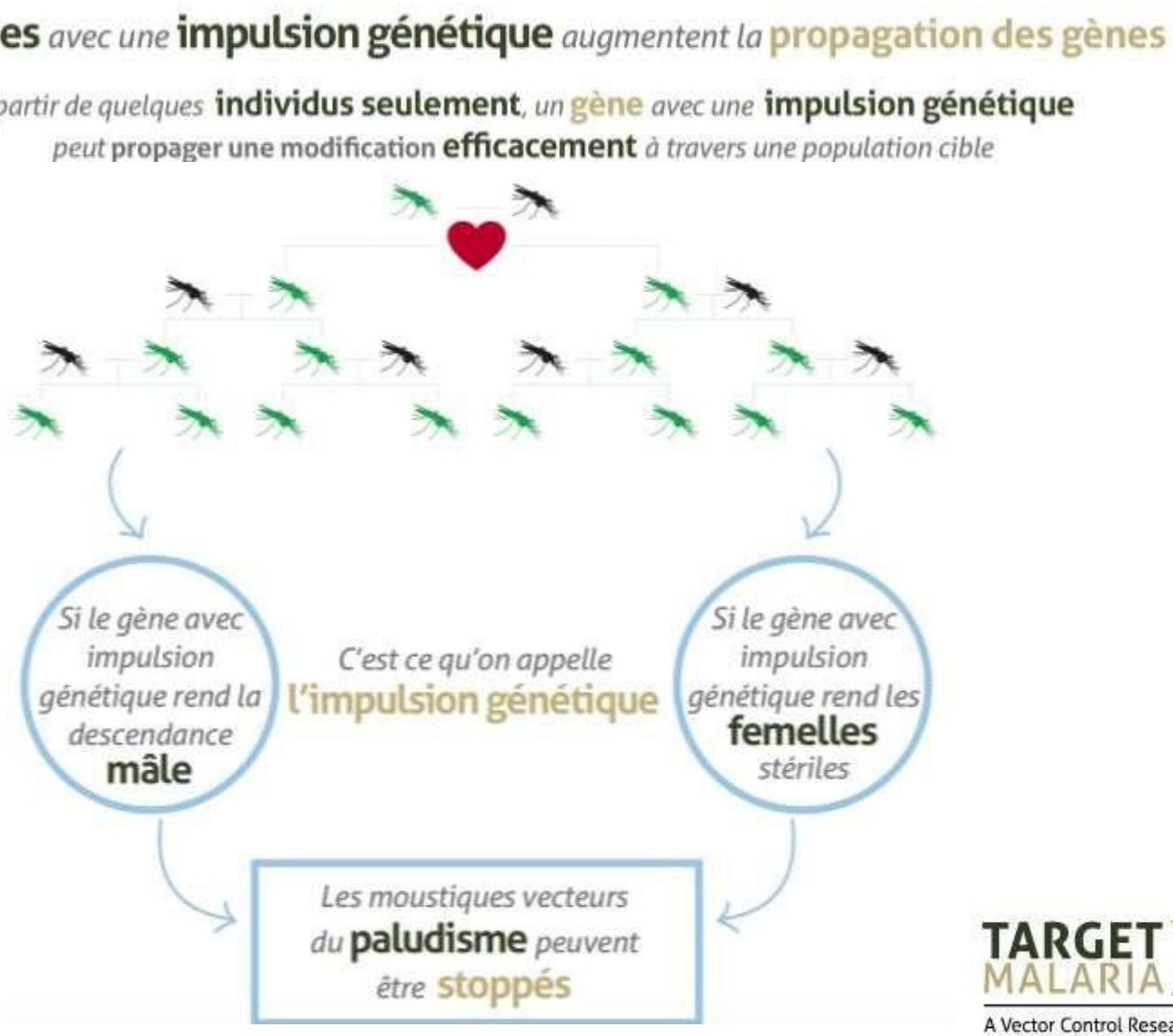
## Objectif :

**Développer une nouvelle technologie génétique de lutte anti vectorielle contre le paludisme par le contrôle des vecteurs .**

- Réduire la population des principaux vecteurs du paludisme à travers la modification génétique
- Réduire la transmission du paludisme
- Une approche à long terme, économique et durable ;

TARGET MALARIA

# Qu'est-ce que le gene drive ou impulsion génétique ?




TARGET MALARIA
A Vector Control Research Alliance

# Les 3 étapes de développement de la technologie

**Sans impulsion génétique**

**Autonome - Avec impulsion génétique**


- Génétiquement modifié
- Pas d'impact sur le nombre de moustiques vecteurs du paludisme

- Génétiquement modifié
- Persiste sur quelques générations seulement

- Génétiquement modifié
- Impact potentiel à long terme et durable sur le nombre de moustiques vecteurs du paludisme

**Le « *gene drive* » ou « impulsion génétique » permet de disséminer la modification génétique dans une population de manière efficace.**

TARGET MALARIA

TARGET MALARIA

A Vector Control Research Alliance


# Le lâcher

# Le lâcher

- Maire
- Inspecteurs de l'ANB
- Leaders de la société civile
- Président du comité d'éthique
- Village
- Comité de monitoring

# Principaux résultats du lâcher de la première étape

## Lâcher effectué le 1er juillet 2019 à Bana

Conformément aux résultats attendus, les moustiques génétiquement modifiés mâles stériles, par rapport à leurs frères de type sauvage :

- Les moustiques génétiquement modifiés mâles stériles ont été collectés dans les essaims. Ils ont participé aux activités d'essaimage avec leur fratrie
- Après 11 jours de surveillance quotidienne intensive le moustique mâle stérile n'est capturé
- La distance moyenne parcourue par les moustiques génétiquement modifiés n'est pas significativement différente. Ils ne se sont pas dispersés plus loin que leur fratrie non transgénique lâchée au même moment.
- La surveillance régulière et mensuelle n'a pas permis de capturer un moustique génétiquement modifié. Cela confirme qu'ils n'ont pas persisté dans l'environnement .

TARGET MALARIA

# Voie de développement progressive: Augmenter les niveaux de persistance environnementale

**Sans impulsion génétique**

**Autonome - Avec impulsion génétique**

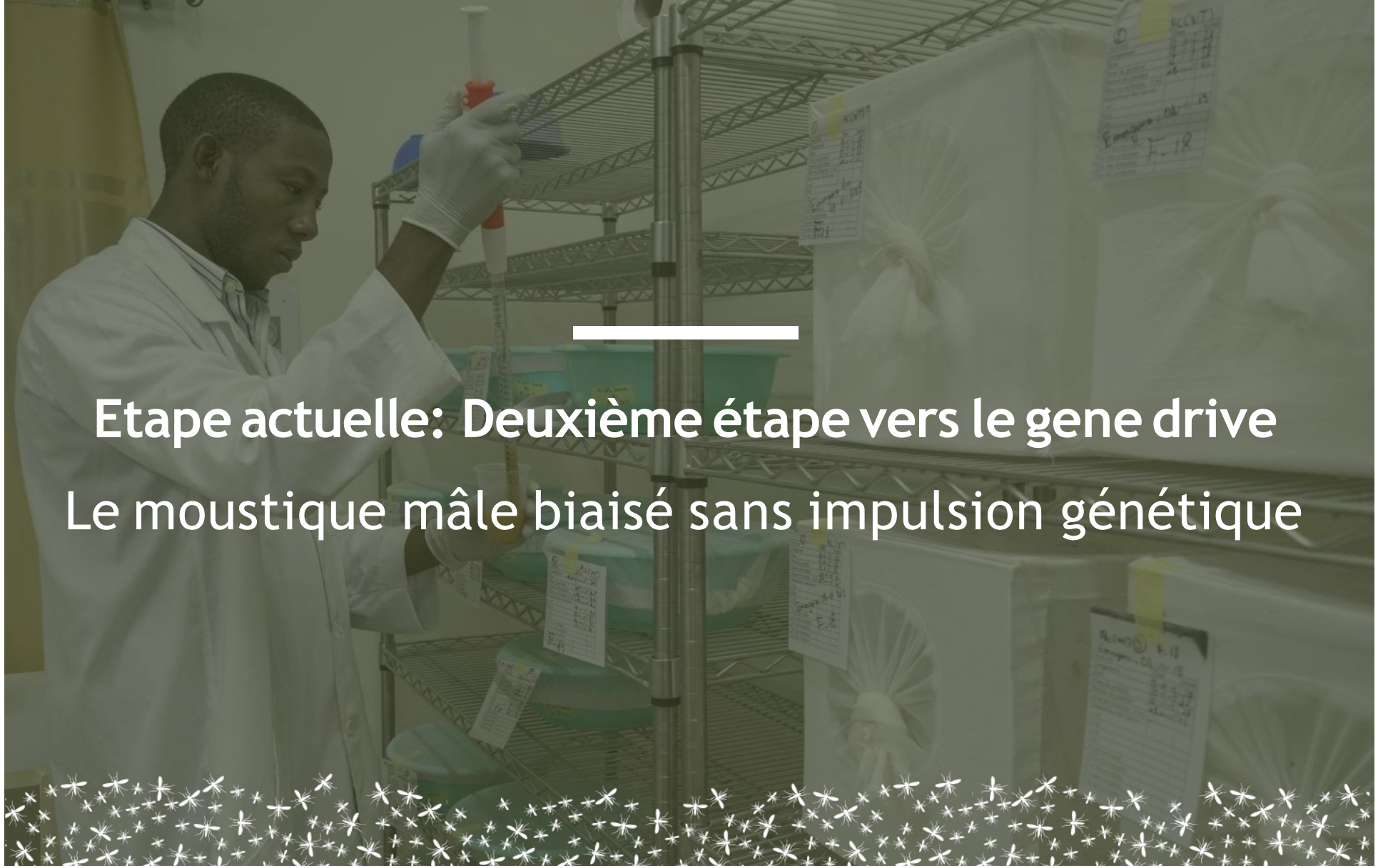

- Génétiquement modifié
- Pas d'impact sur le nombre de moustiques vecteurs du paludisme

- Génétiquement modifié
- Persiste sur quelques générations seulement

- Génétiquement modifié
- Impact potentiel à long terme et durable sur le nombre de moustiques vecteurs du paludisme

**Le « *gene drive* » ou « impulsion génétique » permet de disséminer la modification génétique dans une population de manière efficace.**

TARGET MALARIA



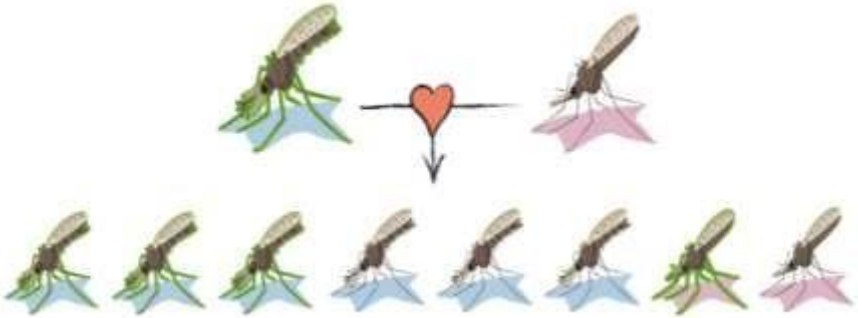
## Etape actuelle: Deuxième étape vers le gene drive

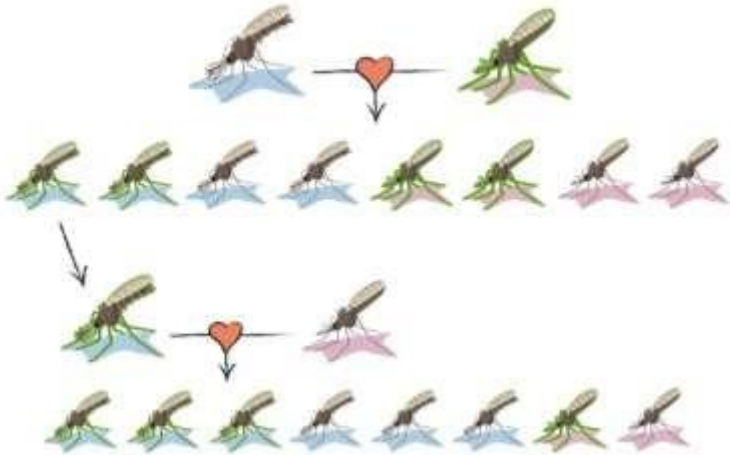
Le moustique mâle biaisé sans impulsion génétique

TARGET MALARIA

# Le moustique mâle biaisé sans impulsion génétique

- Deuxième étape dans e processus de développement de la technologie, le « **moustique mâle sans impulsion génétique** » est un moustique **mâle modifié fertile**, qui produit une **progéniture à prédominance mâle** lorsqu'il s'accouple avec des femelles de type sauvage.
- La **modification est transmise à la moitié de la progéniture**, cette modification disparaîtra progressivement de l'environnement au bout d'un certain temps.





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# Phase des études en milieu confiné au laboratoire

- Les autorisations nécessaires obtenues avant le démarrage (autorisations règlementaires et acceptation communautaire)
- Objectifs:
  - Confirmer que la modification fonctionne bien (+ de mâles; peu de femelles)
  - Etudier le comportement des modifiés par rapport aux sauvages
  - Examiner également leur comportement en cage au laboratoire, lorsqu'ils sont enfermés ave moustiques sauvages
  - Observer la reproduction des moustiques mâles biaisés sans impulsion génétique lorsqu'ils s'accouplent avec des femelles locales de type sauvage
  - Confirmer que la modification fonctionne correctement, à savoir qu'elle produit plus de mâle peu de femelles

  Toute cette phase se déroulera en laboratoire
-

# Evaluation des impacts potentiels du lâcher de la deuxième étape

TARGET MALARIA

# Evaluations des impacts potentiels du lâcher du mâle biaisé (ESHI EIESS)

- ESHIA est une évaluation systématique des impacts potentiels sur les aspects environnementaux socio-économiques et sanitaires liés à l'étude de dissémination contrôlée du moustique mâle biaisé sans impulsion génétique.
- Cette étude se fait conformément aux lois et règlementations en vigueur au Burkina Faso.
- Elle concerne uniquement le lâcher du moustique mâle biaisé sans impulsion génétique

**Cette évaluation sera faite par des consultants indépendants en collaboration avec le ministère de l'environnement pendant que les études en milieu confiné sur le mâle biaisé se tiennent au laboratoire.**

# Les objectifs de l’évaluation ESHIA – EIESS

- Prendre pleinement en compte tous les impacts liés au projet (positifs et négatifs) par le biais d'un processus crédible et transparent

- S'assurer que tous les impacts du projet sur les communautés, les individus et la biodiversité directement affectés ne détériorent pas la santé des personnes et/ou l'environnement.

- Créer un environnement propice pour optimiser les impacts positifs du projet.

