

---

# Report of the third, fourth and fifth meetings of the Technical Advisory Group on Malaria Elimination and Certification

17 February, 26 May and  
27–28 November 2023



---

# Report of the third, fourth and fifth meetings of the Technical Advisory Group on Malaria Elimination and Certification

17 February, 26 May and  
27–28 November 2023

Report of the third, fourth and fifth meetings of the Technical Advisory Group on Malaria Elimination and Certification, 17 February, 26 May and 27-28 November 2023

ISBN 978-92-4-009414-7 (electronic version)

ISBN 978-92-4-009415-4 (print version)

© World Health Organization 2024

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (<http://www.wipo.int/amc/en/mediation/rules/>).

**Suggested citation.** Report of the third, fourth and fifth meetings of the Technical Advisory Group on Malaria Elimination and Certification, 17 February, 26 May and 27-28 November 2023. Geneva: World Health Organization; 2024. Licence: CC BY-NC-SA 3.0 IGO.

**Cataloguing-in-Publication (CIP) data.** CIP data are available at <https://iris.who.int/>.

**Sales, rights and licensing.** To purchase WHO publications, see <https://www.who.int/publications/book-orders>. To submit requests for commercial use and queries on rights and licensing, see <https://www.who.int/copyright>.

**Third-party materials.** If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**General disclaimers.** The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

This meeting report contains statements and datasets prepared by the members of the Technical Advisory Group on Malaria Elimination and Certification. These statements and datasets are being provided without warranty of any kind, either expressed or implied and do not necessarily represent the views, policies and official statistics of WHO.

This publication contains the report of the third, fourth and fifth meetings of the Technical Advisory Group on Malaria Elimination and Certification and does not necessarily represent the decisions or the policies of WHO.

Design and layout by Lushomo.

# Contents

<b>Acknowledgements</b>	<b>iv</b>
<b>Abbreviations</b>	<b>v</b>
<b>Executive summary</b>	<b>vi</b>
<b>1. Background</b>	<b>1</b>
<b>2. Third and fourth meetings of TAG-MEC</b>	<b>2</b>
2.1 Declarations of interest	2
2.2 Objectives	2
2.3 Process	2
2.4 Certification of malaria elimination in Belize	2
2.5 Progress on preparing Cabo Verde for certification of malaria elimination	3
<b>3. Fifth meeting of TAG-MEC</b>	<b>5</b>
3.1 Declarations of interest	5
3.2 Objectives	5
3.3 Process	5
3.4 Certification of malaria elimination in Cabo Verde	6
3.5 Reflections on WHO certification of malaria elimination	7
3.6 Review of the findings on <i>P. knowlesi</i> from the mission to Malaysia	9
3.7 Update of the Framework for malaria elimination	11
3.8 Draft of the global guidance for prevention of re-establishment of malaria	11
3.9 Overview of activities implemented by the Elimination Unit of the Global Malaria Programme in the biennium 2022–2023	13
3.10 Review of data from recently certified countries and workplan for 2024	13
3.11 Meeting closure	14
<b>References</b>	<b>15</b>
<b>Annex 1. Agendas</b>	<b>16</b>
<b>Annex 2. List of participants</b>	<b>18</b>

## Acknowledgements

The World Health Organization (WHO) would like to express its appreciation to all the members of the Technical Advisory Group on Malaria Elimination and Certification (TAG-MEC) who dedicated their time and expertise to review the background documents before the meetings and contribute to the discussions during the meetings.

The TAG-MEC meeting report was prepared by Dr Li Xiaohong (Technical Officer) and reviewed by Dr Elkhan Gasimov (Unit Head), Elimination Unit of the WHO Global Malaria Programme. The following staff from WHO regional offices contributed to the report: Dr Ebenezer Baba (WHO Regional Office for Africa); Dr Blanca Escribano Ferrer (WHO Regional Office for the Americas); Dr Ghasem Zamani (WHO Regional Office for the Eastern Mediterranean); Dr Risintha Premaratne (WHO Regional Office for South-East Asia); and Dr James Kelley (WHO Regional Office for the Western Pacific). The contribution of Dr Giulia Manzoni (Consultant, Elimination Unit, Global Malaria Programme) to an early draft of the document is acknowledged.

