UNIVERSITY OF HEALTH AND ALLIED SCIENCES
— Health for Development —

UHAS MALARIA NEWS

From the Centre for Malaria Research (CMR, IHR-UHAS) and Ghana Health Service (GHS) | *25th April 2023*

MESSAGE FROM THE DIRECTOR Centre for Malaria Research, IHR-UHAS

Dear Readers,

We are happy to share with you the fourth Issue of the ***UHAS Malaria News****, a collaborative effort between the Center for Malaria Research (CMR), University of Health & Allied Sciences, Ho, and the National Malaria Elimination Programme (NMEP), Ghana Health Service.*

This edition of the ***UHAS Malaria News*** *comes at a very critical point with the shift in the National Programme's focus from the control to elimination of Malaria. This has brought to the fore the need to do things differently and the importance of making maximum impact. This is very much aligned with the theme for this year's World Malaria Day* ***"Time to Deliver Zero Malaria: Invest, Innovate, Implement!!"***

The ***UHAS Malaria News*** *shines the spotlight on the shift in focus to elimination of malaria in Ghana. On-going malaria projects by UHAS faculty are highlighted. It brings you "Voices from the field", showing how the Western North region improved coverage of IPTp3+ among pregnant women by working closely with communities to implement context specific interventions. It brings you up to speed with global malaria news including the* certification of Azerbaijan and Tajikistan as malaria-free. *It also provides links to sources of current information on malaria and upcoming malaria conferences*

Congratulations to the Staff of the CMR, the NMEP, and the Western North Regional Health Directorate who worked together to compile articles and resources for this fourth edition. The support of the staff of IHR and the Directorate of Public Affairs, UHAS continues to be invaluable. Do enjoy reading this issue which has been timed to coincide with World Malaria Day 2023.Look out for the next issue!!

~Professor Evelyn Korkor Ansah

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IN THIS ISSUE

HIGHLIGHTS

Ongoing malaria projects in UHAS

School of Basic and Biomedical Sciences

Project Title: The Regulation of Activation-Induced Cytidine Deaminase (AID) in the context of Plasmodium falciparum infection
Principal Investigator: Dr. Reuben Ayivor-Djanie (University of Health and Allied Sciences) Collaborators (Mentors): Prof. Gordon Awandare (WACCBIP, University of Ghana), Douglas Jay Perkins (University of New Mexico, USA)
Project Duration: Two years
Funding Sources: Reuben Ayivor-Djanie is supported by a WACCBIP-World Bank ACE PhD fellowship (ACE02-WACCBIP: Awandare), NIH extramural funding, University of New Mexico (D. J. Perkins), Fogarty International Center Global Health, NIH.

Fred Newton Binka School of Public Health

Project Title: Implementation effectiveness of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine in the Volta region of Ghana
Principal Investigator: Livingstone Asem (University of Health and Allied Sciences)
Co- investigators: Abdul-Gafaru Abdulia, Patrick Opoku Assuming, Gordon Abeka-Nkrumah (Department of Public Administration and Health Services Management, Business School, University of Ghana)
Project Duration: Five years
Funding source: Self-funded

Project Title: Influence of the Introduction of the RTS,S/AS01 Malaria Vaccine on other Child Health Initiatives in Ghana
Principal Investigator: Kwaku Poku Asante (Kintampo Health Research Centre)
Co-investigators: Gregory Kofi Amenuvegbe (Fred Binka School of Public Health), Thomas Gyan (Kintampo Health Research Centre), Fred Newton Binka (Fred Binka School of Public Health)
Project Duration: Three years
Funding Source: Consortium to Evaluate Mosquirix in Ghana (CEM-GH) MVPE

School of Pharmacy

Project Title: Investigation of genetic diversity and deletion of HRP-2 and 3 genes in children confirmed with malaria
Principal Investigator: Rupert K. Delimini (University of Health and Allied Sciences)
Co-investigators: Comfort Agyare-Kwabi, Martin Adjuik, Christopher Adjei, Clement O. Tettey and Richard Harry Asmah (University of Health and Allied Sciences)
Project Duration: 1 year, 4 months
Funding Source: UHAS Research Fund

VOICES FROM THE FIELD

Using Community participation and home visits to pregnant women to improve uptake of Sulphadoxine Pyrimethamine (SP) in the Western North Region

Dr. Marion Okoh-Owusu, Dr. Kingsley Osei-Kwakye, Samuel Twum Andoh, Billy Joshua, Isaac Korankye, Therson Mintah, Joseph Abass Asigri, James Bobin Tengbiir, Paul Noah-Quarm, Idrissu Kunamsi, Cosmos Awortwe, Dr. Francis Amissah, Dr. Ebenezer Ogoe