- Évaluer systématiquement chaque impact et informer le type, l'étendue et la chronologie des mesures de gestion pour éviter ou minimiser les impacts négatifs et maximiser les impacts positifs.

- Rendre compte aux parties prenantes des impacts (négatifs ou positifs) et des mesures des gestion.

TARGET MALARIA

# Remerciements

”Target Malaria reçoit son financement principal de la Fondation Bill & Melinda Gates et du Open Philanthropy Project Fund, an advised fund of Silicon Valley Community Foundation”

BILL & MELINDA GATES foundation

Open Philanthropy Project

TARGET MALARIA

TARGET MALARIA
Burkina Faso
A Vector Control Research Alliance

Institut de Recherche en Sciences de la Santé
IRSS
BURKINA FASO

# *Merci !*

TargetMalaria.org

CNRST

# Part 2: Investing in the fight against malaria: from declarations to actions! what needs to be done

## Moderator: Segolene Moussala

Impact Santé Afrique
Secrétariat CS4ME

## Key note speaker 2:
## Improving implementation and funding of malaria programs : challenges opportunities and what needs to be done going forward


**Peter Sands**

Executive Director

The Global Fund to Fight AIDS, Tuberculosis and Malaria


# Presentation 6: Issues and challenges in the fight against malaria in Asia


## Dr Phone Shein

Asia Pacific Leaders Malaria Alliance(APLMA)

# ENDAVOUR TO ACHIEVE A MALARIA -FREE ASIA PACIFIC BY 2030

THE CS4ME ANNUAL FORUM 2023

Dr PHONE SI HEIN
Associate Director, APMEN
Asia Pacific Leaders Malaria Alliance

ASIA PACIFIC LEADERS MALARIA ALLIANCE

ASIA PACIFIC MALARIA ELIMINATION NETWORK

# Contents



aplma ASIA PACIFIC LEADERS MALARIA ALLIANCE

apmen ASIA PACIFIC MALARIA ELIMINATION NETWORK

# About Asia Pacific Leaders Malaria Alliance and Asia Pacific Malaria Elimination Network

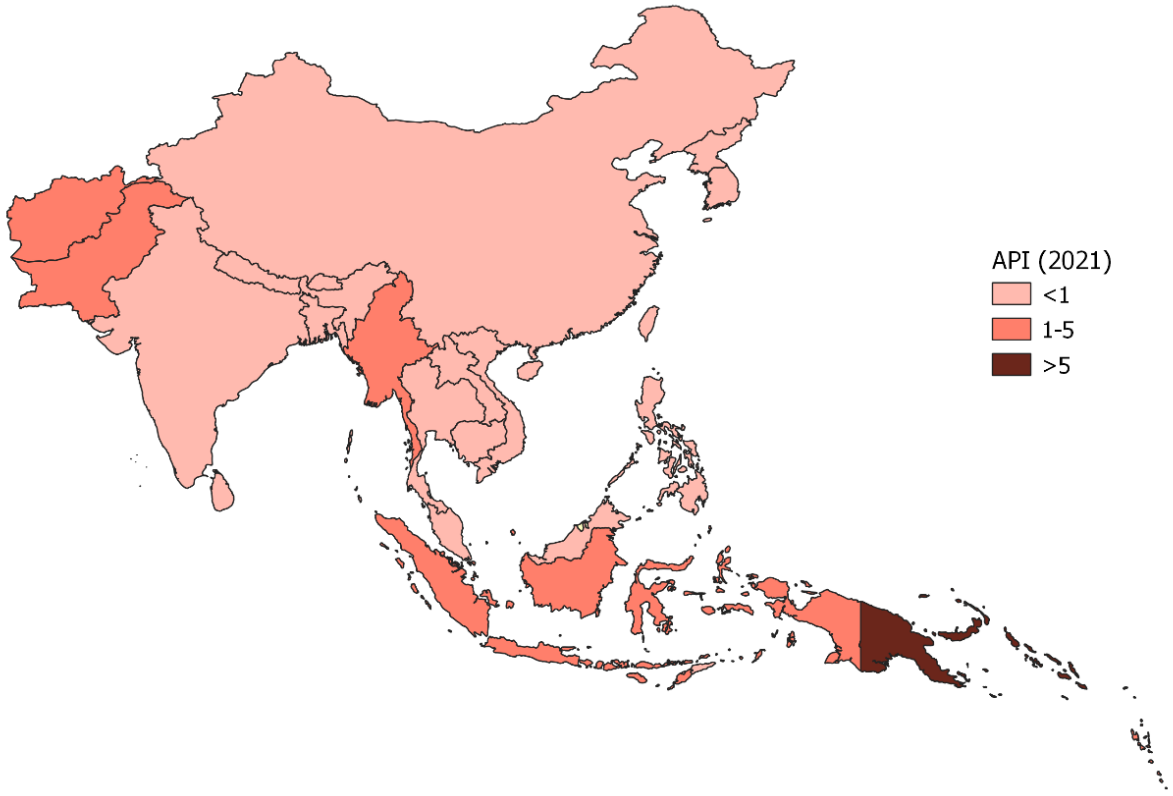
- **Asia Pacific Leaders Malaria Alliance (APLMA)** is an alliance of heads of government committed to achieving a region free from malaria by 2030.
- **Asia Pacific Malaria Elimination Network (APMEN)** is a network of NMPs from 22 Asia-Pacific countries and 53 Partner Institutions.
- The APLMA-APMEN partnership aims to strengthen elimination efforts through combining the political advocacy and multisectoral access of APLMA with APMEN's technical expertise and engagement with malaria control programs.

aplma ASIA PACIFIC LEADERS MALARIA ALLIANCE

apmen ASIA PACIFIC MALARIA ELIMINATION NETWORK

# Malaria Situation in the Asia Pacific (2021)

- Out of the 241 million malaria cases in 2021, Asia Pacific contributed to 1.79 million cases.
- PNG contributed to 36% burden, followed by Pakistan (22%), Indonesia (17%), and India (9%).
- The highest API belongs to the Solomon Islands (119), followed by PNG (65.5) and the remaining countries had an API of less than 2.
- The highest drop in cases from 2020 was reported by Viet Nam (67.2%), Bhutan (57.4%), Cambodia (52.5%), and Vanuatu (36.5%).

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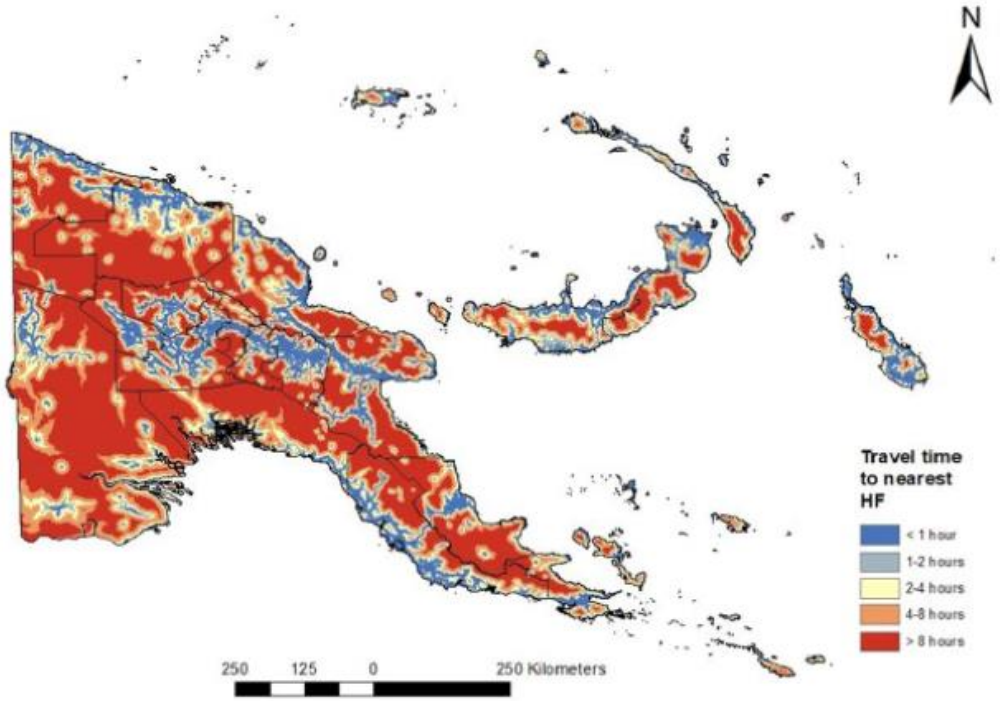
Source: World Malaria Report 2022, World Health Organization

# Deeper Dive in Papua New Guinea

- PNG is a group of mainland + 600 islands in the Oceania.
- Diverse population of 8.77 million with over 800 languages.
- 35% total pop lives in moderate to high risk of malaria infection.
- Despite the high burden (36% of Asia Pacific), the country has set an ambitious target of zero malaria by 2030.

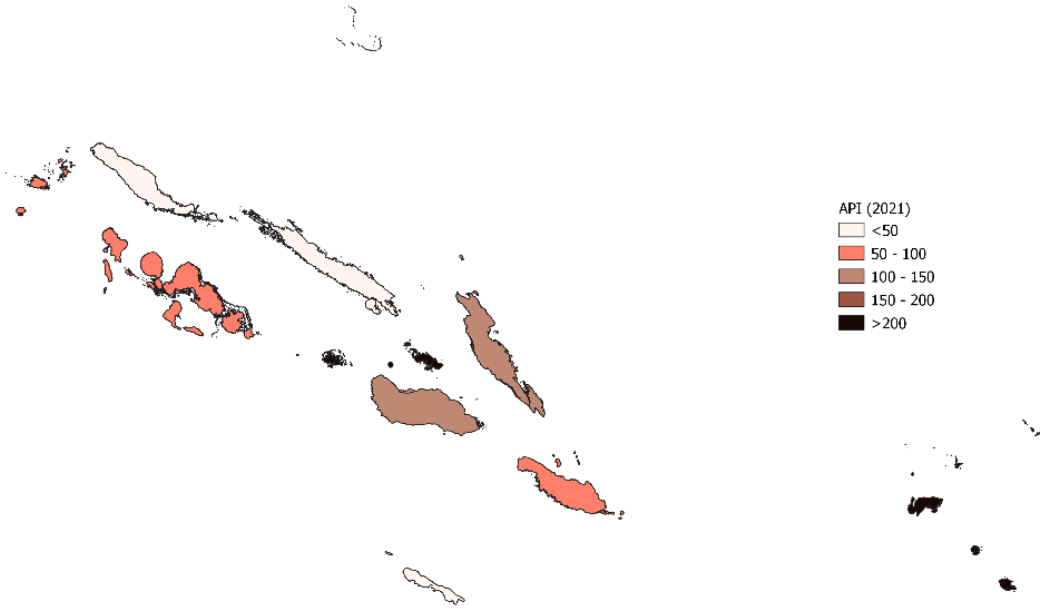
- From 2014 to 2017, there was a 9-fold increases in malaria cases, attributed to:
    - Reduction in GF support;
    - Decreased expenditures to PNG malaria programme;
    - Decrease in availability of RDTs &ACTs across PNG;
    - Declining quality of LLINs;
    - Weather changes due to El Nino.




Source: 2021 Malaria assessment in Milne Bay Province, Papua New Guinea by APLMA and CHAI PNG

# Deeper Dive in the Solomon Islands

- SoI is a group of 6 major islands and >900 smaller islands.
- Pop of 0.7 million with over 80 different languages & dialect.
- 35% total pop lives in moderate to high risk of malaria infection.
- Despite low contribution to malaria in the region (5%), the country has an astonishing API of 119.




- Reasons behind high API:
  - Lack of effective vector control tools;
  - Stock out of antimalarial commodities at health facilities;
  - Sub optimal treatment of *P.vivax*;
  - Lack of effective SBCC strategies;
  - Sub optimal reporting of malaria cases.

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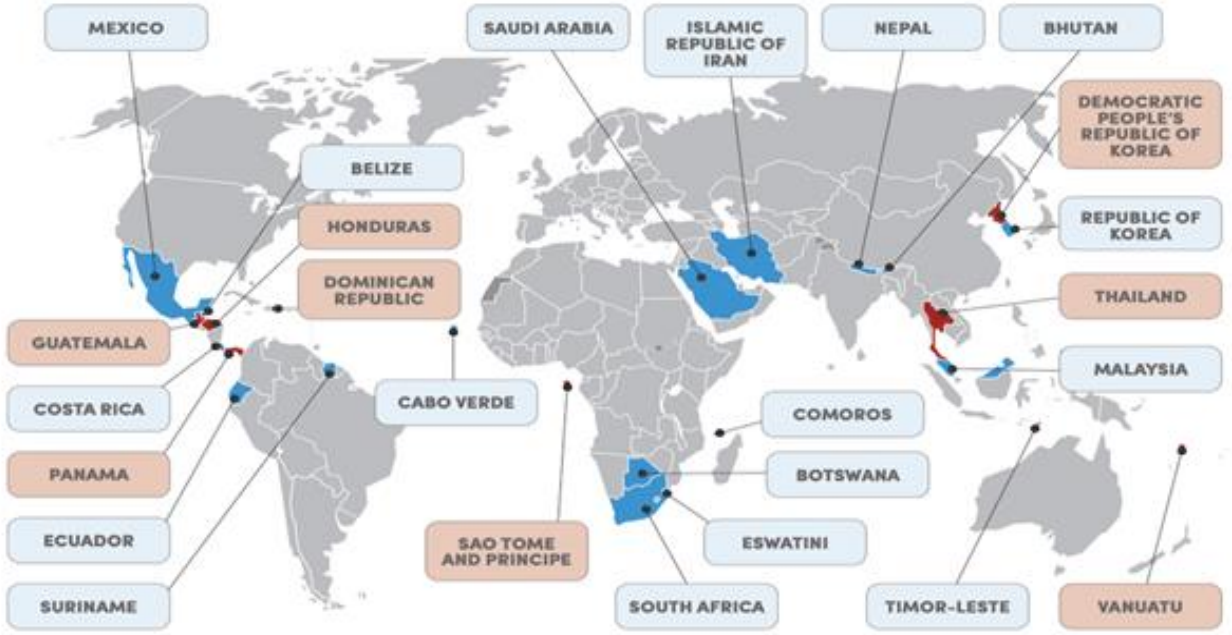
Sources: World Malaria Report 2022 by WHO, Malaria Elimination Amidst COVID-19: A Test of Resilience in Asia Pacific by APLMA

# Near Elimination Countries

- The accelerated malaria elimination goal in the region consists of the 2025 target, known as E2025.
- E2020 launched in 2017, followed by a revised goal of E2025 launched in 2021.

| E2025 (Asia Pacific) | API (2021) | On track?* |
|---|---|---|
| Bhutan | 0.04 | 23 |
| DPR Korea | 0.09 | More efforts needed |
| Malaysia | 0.003 | Yes |
| Nepal | 0.01 | Yes |
| Republic of Korea | 0.005 | Yes |
| Thailand | 0.04 | More efforts needed |
| Timor-Leste | 0.00 | Yes |
| Vanuatu | 1.0 | More efforts needed |




Source: APLMA Leaders' Dashboard

# Lessons from Malaria-Free Countries

1. Robust surveillance build on solid health infrastructure
2. Focus on passive case detection
3. Adequate funding
4. Public private partnership

1. Case based surveillance and response system + reference laboratory system (1-3-7 surveillance strategy)
2. Sustained monitoring and evaluation
3. Management of border importation

1. Provision of free malaria diagnosis & treatment
2. Investment in Universal Health Care
3. Well-trained health care personnel
4. Quick response to disease outbreaks
5. Improved surveillance

1. Strengthened malaria surveillance and diagnostic capacity
2. Training of health staff
3. Epidemic preparedness
4. Continued funding and political commitment

1. Country ownership and funding
2. Accountability
3. Effective surveillance, case management and vector control

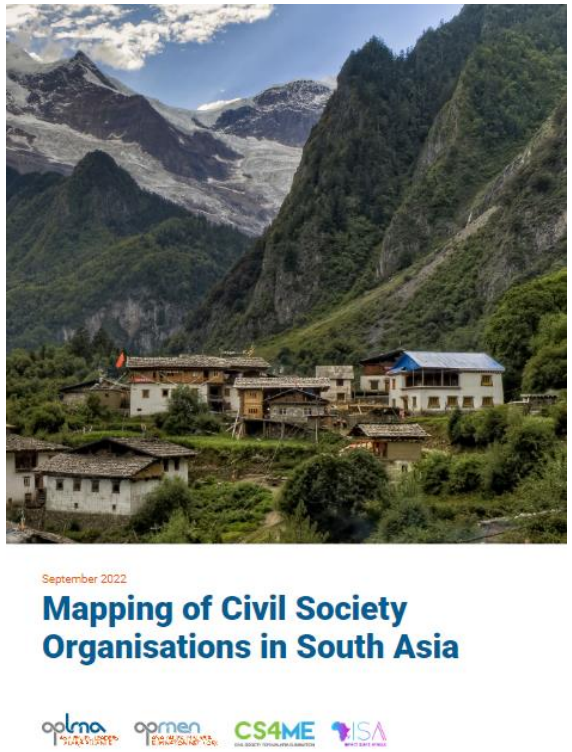
**Sources:**
Algeria Declared Malaria-Free: Lessons Learned from Algeria Malaria Elimination.
Eliminating Malaria: case study 3. Progress towards elimination in Sri Lanka.
Feng, J., Zhang, L., Huang, F. et al. Ready for malaria elimination: zero indigenous case reported in the People's Republic of China. Malar J 17, 315 (2018).

APLMA ASIA PACIFIC LEADERS MALARIA ALLIANCE
APMEN ASIA PACIFIC MALARIA ELIMINATION NETWORK

# Collaboration with Civil Society Networks/ Platforms

## Mapping of Civil Society Organisations in South Asia

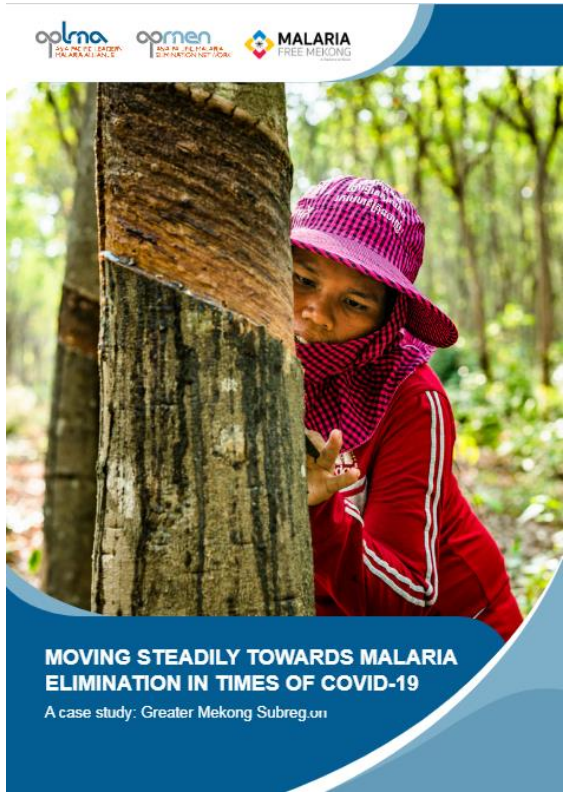
The study mapped the landscape of CSOs working in public health, particularly with malaria-vulnerable and malaria-risk communities, at the national and sub-national levels.




https://www.apmen.org/sites/default/files/all_resources/Report_Mapping%20of%20Civil%20Society%20Organizations.pdf

## Moving steadily towards malaria elimination in times of covid-19: Experiences from GMS countries

There are several factors which have contributed to countries maintaining the momentum towards malaria elimination, despite the challenges posed by the pandemic.




https://www.apmen.org/sites/default/files/all_resources/GMS_Case_Study_Moving-Steadily-towards-Elimination-during-Covid-19.pdf

# Collaboration with Civil Society Networks/ Platforms

Interactive session on 1-3-7 strategy and community resilience at Malaria Week 2019


APMENxChange and TechTalks webinars

- New challenges, existing networks: civil society experiences from the GMS
- Community  Participation: A Foundation for Malaria Elimination
- Community contribution to malaria elimination: What do we expect, and what is realistic


http://tiny.cc/APMENwebinars

# Thank You!

ASIA PACIFIC LEADERS MALARIA ALLIANCE

ASIA PACIFIC MALARIA ELIMINATION NETWORK

# Civil Society Panel 1:

Mobilizing domestic resources for malaria,
how civil society engage the private sector,
parliamentarians', mayors districts, religious leaders and youths

# Civil Society Panel 1:

- Mobilizing domestic resources for malaria, how civil society engage the private sector, parliamentarians', mayors districts, religious leaders and youths

- **Cecilia Senoo,** Hope For Future Generation, Ghana
- **Babacar Thiam,** CSVA, Senegal
- **Amu Mudenda**, FLAME, Zambia
- **Katarikawe Emily**, InPACT, Uganda
- **Zeinabou Idé**, ISA, Cameroon

# DISCUSSION


BREAK

# Part 3: Implementation of malaria programs for impact

## Moderator: Zeinabou Ide

Impact Santé Afrique

CS4ME Secretariat

## Key Note Speaker 3:
## Reaching the unreached!


**Dr Robb Alastair**

Global Malaria Program, World Health Organization


## Presentation 7:
# Chemoprevention of seasonal malaria: 10 years of strategy. Where are we today?

**Jane Deuve**

L'Initiative, France

# CS4ME 2023

## Chimioprévention du Paludisme Saisonnier (CPS), 10 ans de stratégie, Où en sommes-nous aujourd'hui ?

24 avril 2023

L'INITIATIVE
sida, tuberculose, paludisme

*une facilité mise en œuvre par*

EXPERTISE FRANCE
GROUPE AFD

EXPERTISE FRANCE
GROUPE AFD

L'INITIATIVE
sida, tuberculose, paludisme

# PRÉSENTATION DE L'INITIATIVE

Facilité française de lutte contre le VIH-sida, la tuberculose et le paludisme

# NOTRE **MANDAT**

Lancée fin 2011, L'Initiative est une facilité mise en œuvre par Expertise France et complémentaire du Fonds mondial de lutte contre le sida, la tuberculose et le paludisme. Elle apporte une **assistance technique** et **des appuis financiers catalytiques** aux pays récipiendaires du Fonds mondial pour améliorer l'efficacité de ses subventions et renforcer l'impact sanitaire des programmes financés. Elle contribue ainsi à garantir l'efficacité de la **riposte aux pandémies** et des **systèmes pour la santé**.

Parmi les pays éligibles aux appuis de L'Initiative se trouvent les 19 pays prioritaires de l'aide publique au développement de la France et des pays membres de la Francophonie. Les évolutions récentes de L'Initiative amplifient son **effet catalytique** en renforçant les capacités des acteurs de la santé, en améliorant les cadres institutionnels, politiques et sociaux, et en soutenant des approches innovantes contre les pandémies.

L'Initiative est aujourd'hui un partenaire clé de l'impact du Fonds mondial. Elle confère à la France et à ses acteurs – monde de la recherche, société civile, agences publiques, etc. – une place inédite dans le champ de la lutte contre le sida, la tuberculose et le paludisme. Son budget sur le triennum actuel est de 38,88 M€ / an (2020-2022) et provient de 9 % de la **contribution française au Fonds mondial**.

L'Initiative est gouvernée par un **comité de pilotage** pluriel, présidé par le Ministère de l'Europe et des Affaires étrangères, et qui compte parmi ses membres des représentations de la société civile, de l'AFD, du Ministère des Solidarités et de la Santé, de la Croix-Rouge française et du monde la recherche.

# NOTRE **VISION**

Accès à la santé pour toutes et tous et élimination des pandémies de VIH-sida, de tuberculose et de paludisme.

# NOTRE **MISSION**

L'Initiative contribue au **renforcement des systèmes pour la santé et à la mobilisation contre les pandémies**, en soutien et en complémentarité aux missions du Fonds mondial, et de façon durable.
L'Initiative intervient dans un nombre limité de pays éligibles et est partie prenante d'une équipe France rassemblée, dans un monde francophone valorisé.

# NOS MODALITÉS **D'ACTION**

## Une expertise technique à la demande

Le **Canal Expertises** est le dispositif d'assistance technique de L'Initiative. Mises en œuvre tout au long de l'année, les missions ont une durée variable.

Leur but : appuyer les acteurs de la lutte contre les pandémies dans l'accès aux subventions du Fonds mondial et dans leur mise en œuvre, dans une approche de renforcement des capacités.

## Financer des initiatives catalytiques

Le **Canal Projets** de L'Initiative appuie des programmes à moyen terme à visée catalytique, afin de faire évoluer les pratiques et les politiques de santé.

L'Initiative appuie l'écosystème du Fonds mondial et de la lutte contre les pandémies, avec une attention particulière aux acteurs locaux et nationaux.

## Innover dans la lutte contre les pandémies

Le **Canal Pilotes** est une modalité mixte d'intervention qui répond à un objectif sanitaire, scientifique, stratégique ou politique de la France.

Une fois validés par le comité de pilotage, ces projets sont montés par l'équipe de L'Initiative, qui identifie les porteurs adéquats pour les développer en fonction du contexte.

# LES PAYS **ÉLIGIBLES**

Parmi les pays soutenus par le Fonds mondial, L'Initiative intervient dans 40 pays, en Afrique, en Asie du Sud-Est et dans les Caraïbes. Les pays éligibles à L'Initiative sont :

- les **pays prioritaires de l'aide française** au développement tels qu'identifiés par le CICID* ;
- des pays présentant des défis de mise en œuvre ;
- des pays à fort impact dans la lutte contre les pandémies, selon le Fonds mondial ;
- avec une attention particulière portée à la francophonie.

- Algérie
- **Bénin**
- Birmanie/Myanmar
- **Burkina Faso**
- **Burundi**
- Cambodge
- Cameroun
- **Comores**
- Congo
- Côte d'Ivoire
- **Djibouti**
- **Ethiopie**
- Gabon
- **Gambie**
- **Ghana**
- **Guinée**
- Guinée équatoriale
- Guinée-Bissau
- **Haïti**
- Laos
- Liban
- **Liberia**
- **Madagascar**
- Maroc
- Maurice
- **Mauritanie**
- Mozambique
- **Niger**
- **République centrafricaine**
- **République démocratique du Congo**
- République dominicaine
- Rwanda
- **Sénégal**
- Sierra Leone
- **Tchad**
- Thaïlande
- **Togo**
- Tunisie
- Ukraine
- Vietnam

**IDH** : 2/3 des pays éligibles se situent dans la tranche inférieure de l'Indice de Développement Humain, avec 15 des 20 derniers pays.

* Comité interministériel de la coopération internationale et du développement


EXPERTISE FRANCE
GROUPE AFD

L'INITIATIVE
sida, tuberculose, paludisme

# CHIMIOPRÉVENTION DU PALUDISME SAISONNIER (CPS), 10 ANS DE STRATÉGIE, OÙ EN SOMMES-NOUS AUJOURD'HUI ?

# LA CPS: UNE RECOMMANDATION QUI S'EST SIMPLIFIÉE

**Recommandation OMS 2012:**

*La CPS est recommandée dans les* ***zones de forte transmission saisonnière*** *dans toute la sous-région du Sahel. Un cycle de traitement complet par de la sulfadoxine-pyriméthamine (SP) et de l'amodiaquine (AQ) ou SPAQ, doit être administré à* ***des enfants âgés de 3 à 59 mois*** *à intervalles d'un mois, à partir du début de la saison de transmission, jusqu'à un* ***maximum de quatre cycles pendant la saison de haute transmission*** *du paludisme (à condition que les deux médicaments conservent une efficacité antipaludique suffisante).*

**Recommandation OMS 2022:**

*Dans les* ***zones de transmission saisonnière*** *du paludisme, les enfants appartenant aux* ***groupes d'âge à haut risque*** *de paludisme grave doivent recevoir des médicaments antipaludiques pendant* ***les pics de transmission*** *afin de réduire la charge de morbidité*

**Derrière cette apparente simplification se niche le souhait d'octroyer plus de flexibilité aux pays pour adapter leurs stratégies aux contextes épidémiologiques locaux**

# LA CPS N'A PAS DIT SON DERNIER MOT

**Il est nécessaire de la reconfigurer, voire de l'intensifier pour répondre aux enjeux diversifiés des pays les plus lourdement frappés par le paludisme**

## Age cible

*(…) enfants âgés de 3 à 59 mois* → *groupes d'âge à haut risque*

Des enquêtes de routine ont révélé que dans les ménages la CPS était administrée aux enfants de >59mois avec des résultats positifs (morbidité, mortalité)

Ex: SENEGAL, MALI

Au Sénégal avantage substantiel de la CPS chez les enfants âgés de 5 à 9 ans pour réduire la prévalence de la parasitémie et de l'anémie ➔ Reco Nationales CPS enfants âgés de 3 à 120 mois.

Au Mali, réduction significative de 40 % de la prévalence de la parasitémie chez les enfants de 5 à 9 ans recevant la CPS, mais sans impact sur l'anémie.