Malaria remains a major disease burden globally. According to the World Health Organization (WHO), out of 247 million malaria cases recorded globally and 619,000 total global deaths recorded in 2022, 95 percent and 96 percent respectively, were recorded in the sub-Saharan Africa region (WHO, 2021). In Ghana, to protect pregnant women from Malaria and ensure that complications are prevented in pregnancy and childbirth, early in the second trimester, the pregnant woman, takes her first dose of Sulphadoxine Pyrimethamine (SP), a dose of three tablets which is repeated every month until delivery. (Ministry of Health, 2006; WHO, 2021).

In 2020, when operations begun in the newly created Western North region, the coverage of IPTp-3, which is the indicator for measuring the performance of SP uptake was 47.5%. The low coverage therefore required new evidence-informed strategies to augment the existing ones in order to help improve SP uptake in the region.
In this article, we highlight the importance of community participation and staff dedication in providing home visits to pregnant women, for better uptake of SP, through evidence-informed, integrated service delivery interventions, such as the Accelerated Actions to Improve Maternal and Newborn Survival (AAIMNS) program in the Western North region.

Figure 1: Engagements between health staff and community members, Western North Region, 2021

Meetings were initially held between midwives and community stakeholders in all districts. Home visits or community-based delivery of IPTp doses by Community Health Workers (CHWs) has specifically been shown to improve IPTp uptake among pregnant women (Burke *et al.*, 2021). The intensified delivery of IPTp through an existing CHW network has also been found to have the potential of increasing the proportion of pregnant women reached with the recommended number of

doses and enhancing ANC attendance through referrals. Among the new strategies implemented by managers, midwives and other stakeholders therefore, were regular targeted home visits by midwives to their clients, and increased community participation in the provision of ANC services. The region adopted the approach of using Community-based Volunteers (CBVs) as partners to midwives and CHWs to enhance the delivery of IPTp services.

Meetings and dialogue durbars were held between midwives and community stakeholders in all districts to identify and introduce CBVs as well as to discuss the scope of the partnership with community members. The CBVs were trained on the conduct of home visits, identification and documentation of pregnant women, referral of pregnant women to the nearest health facility for SP since provision of IPTp is not included in the duties performed by the community volunteers, community mobilization and sensitization and report writing.

The volunteers keep a community register or logbook of all pregnant women within their catchment area and this is validated with the Midwife's ANC register. In three of the districts, namely Bia West, Bodi and Sefwi Akontombra, where there is support from local NGOs with funding from the National Malaria Elimination Program (NMEP) for the engagement of the CBVs, review meetings were held every three months with the midwives and volunteers. Based on reports submitted by volunteers at these meetings, midwives were able to identify and put all pregnant women who had defaulted or had never been given the preventive therapy on SP.

Lessons Learnt

Since the introduction of this strategy in 2021, the region has seen improvement in the coverage of IPTp-3 in all the districts over the past two years, recording 59.5% (48.3 – 73.5) and 62.1% coverage (47.9 – 76.0) in 2021 and 2022, respectively.