Ces pistes prouvent la persistance de l'efficacité de la CPS au-delà de 5 ans et ont comme optique d'alléger de façon générale le poids du paludisme pédiatrique

# LA CPS N'A PAS DIT SON DERNIER MOT

**Il est nécessaire de la reconfigurer, voire de l'intensifier pour répondre aux enjeux diversifiés des pays les plus lourdement frappés par le paludisme**

## Durée de traitement

*. (…) maximum de quatre cycles* → *pendant **les pics de transmission***

- Les nouvelles recommandations ne mettent plus de limite au nombre de mois à couvrir avec la CPS, pour tenir compte notamment de la variation annuelle du moment exact du début de la saison de transmission.
- Environ 20 millions d'enfants vivant dans des zones où un 5ème mois de CPS couvrirait plus de 10 % du fardeau annuel.
- Désormais la CPS doit être administrée pendant la saison de transmission du paludisme, sans définir le nombre spécifique de cycles mensuels.

# LA CPS N'A PAS DIT SON DERNIER MOT

**Il est nécessaire de la reconfigurer, voire de l'intensifier pour répondre aux enjeux diversifiés des pays les plus lourdement frappés par le paludisme**

## Zone géographique

*(..)* ***zones de forte transmission saisonnière*** *dans toute la sous-région du Sahel.*

*(..)* ***zones de transmission saisonnière*** *du paludisme*

Des pays d'autres parties de l'Afrique présentant des variations saisonnières importantes de la charge palustre (sans tomber à zéro entre deux saisons) pourraient également bénéficier de la CPS

Ex: MOZAMBIQUE

Essai préliminaires  dans un district, ont montré faisabilité, acceptabilité et une réduction de 80% des cas de paludisme avec la CPS (SP-AQ). Phase 2 en cours.

# LA CPS N'A PAS DIT SON DERNIER MOT

**Il est nécessaire de la reconfigurer, voire de l'intensifier pour répondre aux enjeux diversifiés des pays les plus lourdement frappés par le paludisme**

## Résistances

*La sulfadoxine-pyriméthamine (SP) et de l'amodiaquine (AQ) ou SPAQ (…) à condition que les deux médicaments conservent une efficacité antipaludique suffisante.*

(…) *des médicaments antipaludiques*

En raison des inquiétudes suscitées par la résistance des parasites à la SP et à l'AQ en Afrique orientale/australe, la région du Sahel était prioritaire pour la CPS (SPAQ).

Ex: OUGANDA

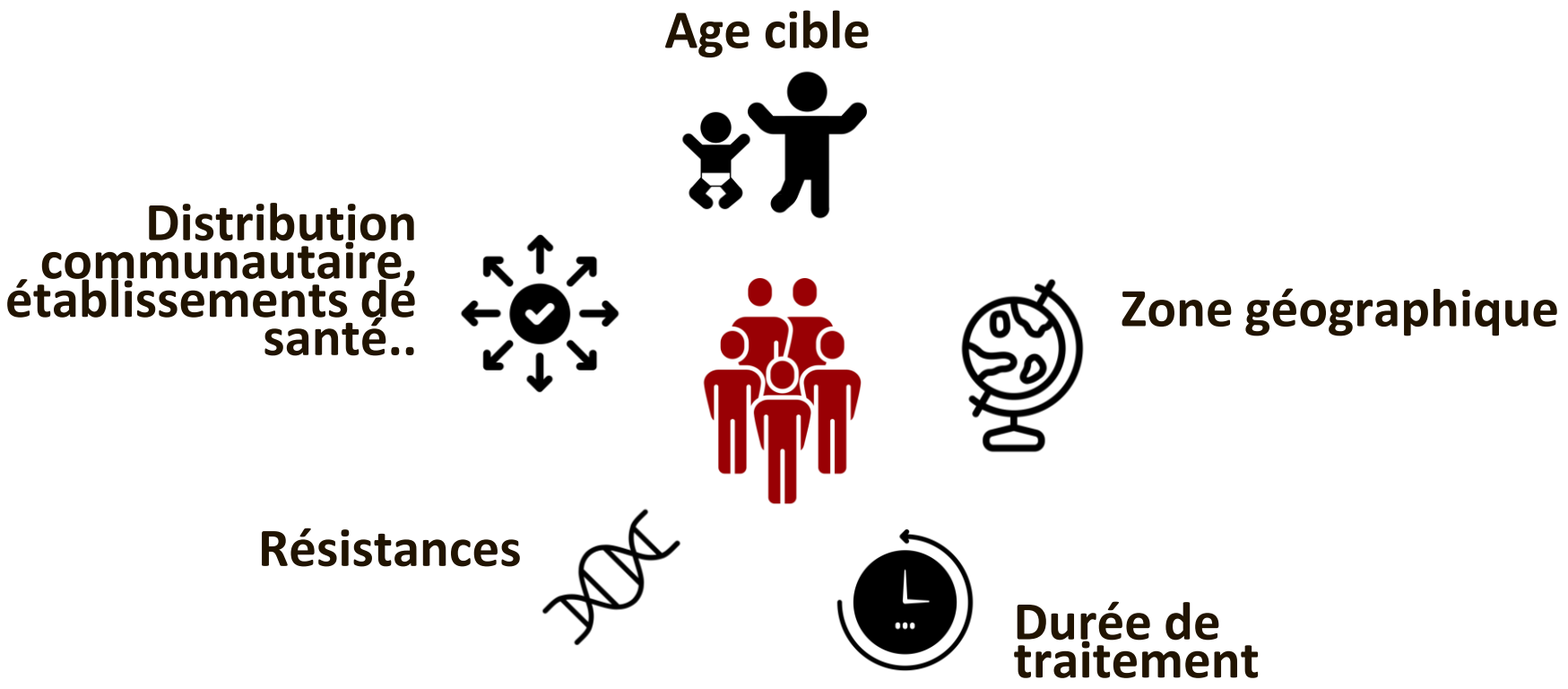
En 2021 CPS (SPAQ) => 2 districts, 85k enfants, 3-59mois, 5 cycles, délivré par la communauté: **Faisable**, **accepté**, et « efficace » (mais + de preuve st nécessaires)

➔ Essai en cours, 8 districts, 270k enfants, 3-59mois, 5 cycles, distribution communautaire, dans lequel SPAQ *vs* DP (Dihydroartemisinin-Piperaquine)

En Ouganda, La SP n' est plus utilisée pour traiter le plalu en raison de résistance, la DP est utilisé comme traitement de deuxième intention pour le paludisme sans complications, très efficace et sûr.

# LA CPS N'A PAS DIT SON DERNIER MOT

**Il est nécessaire de la reconfigurer, voire de l'intensifier pour répondre aux enjeux diversifiés des pays les plus lourdement frappés par le paludisme**



# NOTES D'ORIENTATION SUR LE SITE DE L'INITIATIVE

NOTE D'ORIENTATION

**Chimioprévention du paludisme saisonnier : 10 ans de stratégie. où en est-on aujourd'hui ?**

Il y a 10 ans, l'OMS recommandait pour la première fois l'utilisation de médicaments antipaludiqu...

Décembre 2022

NOTE D'ORIENTATION

**Le vaccin contre le paludisme : une avancée porteuse d'espoir, pas une solution miracle**

Suite à l'annonce de l'OMS recommandant le premier vaccin antipaludique destiné aux enfants expos...

Novembre 2021

EXPERTISE FRANCE
GROUPE AFD

Agence publique, Expertise France est l'acteur interministériel de la coopération technique internationale, filiale du groupe Agence française de développement (groupe AFD).

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Partner with France

L'INITIATIVE
sida, tuberculose, paludisme

# CONTACTS


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Sida, tuberculose, paludisme
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www.linitiative2021.fr

**Expertise France**
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@INITIATIVE.PC
@INITIATIVE5PC



MISE EN ŒUVRE PAR EXPERTISE FRANCE GROUPE AFD

FINANCÉE ET PLACÉE SOUS LA TUTELLE DU MINISTÈRE DE L'EUROPE ET DES AFFAIRES ÉTRANGÈRES

DANS LE CADRE DE LA CONTRIBUTION FRANÇAISE AU LE FONDS MONDIAL

# Presentation 8: How Community-Led Monitoring is changing the game in conflicts areas

**Hamza Djibo**

ESCAVI

ONG Education, Santé et Amélioration du Cadre de Vie (ESCAVI)

# Comment le suivi communautaire change la donne dans les zones de conflits: Cas de Personnes Déplacées Internes et Réfugiées du site de Gothèye, Région de Tillabéry au Niger

FORUM ANNUEL CS4ME 2023

# Informations générales sur les zones de conflits

1. La zone frontalière entre le Burkina Faso, le Mali et le Niger est caractérisée par un niveau élevé de violences envers les civils;

2. La situation sécuritaire continue de se dégrader depuis le début de l'année 2023, occasionnant d'importants mouvements de population dans les régions de Tillabéry et de Tahoua;

3. Du fait de l'activisme des groupes armés non-étatiques (GANE) dans les deux régions, plus de 20 000 personnes ont dû fuir leurs domiciles entre janvier et février 2023 pour trouver refuge dans des endroits plus sûrs (rapport OCHA mars 2023).

4. Au niveau des sites d'accueil (Torodi et Gothèye, région de Tillabéry), les besoins sont énormes dans les secteurs de l'eau, de la sécurité alimentaire, de la santé, de la protection, des abris et de l'éducation.

# Photo d'un site d'acceuil des PDI à Torodi

# Photo d’une fille sur un site d’acceuil des PDI à Torodi

# Quelle est la situation dans les sites d'accueil?

- ✓ **Les Personnes déplacées Internes (PDI) et les réfugiées ne sont pas prises en charge de manière systématique à leur arrivée du fait de la non disponibilité des informations les concernant ;**

- ✓ **L'accès limité ou inéquitable aux services de base, aux espaces publics et aux moyens de subsistance, entraîne des frustrations et peut être source de tensions au sein des communautés;**

**C'est pourquoi, l'ONG ESCAVI a décidé d'initier des actions en faveur des réfugiés et des déplacés internes de la localité de Gothèye qui semblent être les plus délaissés en concertation avec le District Sanitaire et les autorités administratives.**

# Etape de mise en place d'un dispositif de suivi communautaire par ESCAVI

- Identification et recrutement des relais communautaires locaux et des représentants des PDI et réfugiés;

- Formation des Relais et représentants des PDI et réfugiés;

- Placement d'un stock des MILDA au niveau de Gothèye pour répondre instantanément aux besoins des déplacés/réfugiés qui se présentent au niveau de la localité.

# Les Actions menées par les acteurs communautaires

- Recensement systématique des femmes enceintes et des enfants de moins de 5 ans et mise à disposition de la liste au centre de santé pour faciliter leur premier accueil en cas de maladie surtout le paludisme pour minimiser la discrimination ;

- Organisation des sessions de sensibilisation sur les mesures de prévention du Paludisme, le genre et droits humains spécifiquement sur les droits des personnes déplacées/réfugiées et distribution des MILDA aux ménages dans les sites d'accueil ;

- Recensement systématique et Accompagnement des cas présumés de paludisme au niveau des centres de santé par les relais communautaires pour leur faciliter le premier contact avec les agents de santé.

# Suite

- Plaidoyer auprès des décideurs pour prendre en charge le gap en intrant de lutte contre le paludisme causé par le flux des personnes déplacées et refugiées ;

- Remontée systématique aux autorités sanitaires, par le Canal des relais, des informations sur le paludisme au sein des personnes déplacées et refugiées pour des mesures urgentes à prendre.

# Interventions au niveau des Sites des Personnes déplacées internes

## Distribution des MILDA

- aux ménages des familles déplacées:**125 ménages ;**
- aux femmes enceintes des sites des déplacées: **30 femmes.**

Quelques images

**Lancement par le Maire de Gothèye**

**Femmes bénéficiaires**

# Interventions au niveau des Sites des Personnes déplacées internes

## Sensibilisation sur le Paludisme

- utilisation correcte des MILDA;
- signes du Paludisme;
- propriété du milieu (hygiène et assainissement).

Quelques images

**Séance de sensibilisation**

# MERCI DE VOTRE AIMABLE ATTENTION

# Key note speaker 4 : Why it is increase the actions and coverage of Community Health Workers ?

**Dr Albert Kalonji**

SANRU

# Presentation 9: Artemisinin resistance; what we need to know, challenges and actions to take in the fight against malaria


## Professor Charles Wondji

Centre of Research in

Infectious Diseases

# Artemisinin resistance; what we need to know, challenges and actions to take in the fight against malaria

**Prof Charles Wondji, CRID (Cameroon)/LSTM (UK)**

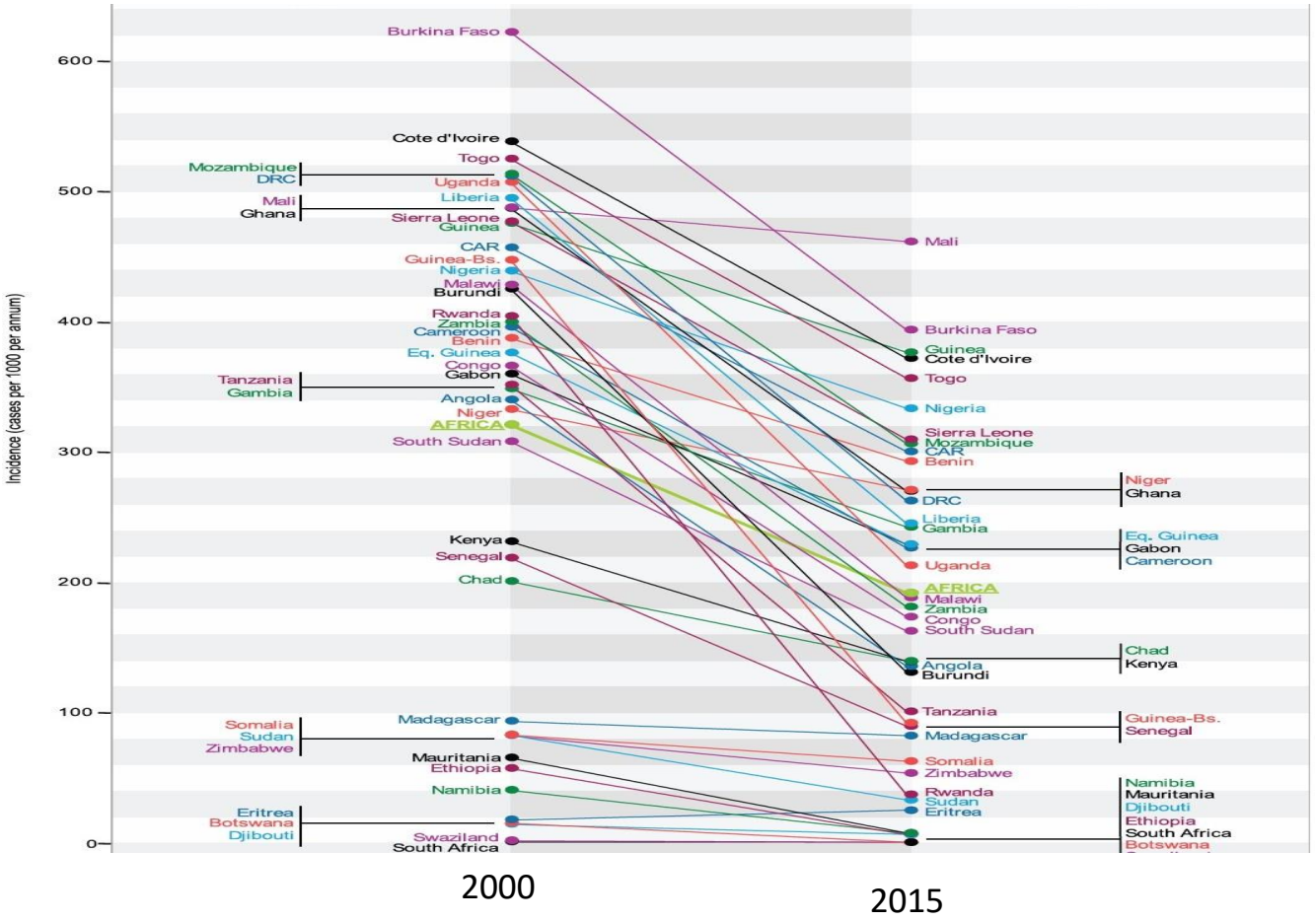
**CS4ME ANNUAL Forum 2023, 24/04/2023**

*"Time to deliver Zero Malaria: Innovate, Invest, Implement"*

# Malaíia decline in the past decade due to contíol inteíventions

## Decline in Burden of Malaria across Africa from 2000's

Mortality caused by the disease plummeted by nearly 60%.





Better diagnosis


New combination drug therapy

Long Lasting Insecticidal Nets (LLINs)

Indoor Residual Spraying (IRS)



Bhatt et al 2015 Nature

# Artemisinin-based combination (ACT) therapies critical for malaria control

- ACTs are recommended by WHO as the first- and second-line treatment for uncomplicated *P. falciparum* malaria

- ACTs combine an artemisinin derivative (artemisinin derivatives include artesunate, artemether and dihydroartemisinin) with a partner drug.

- The role of the artemisinin compound is to reduce the number of parasites during the first 3 days of treatment while the role of the partner drug is to eliminate the remaining parasites.

- Increased access to ACTs in malaria-endemic countries has been integral to the remarkable success in reducing the global malaria burden over the last 15 years.


https://www.tradeindia.com/manufacturers/antimalarial-drugs.html

# Resistance detected in the Greater Mekong Sub-region

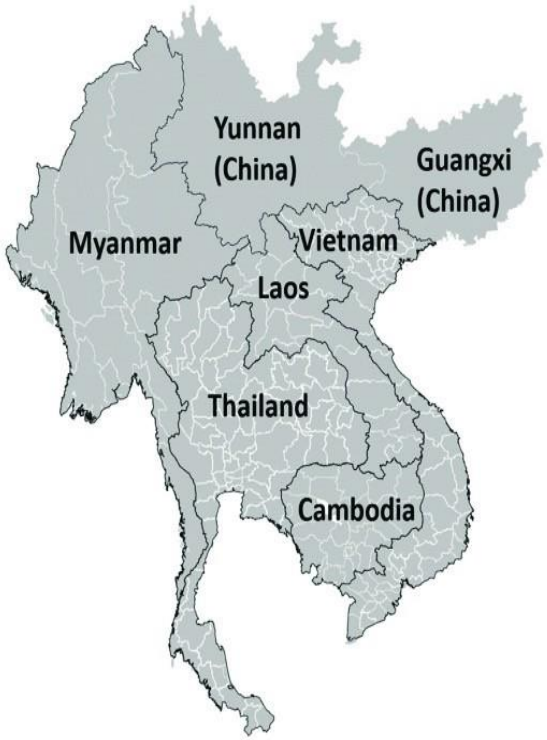
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Artemisinin Resistance in *Plasmodium falciparum* Malaria

Arjen M. Dondorp, M.D., François Nosten, M.D., Poravuth Yi, M.D., Debashish Das, M.D., Aung Phae Phyo, M.D., Joel Tarning, Ph.D., Khin Maung Lwin, M.D., Frederic Ariey, M.D., Warunee Hanpithakpong, Ph.D., Sue J. Lee, Ph.D., Pascal Ringwald, M.D., Kamolrat Silamut, Ph.D., Mallika Imwong, Ph.D., Kesinee Chotivanich, Ph.D., Pharath Lim, M.D., Trent Herdman, Ph.D., Sen Sam An, Shunmay Yeung, Ph.D., Pratap Singhasivanon, M.D., Nicholas P.J. Day, D.M., Niklas Lindegardh, Ph.D., Duong Socheat, M.D., and Nicholas J. White, F.R.S.

2009




Greater Mekong Subregion

DRUG RESISTANCE

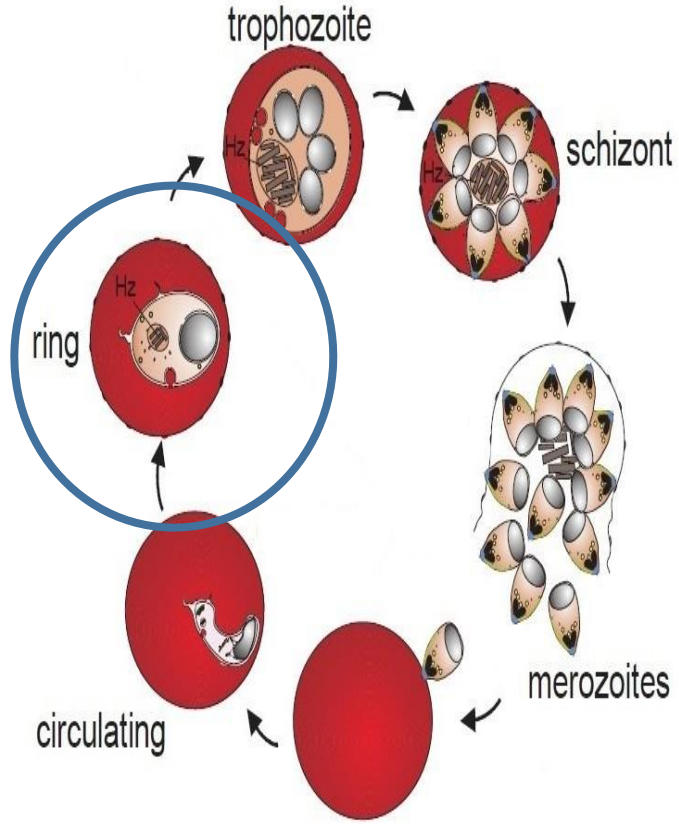
## K13-propeller mutations confer artemisinin resistance in *Plasmodium falciparum* clinical isolates

Judith Straimer,[1] Nina F. Gnädig,[1] Benoit Witkowski,[2*] Chanaki Amaratunga,[3*] Valentine Duru,[2*] Arba Pramundita Ramadani,[4,5*†] Mélanie Dacheux,[1] Nimol Khim,[2] Lei Zhang,[6] Stephen Lam,[6] Philip D. Gregory,[6] Fyodor D. Urnov,[6] Odile Mercereau-Puijalon,[7] Françoise Benoit-Vical,[4,5‡] Rick M. Fairhurst,[3‡] Didier Ménard,[2‡] David A. Fidock[1,8§]

2014

# Partial resistance and not complete resistance

- Artemisinin partial resistance: a delay in the clearance of malaria parasites from the bloodstream following treatment with an ACT.
- Consequently, the artemisinin compound is less effective in clearing all parasites within a 3-day period.
- Artemisinin resistance affects only the ring stage. It is therefore a "partial resistance" since it is time-limited and cycle-specific.
- Unknown if this partial resistance will evolve to affect other stages of the parasites to confer full resistance which has not yet been reported.
- Currently, nearly all patients infected with partial resistant *Plasmodium* are fully cured after treatment with an ACT when the partner drug is highly efficacious in that area.



# Emergence of Artemisinin resistance in Rwanda

LETTERS
https://doi.org/10.1038/s41591-020-1005-2
nature medicine
Check for updates

OPEN

## Emergence and clonal expansion of in vitro artemisinin-resistant *Plasmodium falciparum kelch13* R561H mutant parasites in Rwanda

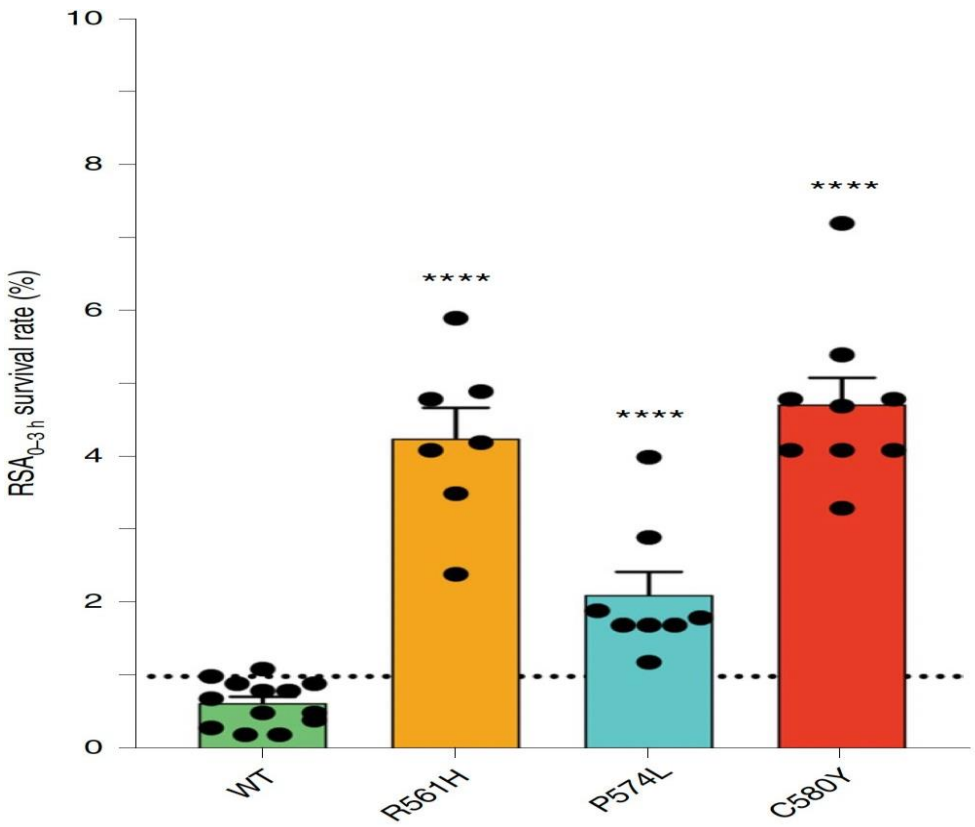
2020

Aline Uwimana[1,15] ✉, Eric Legrand[2,15], Barbara H. Stokes[3], Jean-Louis Mangala Ndikumana[1], Marian Warsame[4], Noella Umulisa[5,6], Daniel Ngamije[7], Tharcisse Munyaneza[8], Jean-Baptiste Mazarati[8], Kaendi Munguti[9], Pascal Campagne[10], Alexis Criscuolo[10], Frédéric Ariey[11], Monique Murindahabi[12], Pascal Ringwald[13], David A. Fidock[3,14], Aimable Mbituyumuremyi[1] and Didier Menard[2] ✉

-Analysis of the resistance gene *PfKelch13* in pre-treatment samples collected in Rwanda during an efficacy trials

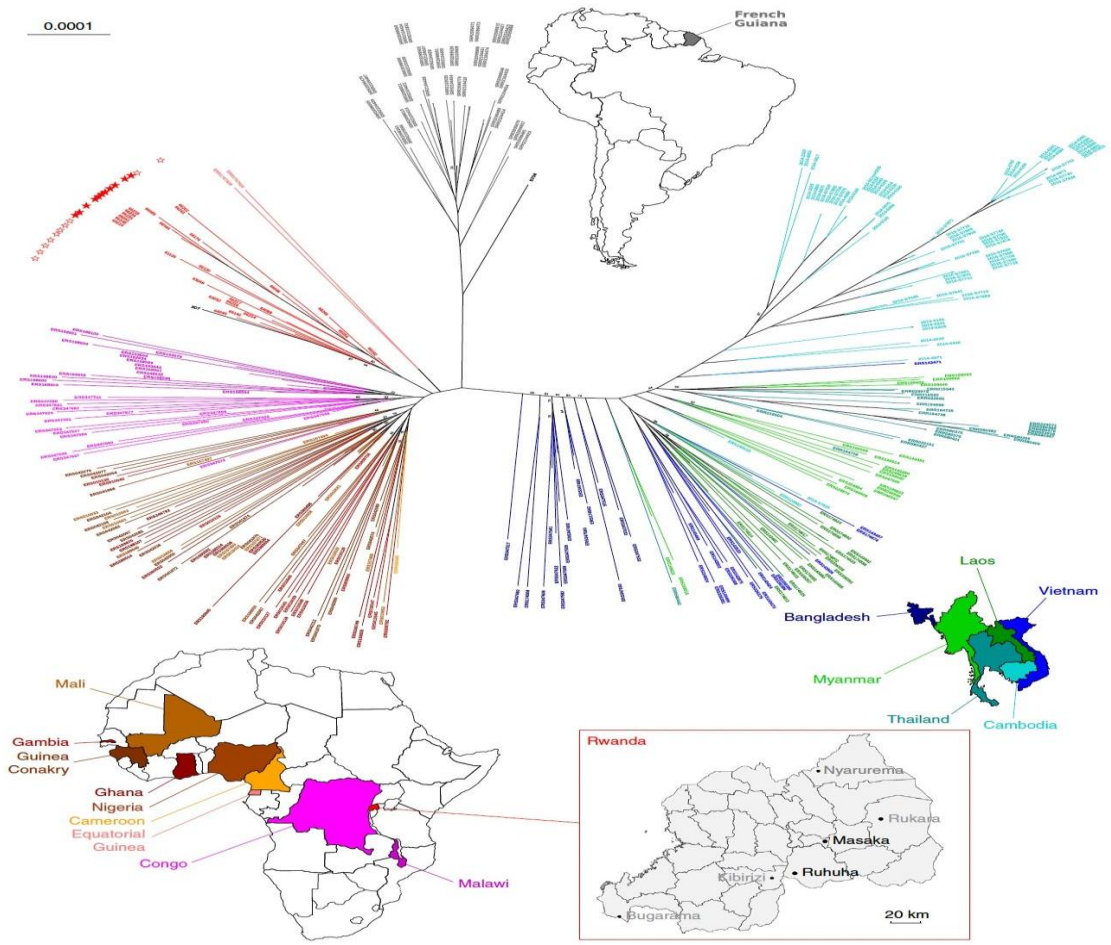
-Identification of a mutation R561H in 7.4% of the patients