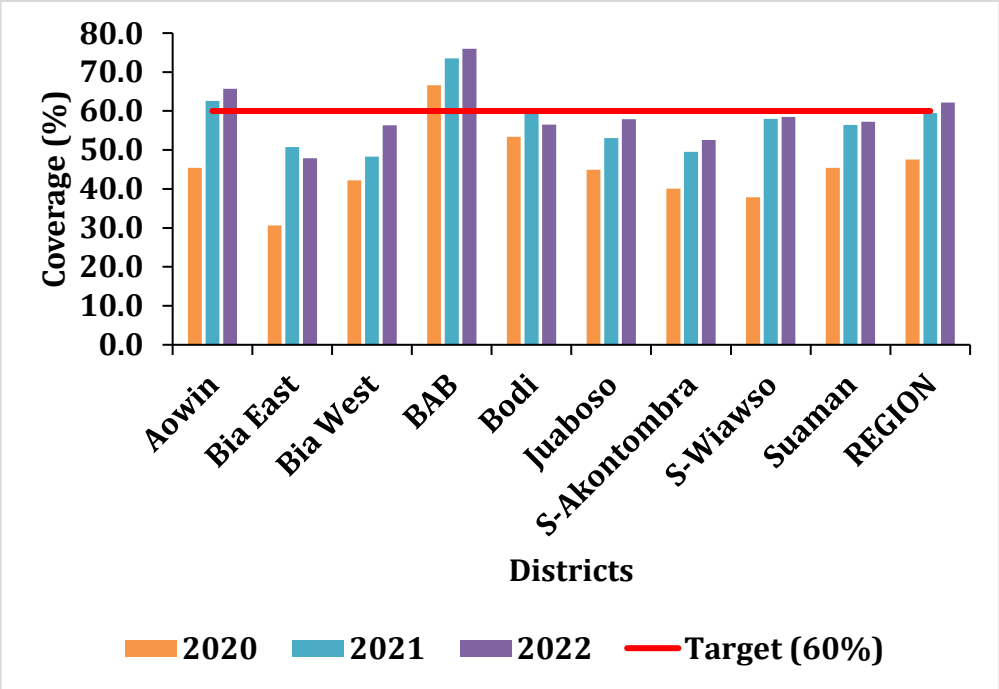

Figure 2: Coverage of IPTp-3 by districts, Western North Region, 2020-2022

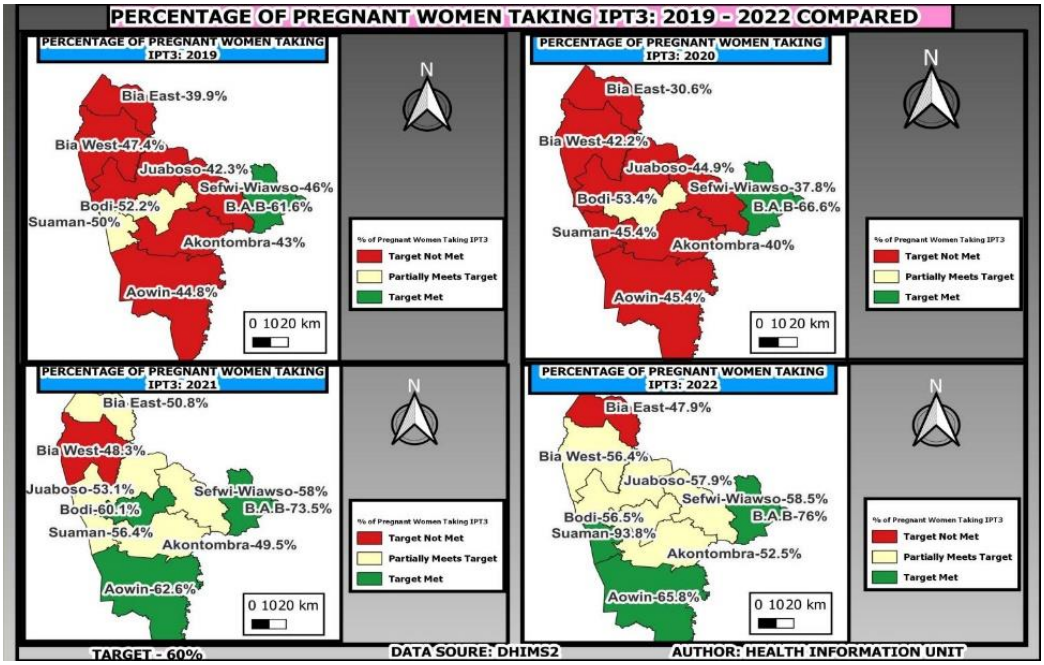

Figure 3: Spatial display of IPTp-3 coverage by Districts, Western North Region, 2019-2022

Another positive effect of this strategy is that the gap between pregnant women who received IPTp-1 and IPTp-3 (technically referred to as IPTp-1 – IPTp-3 dropout rate) has been reducing in the same period. The IPTp DOR decreased from 31.2% in 2020 to 17.1% in 2022. This reduction means that there was an improvement in Midwives' capacity to hold on to ANC clients from registration to delivery, as shown in the relative improvement in supervised delivery between 2020 and 2022, although there was a slight decline in the performance in 2022 compared with 2021 (Figure. 4).