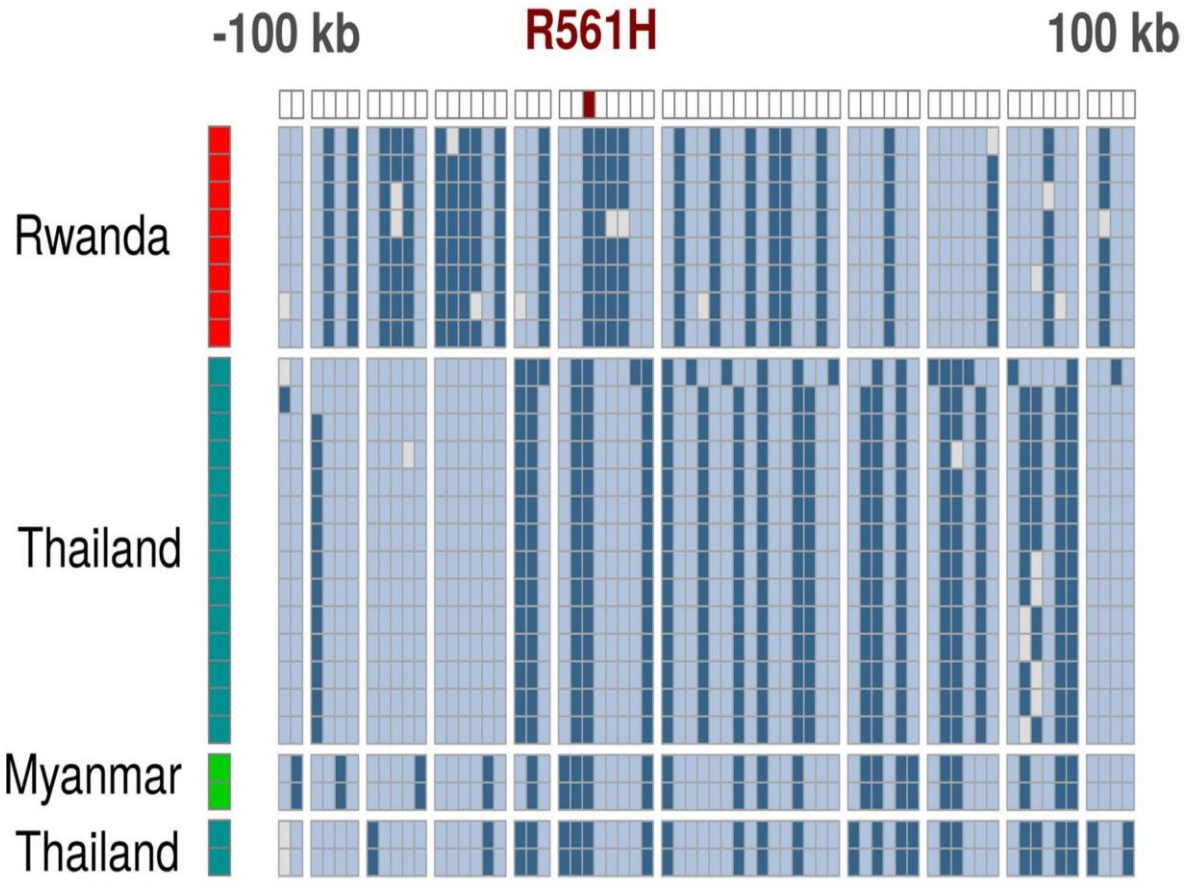
-R561H previously detected in Greater Mekong subregion




Higher survival rates of R561H resistant parasites than wild type after ring-stage survival assay

# R561H resistant allele independent emergence in Rwanda




*Expansion of an indigenous R561H lineage from Rwanda*

*De novo* emergence of R561H in Rwanda as haplotype different from other locations in Southeast Asia

# Artemisimin resistance detected in Africa

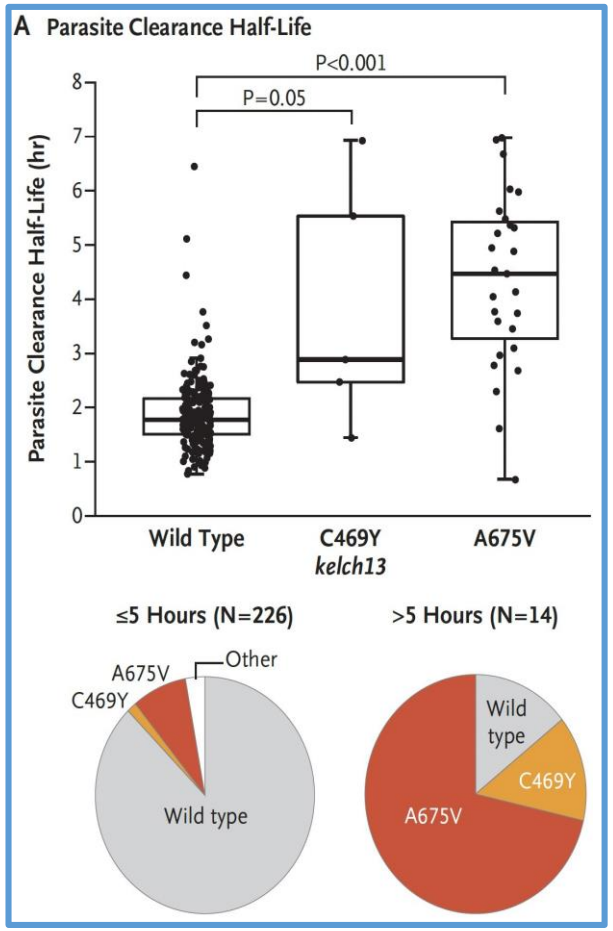
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 SEPTEMBER 23, 2021 VOL. 385 NO. 13

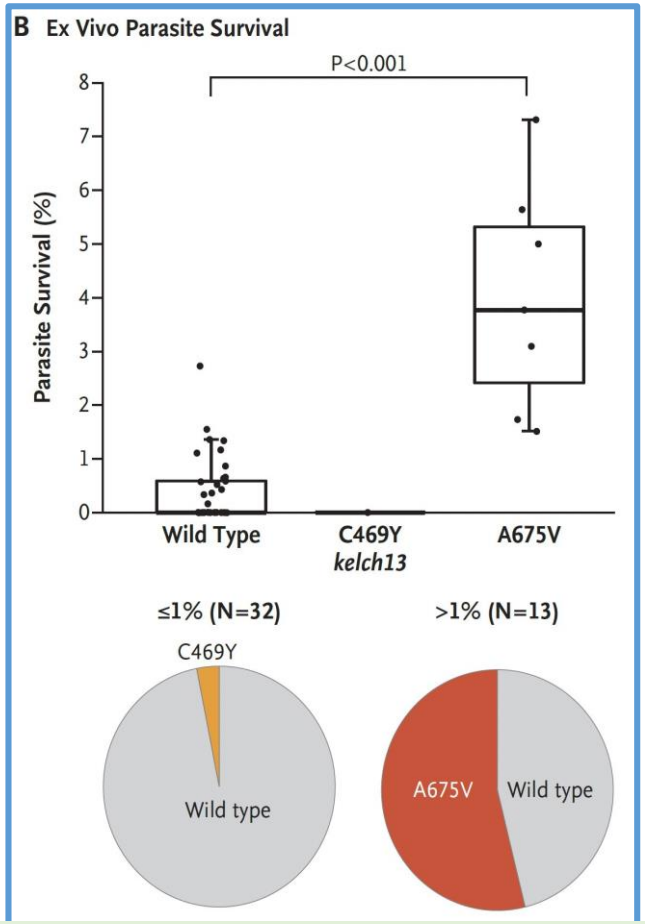
## Evidence of Artemisinin-Resistant Malaria in Africa

Betty Balikagala, M.D., Ph.D., Naoyuki Fukuda, M.D., D.T.M.H., Ph.D., Mie Ikeda, Ph.D., Osbert T. Katuro, B.Sc., Shin-Ichiro Tachibana, Ph.D., Masato Yamauchi, M.P.H., Ph.D., Walter Opio, M.D., Sakurako Emoto, M.D., Denis A. Anywar, M.Sc., Eisaku Kimura, M.D., Ph.D., Nirianne M.Q. Palacpac, Ph.D., Emmanuel I. Odongo-Aginya, Ph.D., Martin Ogwang, M.D., M.M.E.D., Toshihiro Horii, Ph.D., and Toshihiro Mita, M.D., Ph.D.

- A longitudinal study in Northern Uganda, treating patients with artesunate (artemisinin derivative) and estimating the parasite clearance half-life.
- Evaluation of ex vivo susceptibility of the parasite using a ring-stage survival assay and genotyped resistance related genes.

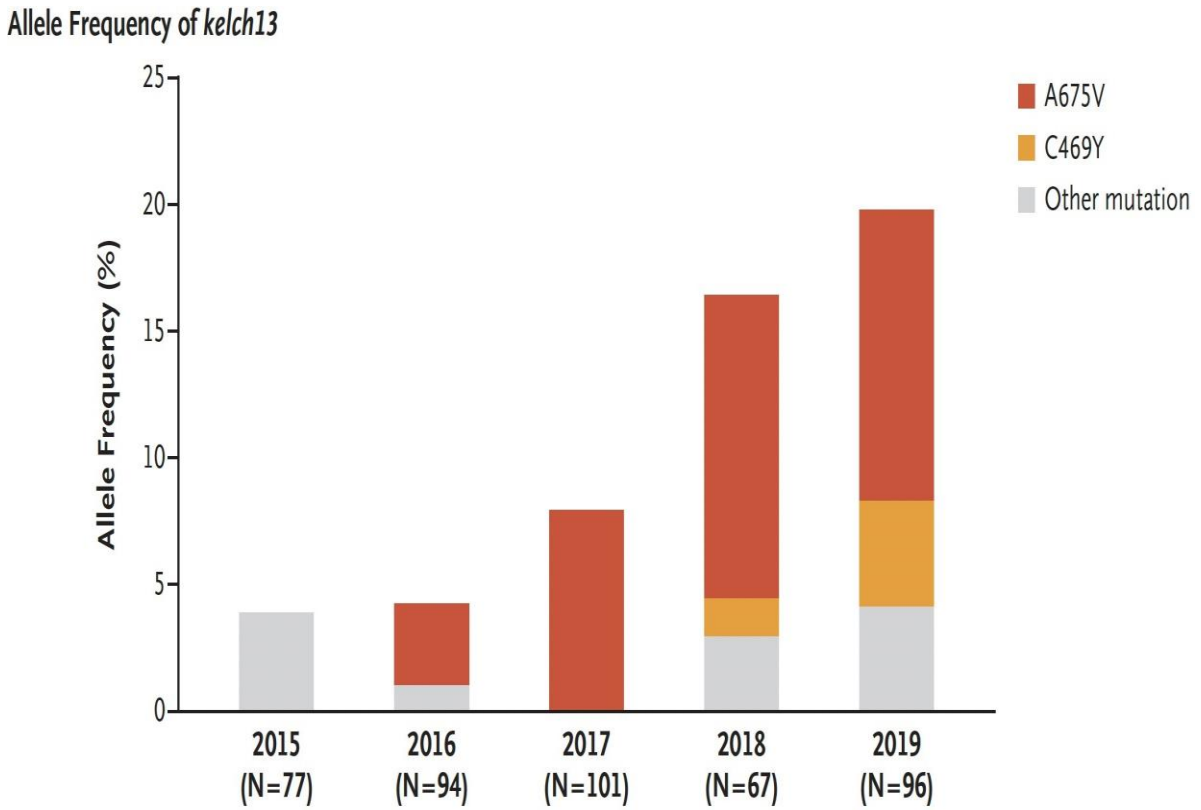



Longer time for parasite clearance for patients with resistant alleles




higher frequency of parasite survival among specimens with resistant allele

# Evidence that Arteminisin resistance alleles are increasingly selected in the field



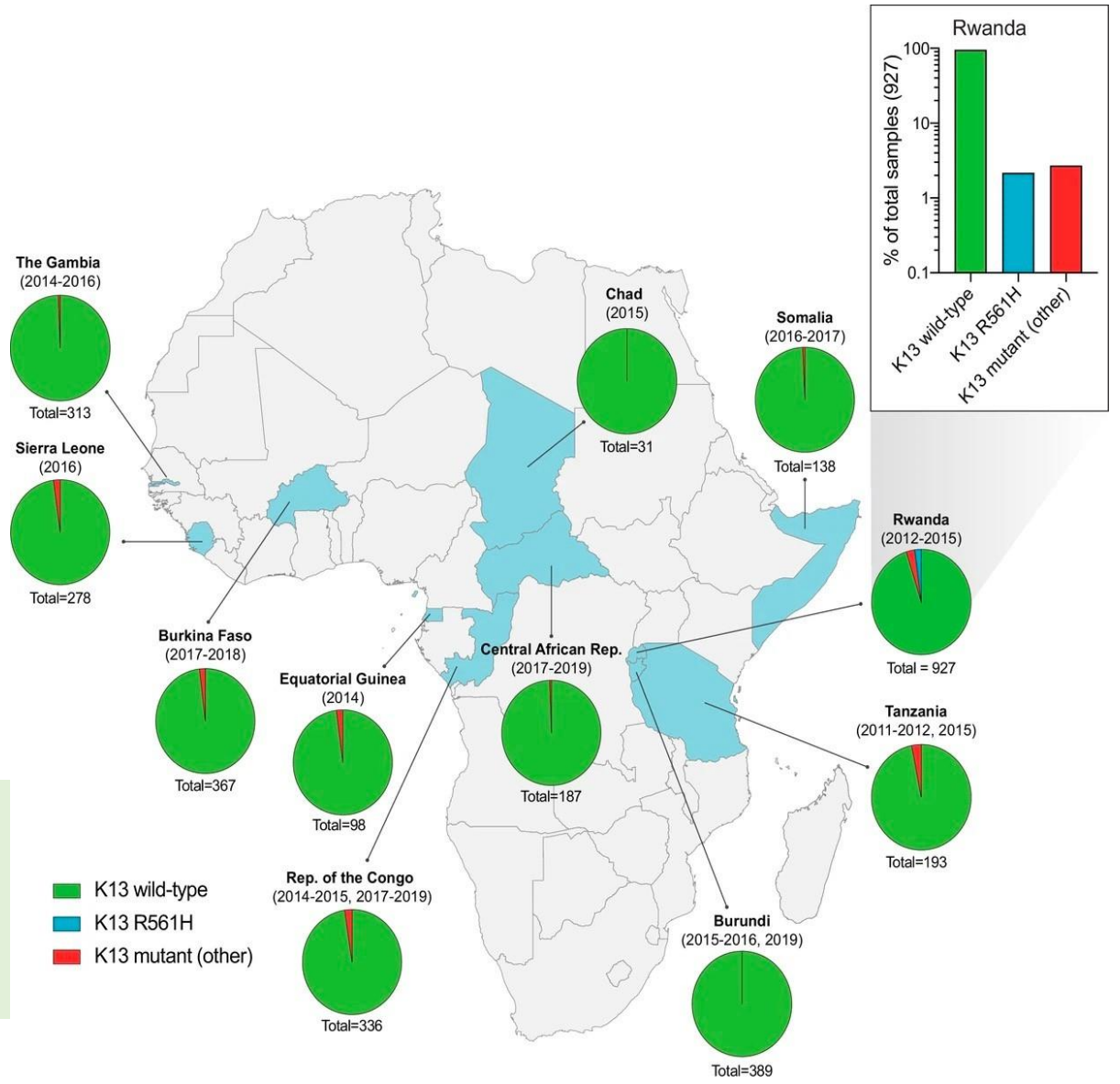

- Monitoring the allele frequency of kelch13 during the study years 2015-2019
- Clear pattern of an increasing prevalence of parasites with kelch13 mutations from 3.9% in 2015 to 19.8% in 2019.
- Patterns of genetic diversity around the resistant allele (A675V) in Uganda very different from those in Southeast Asia showing an independent emergence of resistance

# Spatio-temporal Survey of *K13* alleles across Africa

eLife RESEARCH ARTICLE

## *Plasmodium falciparum* K13 mutations in Africa and Asia impact artemisinin resistance and parasite fitness

Barbara H Stokes[1], Satish K Dhingra[1], Kelly Rubiano[1], Sachel Mok[1], Judith Straimer[1], Nina F Gnädig[1], Ioanna Deni[1], Kyra A Schindler[1], Jade R Bath[1], Kurt E Ward[1,2], Josefine Striepen[1], Tomas Yeo[1], Leila S Ross[1], Eric Legrand[3], Frédéric Ariey[4], Clark H Cunningham[5], Issa M Souleymane[6], Adama Gansané[7], Romaric Nzoumbou-Boko[8], Claudette Ndayikunda[9], Abdunoor M Kabanywanyi[10], Aline Uwimana[11], Samuel J Smith[12], Olimatou Kolley[13], Mathieu Ndounga[14], Marian Warsame[15], Rithea Leang[16], François Nosten[17,18], Timothy JC Anderson[19], Philip J Rosenthal[20], Didier Ménard[3], David A Fidock[21]*




- Africa-wide survey (2011-2019) indicates predominance of susceptible wild type but emergence of known resistance allele R561H

# Causes of arteminisin partial resistance in Africa

- WHO highlights several potential factors:
  - Poor treatment practices,
  - Inadequate patient adherence to prescribed antimalarial regimens,
  - The widespread availability of oral artemisinin-based monotherapies and substandard forms of the drug.


https://images.app.goo.gl/iCsagMtHs3SDBfXRA

# How to tackle Arteminisin resistance in Africa?

- WHO outlined clear actions:
  - Provide urgent support to improve the phenotypic and genotypic surveillance to better map the extent of the resistance.
  - WHO launched, end 2022, a *Strategy to respond to antimalarial drug resistance in Africa* including action such as tracking its spread, identifying the populations most at risk, and developing viable alternative treatments.
- Africa CDC has launched an initiative for malaria genomic surveillance for Africa to ensure early and continent-wide detection of resistance by scaling up genomics expertise on the continent
  - Capacity building
  - Funding

# Other challenges to tackle to improve malaria control

- **Drug resistance and efficacy**
  Monitoring known genetic resistance markers to antimalarials

- **Diagnostic resistance (Rapid Diagnostic Test)**
  Identifying and monitoring HRP2/3 deletions

- **Insecticide resistance**
  Monitoring known genetic resistance markers to insecticides

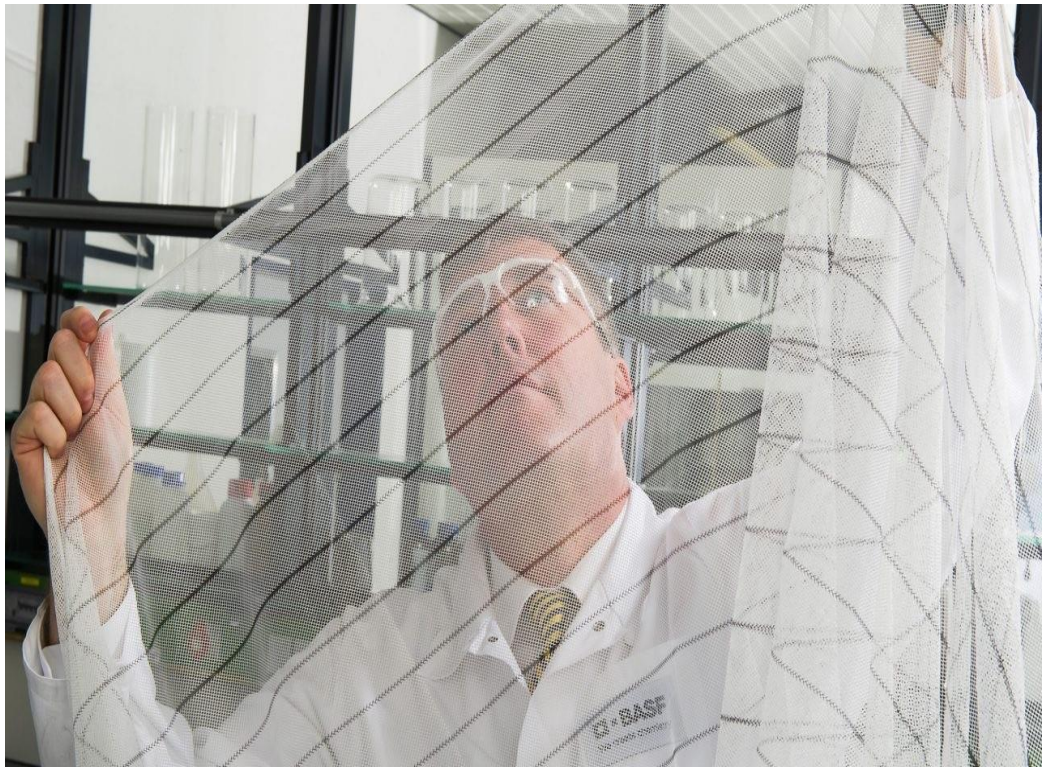
- **Vector species distribution**
  Identifying and monitoring invasive species (*An. stephensi*--- High risk for urban malaria)





*An. stephensi* invading Africa with increased risk of urban malaria

# New generation LLINs Dual AI pyrethroid Nets are more efficacious and now recommended by WHO



A new net combining chlorfenapyr, a pyrrole class insecticide with alpha-cypermethrin

Chlorfenapyr is a completely new insecticide class for combating mosquitoes in public health.

## Effectiveness and cost-effectiveness against malaria of three types of dual-active-ingredient long-lasting insecticidal nets (LLINs) compared with pyrethroid-only LLINs in Tanzania: a four-arm, cluster-randomised trial

*Jacklin F Mosha*, Manisha A Kulkarni*, Eliud Lukole, Nancy S Matowo, Catherine Pitt, Louisa A Messenger, Elizabeth Mallya, Mohamed Jumanne, Tatu Aziz, Robert Kaaya, Boniface A Shirima, Gladness Isaya, Monica Taljaard, Jacklin Martin, Ramadhan Hashim, Charles Thickstun, Alphaxard Manjurano, Immo Kleinschmidt, Franklin W Mosha, Mark Rowland, Natacha Protopopoff*

Lancet 2022

## Efficacy of pyriproxyfen-pyrethroid long-lasting insecticidal nets (LLINs) and chlorfenapyr-pyrethroid LLINs compared with pyrethroid-only LLINs for malaria control in Benin: a cluster-randomised, superiority trial

*Manfred Accrombessi*, Jackie Cook*, Edouard Dangbenon, Boulais Yovogan, Hilaire Akpovi, Arthur Sovi, Constantin Adoha, Landry Assongba, Aboubacar Sidick, Bruno Akinro, Razaki Ossè, Filémon Tokponnon, Rock Aïkpon, Aurore Ogouyemi-Hounto, Germain Gil Padonou, Immo Kleinschmidt, Louisa A Messenger, Mark Rowland, Corine Ngufor, Natacha Protopopoff†, Martin C Akogbeto†*

Lancet 2023

# Conclusion

- Continuous monitoring of ACT efficacy is needed to inform treatment policies, to ensure early detection of drug resistance and better manage it
  - WHO new strategy to respond to resistance
  - Africa CDC initiative for genomic surveillance

- Other challenges should also be tackled: Insecticide resistance, diagnostic resistance (RDTs) and invasive new vectors (*An. stephensi)*

# Presentation 10: Monoclonal Antibiodies: a revolution in malaria treatment


## Sharonann Lynch

Global Health Policy & Politics Initiative
Georgetown University

# Monoclonal Antibodies for Malaria Prevention

## Considerations for an access agenda

Sharonann Lynch
O'Neill Institute for National and Global Health Law

O'NEILL INSTITUTE FOR NATIONAL & GLOBAL HEALTH LAW
GEORGETOWN LAW

# Biological drugs

**Biological drugs**

- Produced in or derived from living cells
- Consist of proteins and/or nucleic acids

**Antibodies**

- Proteins generated by the immune system
- Polyclonal antibodies: mix of “naturally occurring antibodies extracted for use in serum or convalescent plasma-based therapies”

**Monoclonal antibodies (mAbs)**

- “single antibodies from identical immune cells that can be manufactured at commercial scale using cell systems.”
- Mechanism of action: **trigger an immune system to destroy membranes of a cancer cell,** blocking cell growth
- Block the connection between a cell and proteins that promote cell growth by **binding to viral spikes**

**Small molecule drugs** are chemically derived (manufactured)

**Biologics** are extracted from living organisms

Biologics:

- Proteins (interferons, insulins, enzymes, monoclonal antibodies)
- Nucleic Acids (gene therapy vectors, si-RNA)

# Importance of biologics & biosimilars

- Since 1983 an increasing number of biologics have been introduced for the treatment of diseases for which no therapy existed
- High degree of **specificity** (high targeting) and often prolonged half-life (how long it takes for a drug in the body to reduce by half) with a relative high degree of safety
- The generic equivalent of biologics are “biosimilars”

# Malaria chemoprevention

- **RTS,S pediatric vaccine**

  4 doses– difficult to ensure follow-up (especially for the last dose)

  Vaccine efficacy: 36.3% after 4 years of follow-up

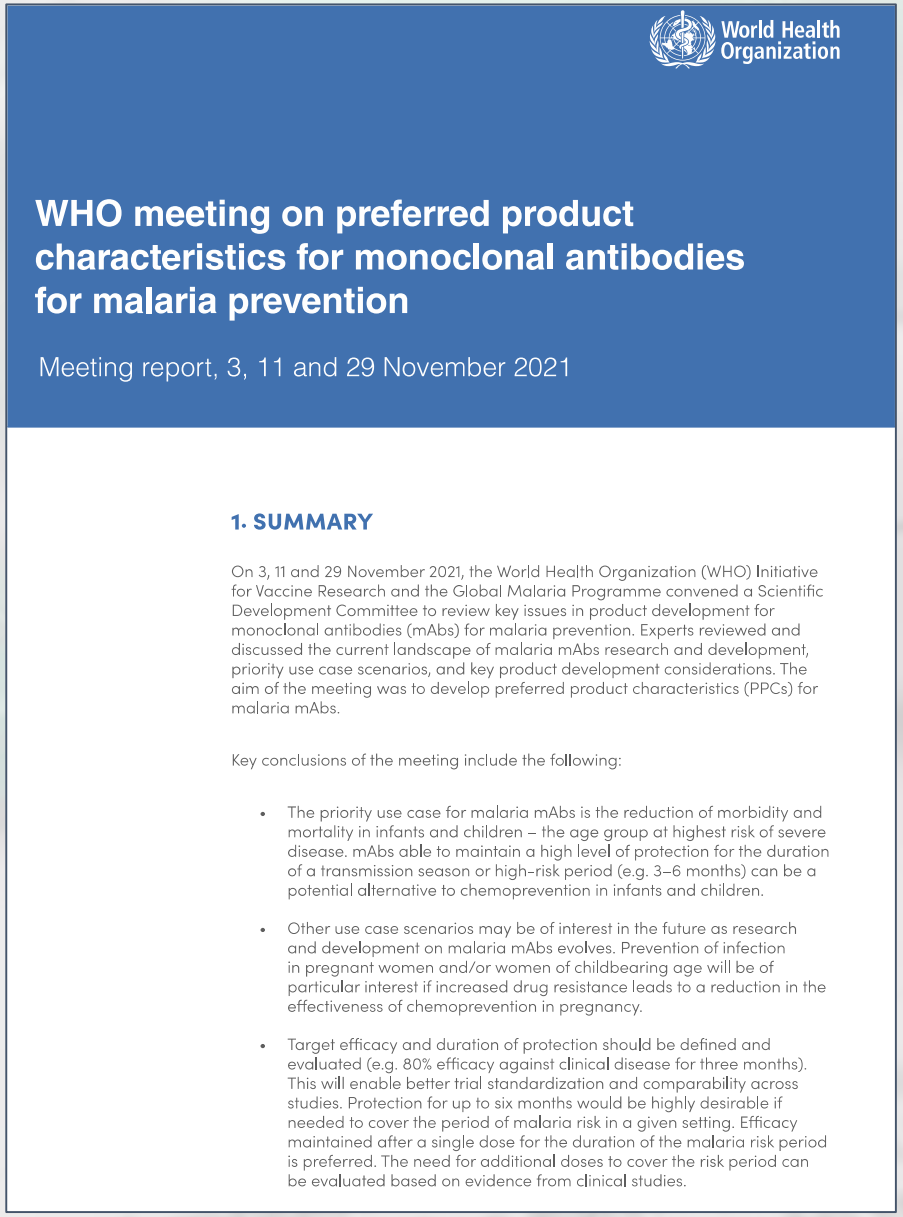
**Monoclonal antibodies (mAbs)**

Promising area of chemoprevention

Passive immunization (when a person is given antibodies as opposed to producing them)

WHO developed preferred product characteristics for malaria mAbs

"Target efficacy and duration of protection should be defined and evaluated (e.g. 80% efficacy against clinical disease for three months)