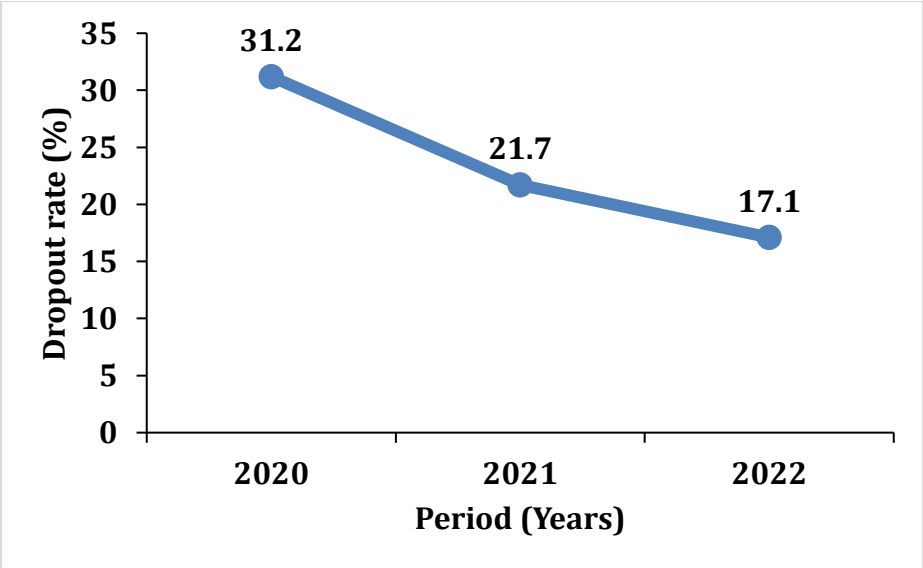

Figure 4: IPTp-1 – IPTp-3 dropout rate, Western North region, 2020-2022

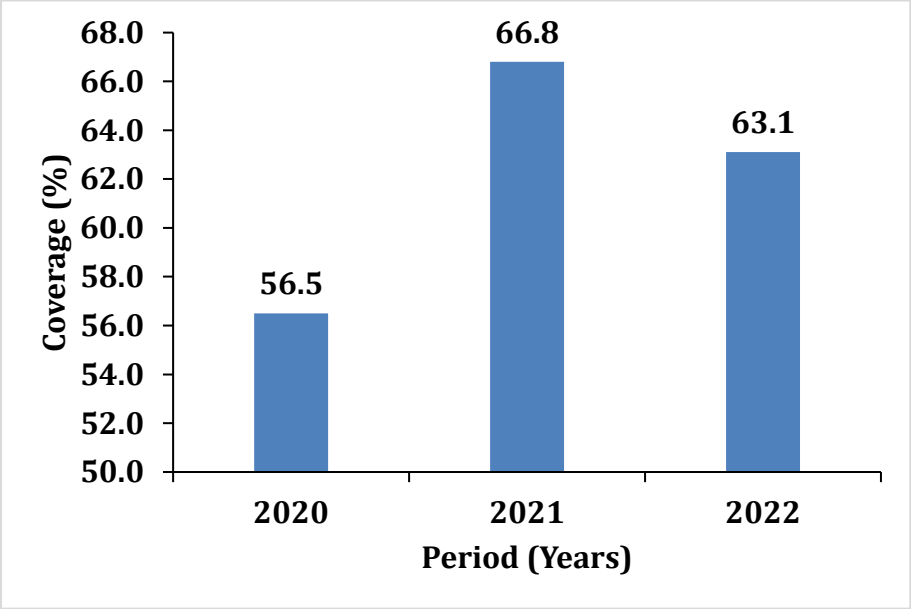

Figure 5: Proportion of deliveries attended by skilled health workers, 2020-2022, Western North Region

In conclusion, the Accelerated Actions to Improve Maternal and Newborn Survival (AAIMNS), which uses evidence-informed, client-oriented, innovative community and facility-based interventions in consultation with stakeholders, resulted in better outcomes in pregnancy and childbirth in this very low resource setting. The intervention essentially adopted proven “older ways” to resolving stagnating challenges (WNR Report, 2022)

We acknowledge the contributions of all stakeholders in this intervention. We appreciate, the Ghana Health Service Headquarters, Partners, the National Malaria Elimination Program, Regional Health Management Team, District Directors, Medical Superintendents, AAIMNS coordinating teams, Midwives, CHWs, CBVs, All staff, management, and community leaders in the Western North region.

SPOTLIGHT

Key malaria policy and practice from the National Malaria Elimination Programme (NMEP)

A Shift in Focus from Control to Elimination of Malaria in Ghana

Over the years, significant progress has been made in the fight against malaria through the scale-up of interventions, improved malaria prevention and curative strategies, surveillance and continuous efforts to improve data quality across Ghana (National Malaria Strategic Plan, 2021-20125). With the support and collaboration of partners, stakeholders and health workers, a significant reduction in mortality and a steady reduction in morbidity has occurred in several geographical areas nationwide (President’s Malaria initiative, 2022).