World Health Organization

**WHO meeting on preferred product characteristics for monoclonal antibodies for malaria prevention**

Meeting report, 3, 11 and 29 November 2021

**1. SUMMARY**

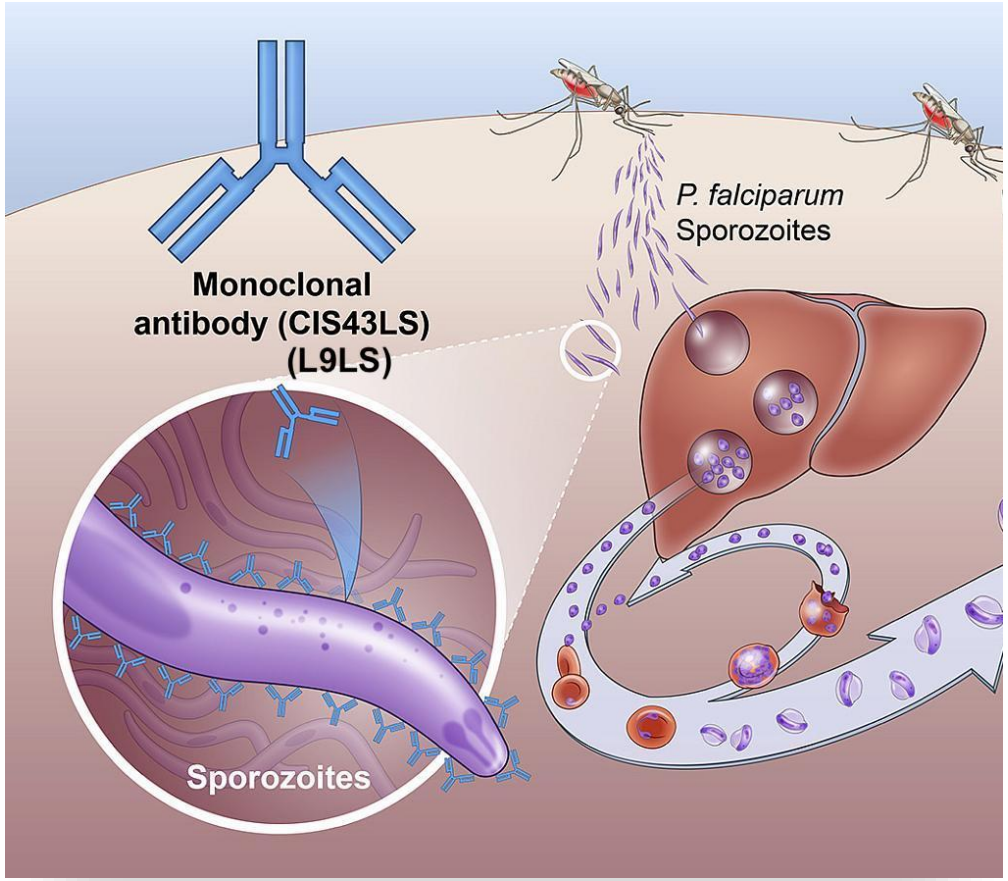
On 3, 11 and 29 November 2021, the World Health Organization (WHO) Initiative for Vaccine Research and the Global Malaria Programme convened a Scientific Development Committee to review key issues in product development for monoclonal antibodies (mAbs) for malaria prevention. Experts reviewed and discussed the current landscape of malaria mAbs research and development, priority use case scenarios, and key product development considerations. The aim of the meeting was to develop preferred product characteristics (PPCs) for malaria mAbs.

Key conclusions of the meeting include the following:

- The priority use case for malaria mAbs is the reduction of morbidity and mortality in infants and children – the age group at highest risk of severe disease. mAbs able to maintain a high level of protection for the duration of a transmission season or high-risk period (e.g. 3–6 months) can be a potential alternative to chemoprevention in infants and children.
- Other use case scenarios may be of interest in the future as research and development on malaria mAbs evolves. Prevention of infection in pregnant women and/or women of childbearing age will be of particular interest if increased drug resistance leads to a reduction in the effectiveness of chemoprevention in pregnancy.
- Target efficacy and duration of protection should be defined and evaluated (e.g. 80% efficacy against clinical disease for three months). This will enable better trial standardization and comparability across studies. Protection for up to six months would be highly desirable if needed to cover the period of malaria risk in a given setting. Efficacy maintained after a single dose for the duration of the malaria risk period is preferred. The need for additional doses to cover the risk period can be evaluated based on evidence from clinical studies.

# mAbs as chemoprophylactic agents for malaria

- mAbs could provide an instant dose of protection
- Priority populations: pediatric and pregnant people
- mAbs are being developed for chemoprevention by 3 entities: NIH, the Gates Foundation, and GSK/Eisai/PATH
- Presently, NIH-led research on L9LS and CIS43LS is the most advanced.
- Mechanism of Action: neutralize sporozoites of *P. falciparum* before they can infect liver cells (pre-erythrocytic or sporozoite phase)
- The NIH clinical trials established the proof of concept for protective efficacy against persistent exposure to diverse P. falciparum strains during the 6-month rainy season




Source: NIH

# mAbs clinical trials for malaria chemoprevention

## L9LS Clinical trial

- **Phase 1 trial:** open label*, dose escalation** study
  - 18 adults were administered 1 mg/kg, 5 mg/kg ,20 mg/kg intravenous infusion and 5 mg/kg subcutaneous
  - After 2-6 weeks, controlled human malaria infection
  - Efficacy against parasitemia: day 21- 2/17 developed parasitemia (one with 1mg/kg iv and the other with 5 mg/kg sc) in contrast all 6 controls developed parasitemia; **88% protection**
  - Trial result- safe and protective against P. falciparum
- **Phase 2 trials** are underway in Mali evaluating :
  - the safety and tolerability of onetime subcutaneous (SC) or intravenous (IV) administration of L9LS in healthy Malian adults and one-time SC administration of L9LS in healthy Malian children (aged 5-59 months) over a 7-month malaria season in Mali.
  - The trials are underway (estimated study completion date– **March 2024**

## CIS43LS Clinical trial

- **Phase 1:**
  - open-label*, dose escalation,** 2-part study to evaluate the dose, safety, tolerability and protective efficacy of CIS43LS
  - During the first part of the trial, 25 participants received CIS43LS at doses of 5 mg, 20 mg, or 40 mg per kilogram of body weight.
  - the second part of the trial, 15 participants (of whom 9 had received CIS43LS and 6 were control participants) underwent controlled human malaria infection through *P. falciparum* infected mosquitoes → parasitemia occurred in 0/9 participants who had received CIS43LS and in 5/6 controls.
  - CIS43LS prevented malaria after controlled human infection, with no obvious safety concerns.
- **Phase 2**: Double blind, Randomized Control trial;
  - IV infusion of 10mg/kg or 40mg/kg
  - CIS43LS trial in 330 Malian people shows that it was protective (high dose was **88% effective**; lower dose **75% effective**) against *P. falciparum* infection over a 6-month malaria season in Mali without evident safety concerns.
  - The trials are underway (estimated study completion date–**July 2023**

**A type of study in which both the health providers and the patients are aware of the drug or treatment being given*

*** A study that determines the best dose of a new drug or treatment.*

# mAbs and malaria: opportunities

- mAbs for malaria prevention: first mAbs in development NOT designed for high-income country markets
- First mAbs developed with government and philanthropic funding

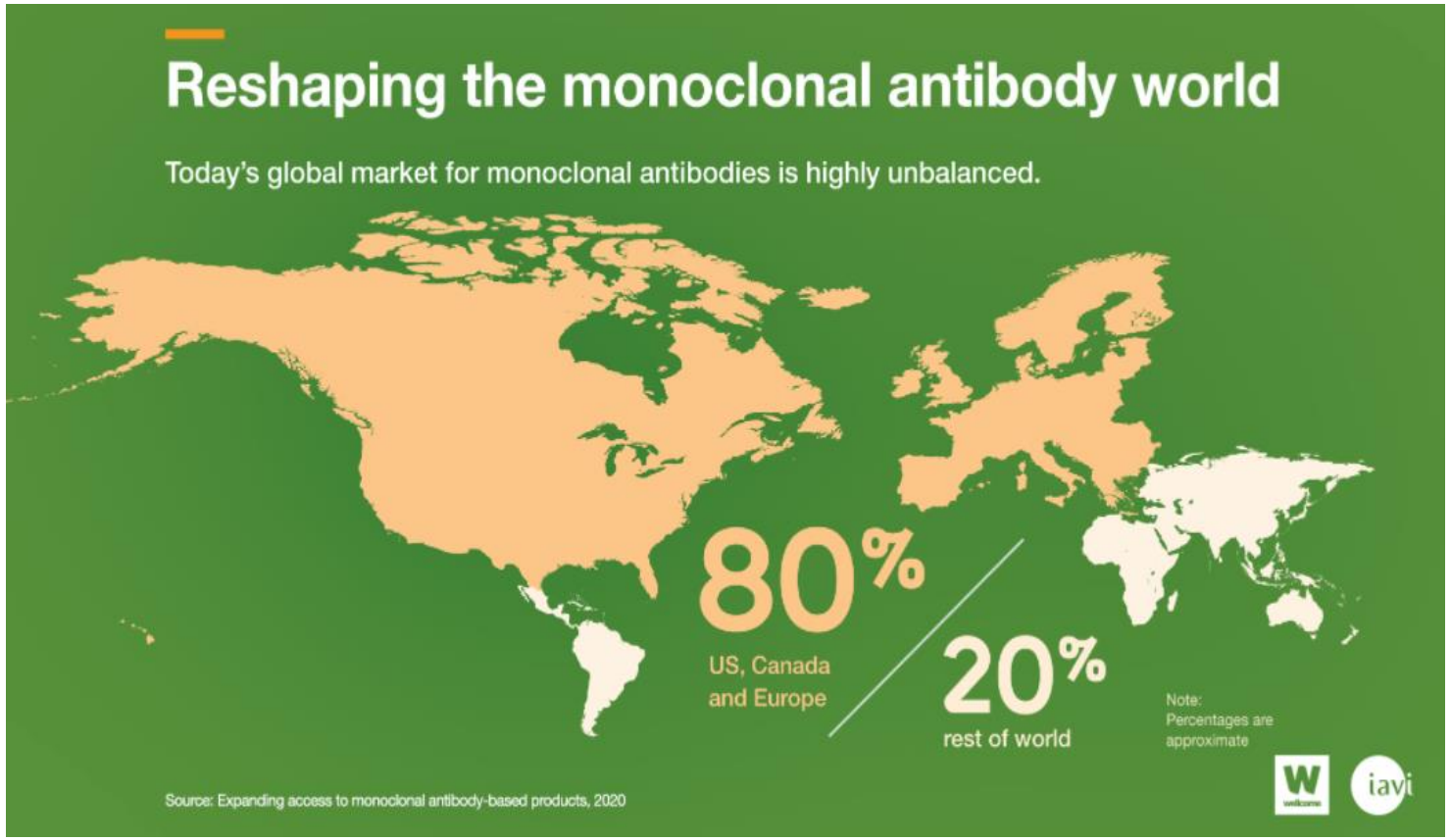
→ Spur R&D with needs of LMICs

according to target product profiles that should include affordability, suitability, adaptability for low-cost production

→ Opportunity to expand/develop manufacturing capacity

by working across different disease areas

# State of access to mAbs




- **80%** sales concentrated in HICs
- **Africa comprise on average ~1%** of total global sales of mAbs
- **< 10%** of EU/US approved mAbs available in Africa

Source: IAVI/Wellcome

# mAbs for LMICs: challenges

- Among the most expensive drugs (e.g., REGEN-COV is charged at ~$2,100/dose)
- Lack of commercial incentive to innovate for LMICs (80% of market concentrated in HICs )
- Poor access to mAbs in LMICs (e.g., key anti-cancer mAb, trastuzumab – 64% purchased in the US, 24% in Western Europe and 7% in Japan)
- Regulatory hurdles for originator & biosimilars: the need for evidence based regulatory reforms in the WHO Guidelines on Biosimilars

# Access concerns

With innovations like mAbs for malarial chemoprevention, we must work now to build access into the innovation plan

- **Role of mAbs**: underserved populations without access to the vaccines and other prevention services

- **Coordinated R&D:** With three mAbs products in development, it is a key opportunity for coordination

- **Public good:** R&D for mAbs for malaria prevention is paid with public and philanthropic funding. How will that impact the patents, licensing, and pricing policies?

# mAbs for malaria: a potential catalyst?

Apart from its direct benefits, mAbs for malaria chemoprevention is a key moment to ensure development of affordable and accessible mAbs. This would require:

- Development of optimal mAbs
- Rationalize regulation of biosimilars
- Explore + adopt manufacturing efficiencies
- Remove intellectual property barriers and facilitate tech transfer
- Increase biosimilar & local production

# Next Steps

- To achieve these goals, strong advocacy efforts are required now
  - Raise awareness regarding the public health benefits of mAbs
  - Explore innovative low-cost manufacturing options and the need for local production

# Thank you

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- Agrata Sharma, O’Neill Institute
- Shelly Malhotra, IAVI
- Carla Botting, PATH
- Jen Cohn, University of Pennsylvania

# Proof-of-concept data in adults (NIH group)

## Controlled human malaria infection (CHMI) in USA

- *Gaudinski et al., N Engl J Med. 2021 Aug 26;385(9):803-814.*
    - Among adults who had never had malaria infection or vaccination, administration of the long-acting monoclonal antibody **CIS43LS** prevented malaria after controlled infection.
- *Wu et al., N Engl J Med. 2022 Aug 4;387(5):397-407.*
    - In this small trial, **L9LS** administered intravenously or subcutaneously protected recipients against malaria after controlled infection, without evident safety concerns.

## Natural exposure in Mali

- *Keyentao etal., N Engl J Med. 2022 Nov 17;387(20):1833-1842.*
    - **CIS43LS** was protective against *P. falciparum* infection over a 6-month malaria season in Mali without evident safety concerns.

SOURCE: Carla Botting at PATH.org

PATH

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# Part 4: Civil Society Engagement in Global Fund process GC7 now 2023


## Fidèle Bemadoum

Impact Santé Afrique
Secrétariat CS4ME

# Civil Society Panel 2:

- Civil Society Engagement in Global Fund process and lessons learned from Window 1 GC7 from Nigeria, Côte d'Ivoire, DRC and Congo Brazzaville

- **Ayo Ipinmoye** – ACOMIN, Nigeria
- **Gisèle Takaléa** – COLTMR CI, Côte d'Ivoire
- **Dr Rachel Ndaya** – RACOJ, *DRC*
- **Ps Kipemosso Premier Claude** – POALP, Congo Brazzaville

# DISCUSSION

# Closing Remarks

## Maxine Whittaker

CSO Representative to the Global Fund Regional Artemisinin Initiative Regional Steering Committee


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Deliver Zero Malaria:
Reach the Unreached


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Zéro Palu : Atteindre
les plus Vulnérables


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# EVALUATION


Thank
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