Despite the reduction in disease burden, the ultimate goal is to achieve malaria elimination. Malaria elimination is defined by the World Health Organization (WHO,2023) as zero indigenous transmission of malaria for three consecutive years in a country (WHO, 2023). Malaria transmission is a continuum from burden reduction/control to elimination as illustrated in Figure 6 and countries move from one phase to the other in the continuum with eradication being the ultimate worldwide goal as countries successfully eliminate and prevent the re-establishment of malaria. Since the year 2000, twenty-one (21) countries have eliminated malaria with 9 certified as malaria-free by the

WHO (WHO, 2023). Countries can accelerate towards elimination from wherever they lie on the malaria transmission continuum and Ghana is currently at the Burden Reduction or Control phase.

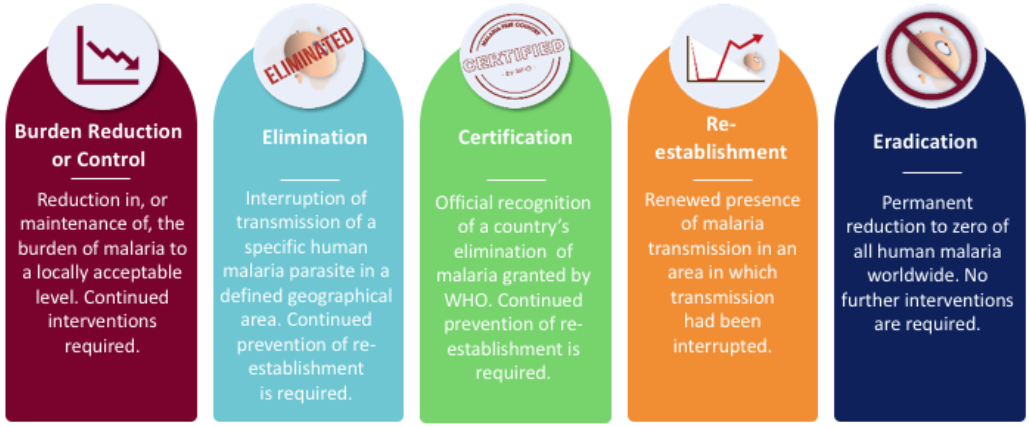

Figure 6: Description of Key Terms in malaria elimination

With the aim of propelling the country from the control phase of malaria to the elimination phase, it has become necessary to strengthen the programme and re-align the country's focus on elimination. This shift, initiated by the Ministry of Health, with a large multi-ministerial buy-in, has received support from the leadership of the Ghana Health Service, political leaders and key stakeholders. It has necessitated the development of a malaria elimination strategy for Ghana to guide all elimination efforts.

In developing the National Malaria Elimination Strategic Plan (NMESP) some steps were taken. A Malaria Elimination Think Tank meeting was held during which the Malaria Elimination Audit Tool (MEAT) was used to assess Ghana's progress towards elimination. The Malaria Elimination Audit Tool (MEAT) is a WHO document that clearly outlines various critical elements for elimination. The completion of this country self-assessment tool was by the various units of the program including partners and a myriad of agencies following which the results and their implications were extensively discussed. The aim was to provide a baseline and also enable experts together with the National Malaria Elimination Programme (NMEP) come up with key strategies and interventions needed to move the country towards malaria elimination.

Key recommendations and findings were noted for inclusion in the development of the National Malaria Elimination Strategic Plan (NMESP). New interventions included in the NMESP to facilitate acceleration of progress towards elimination include Intermittent Prevention Treatment of Malaria among school children (IPTsc). Following the completion of the `MEAT, the NMEP conducted a Mid-Term Review (MTR) of the current National Strategic Plan. This review assessed the program's performance on the objectives and strategies outlined in the 2021 – 2025 strategic plan. Evidence-based recommendations were obtained to inform the new objectives and strategies for elimination.

Following the MTR, district level data was used to conduct a stratification of disease burden for the country. Subsequently, the country has been demarcated into low, moderate and high transmission to determine the intervention mix for the respective zones as follows: Zone1 = Very low transmission, Zone 2 = Low transmission, Zone 3 = Moderate transmission, Zone 4 = High + Very High transmission (see Figure 8).

This means that different parts of the country will be implementing specific interventions or the same intervention but at varying frequencies and intensities to address the identified level of transmission. A typical example is surveillance. In the burden reduction/control phase surveillance is routine while in the elimination phase the enhanced surveillance requires contact, tracing for members of the immediate surroundings where an individual who has tested positive for malaria resides.

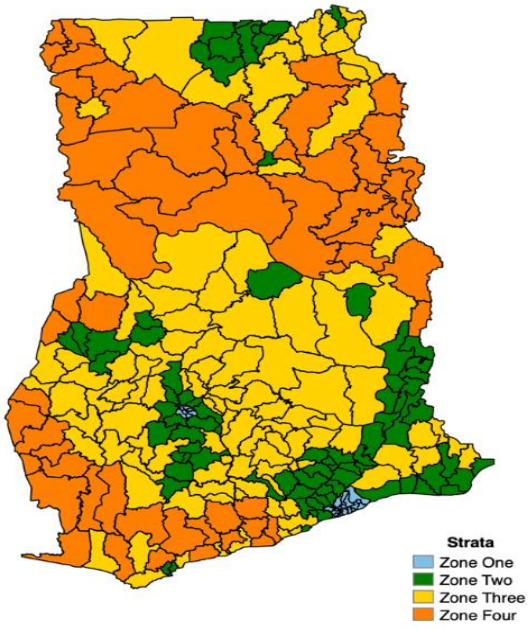

Figure 7. Map of Ghana highlighting district level transmission zones

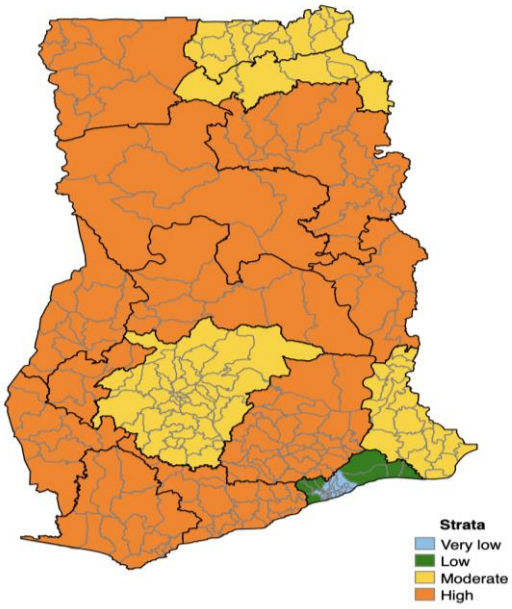

Figure 8: Map of Ghana showing Operational zones

As Ghana steers itself in the direction of elimination of malaria, it is imperative that malaria is considered not only a health concern but also a developmental issue that requires a multi-sectoral approach to reduce transmission to zero and maintain this status for 3 consecutive years in order to gain WHO certification.

Ministries such as Defense, Education and Local Government play pivotal roles in ensuring that the populace is well educated on malaria interventions and prevention, the national borders are secure and appropriate screening is done for travelers arriving in the country and ensuring that the environment is well cared for to reduce the vector.

District Health Management Teams (DHMTs) must ensure advocacy for the elimination agenda at the district level. District level Malaria strategic plans must be owned and operationalized by the DHMT to ensure a tailored approach to elimination that suits their respective transmission levels. The health provider who attends to a patient with a fever must adhere to the Test, Treat and Track (3T) policy even more closely now and ensure that parasite is cleared in the confirmed case in order to stop further transmission of the parasite. District hospital staff must ensure that appropriate testing is done to confirm the presence of malaria parasites prior to treatment. Adequate reporting of cases and laboratory confirmation must also be conducted as elimination is a highly data-driven and data-dependent. Soon in areas with very low transmission, identified malaria cases will require follow up at home to test and possibly treat all known contacts of the confirmed case.

As a Ghanaian and a committed member of society, be aware of this important goal to eliminate malaria and find ways to contribute to activities in your community and to the overall progress in your district. We believe that a malaria-free Ghana can and will be achieved soon. Zero malaria starts with you and me!

GLOBAL NEWS ON MALARIA

WHO certifies Azerbaijan and Tajikistan as malaria-free

The certification follows a sustained, century-long effort in both countries to stamp out the disease. With today's announcement, a total of 41 countries and 1 territory have been certified as malaria-free by WHO, including 21 countries in the European Region.

Azerbaijan's and Tajikistan's achievement was possible thanks to sustained investment and the dedication of the health workforce, together with targeted prevention, early detection and treatment of all malaria cases.

Visit https://www.who.int/news/item/29-03-2023-who-certifies-azerbaijan-and-tajikistan-as-malaria-free for further details

WHO publishes recommendations on two new types of insecticide treated nets

New recommendations published in the "WHO Guidelines for malaria" cover 2 new classes of dual ingredient insecticide-treated nets (ITNs); the nets have been designed to provide greater impact against pyrethroid-resistant mosquitoes. WHO has also published new guidance to support national malaria programmes in decisions on which nets to prioritize in resource-limited settings.

Visit https://www.who.int/news/item/14-03-2023-who-publishes-recommendations-on-two-new-types-of-insecticide-treated-nets for more information

Updated "vector alert" on the invasion and spread *Anopheles stephensi* in Africa and Sri Lanka

In September 2022, WHO launched a new initiative to stop the invasion and spread of *Anopheles stephensi*, a malaria vector that thrives in urban settings. This alert includes the latest data on the presence of the vector and lessons learned, particularly on surveillance.

Visit https://www.mesamalaria.org/resource-hub/vector-alert-anopheles-stephensi-invasion-and-spread-africa-and-sri-lanka for more information.

From concept to scale Celebrating 10 years of seasonal malaria chemoprevention

The success of seasonal malaria chemoprevention (SMC) is testimony to a decade of single-minded perseverance of all the SMC stakeholders. It is also testimony to the commitment of countries, regulators, donors and health workers in their pursuit of ways to reduce the impact of malaria on the young. This report charts its evolution. Over the past 10 years stakeholders across sectors have worked at the SMC coalface generating data to support a change of malaria policies aimed at reducing the burden of disease, especially among the under-served. Eager to replicate its early success in places like Nigeria and Senegal, 13 countries in west Africa have now adopted SMC and are helping it reach new geographies and age groups, to protect even more lives. Although SMC has proved its mettle as a prevention measure, the SMC Alliance is seeking to further strengthen and boost its impact, e.g., studies have shown that its efficacy rises significantly when used in combination with the RTS,S malaria vaccine.

Visit https://www.mesamalaria.org/resource-hub/concept-scale-celebrating-10-years-seasonal-malaria-chemoprevention to read more.

SOURCES OF CURRENT INFORMATION ON MALARIA

- **Official WHO Guidelines for Malaria https://app.magicapp.org/#/guideline/6236**
- **MESA Malaria https://mesamalaria.org/**
- **London School of Hygiene & Tropical Medicine (LSHTM) Malaria Center https://www.lshtm.ac.uk/research/centres/malaria-centre**
- **PATH Malaria Vaccine Initiative https://www.malariavaccine.org/**
- **European & Developing Countries Clinical Trials Partnership (EDCTP) https://www.edctp.org/projects-2/success-stories/malaria-treatment/**
- **Malaria News ScienceDaily https://www.sciencedaily.com/news/health_medicine/malaria/**

Malaria Policy Advisory Group (MPAG) of the World Health Organization https://www.who.int/groups/malaria-policy-advisory-group/about

- **Malaria Policy Advisory Committee (MPAC) of the World Health Organization https://www.who.int/malaria/mpac/en/**
- **Global Malaria Programme of the World Health Organization (WHO) https://www.who.int/teams/global-malaria-programme**
- **"Rethinking malaria strategy in the context of COVID-19" – Harvard University in partnership with the World Health Organization https://www.defeatingmalaria.harvard.edu/rethinking-Malaria/**
- **Global Fund to Fight AIDS, Tuberculosis and Malaria https://www.theglobalfund.org/en/**
- **The Global Fund https://www.theglobalfund.org/media/4768/core_malaria_infonote_en.pdf**
- **The Technical Evaluation Reference Group of the Global Fund to Fight AIDS, Tuberculosis and Malaria https://www.theglobalfund.org/en/technical-evaluation-reference-group/**
- **Technical Review Panel of the Global Fund to Fight AIDS, Tuberculosis and Malaria https://www.theglobalfund.org/en/technical-review-panel/**
- **The Malaria Atlas Project (MAP) https://malariaatlas.org/**
- **Mapping Malaria Risk in Africa (MARA) http://ghdx.healthdata.org/organizations/mapping-malaria-risk-africa-mara**
- **Centers for Diseases Control (CDC) https://www.cdc.gov/.**
- **Centers for Diseases Control (CDC) https://www.cdc.gov/malaria/about/faqs.html**
- **UN President's Malaria Initiative (PMI) https://www.pmi.gov/**
- **UNICEF https://data.unicef.org/topic/child-health/malaria/**
- **Medicines for Malaria Venture (MMV) https://www.mmv.org/**
- **Malaria World https://malariaworld.org/aggregator/**
- **Malaria Consortium https://www.malariaconsortium.org/**
- **Malaria Eradication Scientific Alliance https://www.isglobal.org/en/-/malaria-eradication-scientific-alliance-mesa**
- **National Malaria Control Programme, Ghana Health Service https://www.ccmghana.net/index.php/2018-2020/malaria/national-malaria-control-programme**

• **Centre for Malaria Research (CMR, IHR-UHAS) http://ihr.uhas.edu.gh/en/ihr-centers/centre-for-malaria-research-cmr.html**

• **London School of Hygiene & Tropical Medicine (LSHTM) Malaria Center https://www.lshtm.ac.uk/research/centres/malaria-centre**

• **WHO Policy Recommendation: Seasonal Malaria Chemoprevention (SMC) for plasmodium falciparum malaria control in highly seasonal transmission areas of the Sahel sub-region in Africa, 2012**

https://apps.who.int/iris/bitstream/handle/10665/337978/WHO-HTM-GMP-2012.02-eng.pdf?sequence=1&isAllowed=y

• **World Health Organization (WHO) Malaria Toolkit App https://www.who.int/teams/global-malaria-programme/malaria-toolkit-app**

• **World Health Organization (WHO) https://www.who.int/news-room/fact-sheets/detail/malaria**

UPCOMING CONFERENCES

with Malaria Themes – 2023

Dates 2023	Conference title and web address	Organizers	Abstract submission deadline
25th April, 2023	World Malaria Day 2023: World Malaria Day Symposium 2023 - Blood Stage Malaria: Staving Off the Firestorm: https://www.malariaworld.org/events/world-malaria-day-symposium-2023-blood-stage-malaria-staving-off-the-firestorm	Johns Hopkins Malaria Research Institute	24th March In-person
23-25 May	BioMalPar XIX: biology and pathology of the malaria parasite https://www.embl.org/about/info/course-and-conference-office/events/bmp23-01/	EMBL, Heidelberg	Abstract submission closed Registration 11th April on-site, 16th May, virtual EMBL Heidelberg and Virtual
10th May	4th Virtual Conference on Malaria Immunology and Elimination (MIE-2023)	Virtual	Extended Early-bird registration Deadline - March 30, 2023 Late Registration, after March 30, 2023
25-26th May	Finish the Fight Against Malaria Global Congress	Melborne, Australia	Early Bird discount Deadline - February 3, 2023
27-28th May	Malaria GRS 2023: Science Driving Malaria Interventions and Elimination Strategies	Castelldefels, Barcelona, Spain	GRS Speaker Abstract Deadline - February 19, 2023 Application deadline - April 29, 2023
28th May-2nd June	Malaria GRC 2023: Reinvigorating Malaria Control, Prevention and Treatment - From Bench to Bedside to Bednets	Castelldefels, Barcelona, Spain	Applications deadline April 30, 2023.
19th-21st May	ISMOCD XIV Annual Conference: Threat of Zika and Other Emerging and Re-emerging Vector Borne Diseases	Thiruvanathapuram, India.	Abstract Deadline - April 15, 2023 Registration fee - Different till March 4, April 4, and for spot registration

17th-21st September	9th Pan-African Mosquito Control Association Annual Conference & Exhibition (PAMCA 2023)	Addis Ababa, Ethiopia	Abstract Submission Deadline - March 31, 2023 Deadline Travel Award - April 15, 2023 Early-bird registration Deadline - August 31, 2023 Late/on-site registration From - September 1, 2023
17th-21st September	Molecular Parasitology Meeting XXXIV (MPM 2023)	Hybrid (virtual & Woods Hole, USA)	Travel Award Application Deadline - March 1, 2023 Abstract Deadline - TBD In-person Registration Deadline - TBD Virtual Registration Deadline - TBD
29-30th June	5th International Conference on Infectious Diseases http://www.mesamalaria.org/updates/5th-international-conference-infectious-diseases	Coalesce Research Group, Spain	Early bird registration deadline - November 30, 2022 First call registration deadline - February 28, 2023 Final call registration deadline - June 29, 2023
11th-12th May 2023 (9am-1pm BST)	RSTMH event: Online Research in Progress 2023 https://www.rstmh.org/events/online-research-in-progress-2023	Royal Society of Tropical Medicine and Hygiene	Currently ongoing
16 June 2023, 9-5pm (BST)	48th Annual Topics in Infection https://www.rstmh.org/events/48th-annual-topics-in-infection	The Royal Tropical Society of Medicine and Hygiene	NA
October 18-22, 2023	72nd Annual Meeting https://www.astmh.org/annual-meeting/future-meetings	American Society of Tropical Medicine and Hygiene (ASTMH)	22nd March
27th- 30th November	Asia Pacific Conference on Mosquito and Vector Control (AMV)	Chiang Mai, Thailand	Start registration - February 10, 2023 Start abstract submission - February 10, 2023 Abstract submission Deadline - TBA Early-bird registration Deadline - July 31, 2023

Contact

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http://ihr.uhas.edu.gh/en/ihr-centers/centre-for-malaria-research-cmr.html

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