The members of the TAG-MEC who reviewed and contributed to the report included Professor Pedro Alonso (University of Barcelona, Spain); Professor Fred Binka (University of Health and Allied Sciences, Ghana); Dr Keith H. Carter (Independent consultant, United States of America); Professor Brian Greenwood (London School of Hygiene and Tropical Medicine, United Kingdom of Great Britain and Northern Ireland); Dr Anatoly Kondrashin (Sechenov First Moscow State Medical University, Russian Federation); Professor Rossitza Ivanova Mintcheva (Independent consultant on malaria control and elimination, Bulgaria); Professor Reza Majdzadeh (University of Essex, United Kingdom of Great Britain and Northern Ireland); Dr Kamini Mendis (Independent consultant on malaria and tropical medicine, Sri Lanka); Professor Martha L. Quiñones (Universidad Nacional de Colombia, Colombia); Dr Frank Richards (Carter Center, United States of America); Dr Allan Schapira (Independent consultant, Philippines); Dr Laurence Slutsker (Independent consultant, United States of America); and Professor Tang Linhua (Chinese Center for Disease Control and Prevention, China).

WHO would like to thank the Ministries of Health in Belize and Cabo Verde for preparing the national elimination reports and supporting documents for the consideration of certification. Special thanks go to Professor Brian Greenwood, Dr Laurence Slutsker and Professor Martha L. Quiñones for giving their time to conduct the certification mission to Belize, and to Dr Laurence Slutsker, Professor Martha L. Quiñones and Dr Eusebio Macete for conducting the certification mission to Cabo Verde, and for preparing the evaluation reports as background documents for the TAG-MEC meetings. The contributions of Professor Pedro Alonso to the second WHO pre-certification mission to Cabo Verde and of Dr Allan Schapira to the mission to Malaysia are acknowledged.

## Abbreviations

INSP	National Institute of Public Health
IRS	indoor residual spraying
PAHO	Pan American Health Organization
PNLP	Programme National de Lutte Contre le Paludisme
TAG-MEC	Technical Advisory Group on Malaria Elimination and Certification
WHO	World Health Organization

## Executive summary

In 2023, the World Health Organization (WHO) convened the Technical Advisory Group on Malaria Elimination and Certification (TAG-MEC) for its third, fourth and fifth meetings to discuss potential certifications of malaria elimination in two countries, Belize and Cabo Verde; to reflect on the recent practices related to WHO certification of malaria elimination; to discuss the advance draft of the global guidance on prevention of re-establishment and the proposed changes to the *Framework for malaria elimination (1)*; to review the situation of malaria elimination at the global level; and to discuss the issue of *Plasmodium knowlesi*.

## Conclusions and recommendations

- The Group concluded that both Belize and Cabo Verde have met the current WHO criteria and recommended that both countries be certified as malaria-free.
- Over the past few years, WHO certification of malaria elimination has maintained its technical and procedural consistency. The process has served the purpose for which it was designed, namely to enter a country into the official register listing countries and areas where malaria elimination has been achieved and the risk of contracting malaria is minimal. The certification process should continue to be consistent and rigorous.
- The preparation for malaria-free certification should start early and make use of other evaluation schemes, such as surveillance assessment and subnational verification, to synergize the use of resources.
- Official recognition of the interruption of the four human malaria species could be considered for countries where zoonotic malaria remains transmitted.
- The TAG-MEC congratulated the Secretariat on the progress made in developing the global guidance on prevention of re-establishment, which will address the policy gap in this area. The Group recommended that the current draft be revised to be operational. The information that is not suitable to be included in the guidance, however, is valuable and should be published in peer-reviewed journal articles that can be accessed from the WHO website.
- All countries seeking WHO certification for malaria elimination are required to follow the steps in the standardized process outlined in WHO guidance. Additional reviews may be required for countries where the epidemiological situation is complex to ensure the rigour of certification. Conversely, countries that have experienced no sustained transmission for many years may be able to streamline the process. The Group reached a consensus that the certification process in Egypt could be simplified due to the long absence of sustained transmission.
- The TAG-MEC raised a concern about the challenges facing the WHO malaria elimination team that might jeopardize the progress made over the past few years. The Group stands ready to support WHO and urges the concerned parties, donors and partners to continue to invest in global efforts towards malaria elimination.



# 1. Background

Globally, an increasing number of countries are making good progress towards malaria elimination. From 2000 to 2022, there was a 70% increase in the number of malaria-endemic countries reporting fewer than 10 000 malaria cases, a drop from 27 in 2000 to 46 in 2022. Over the same period, the number of countries reporting fewer than 100 indigenous cases increased from six to 27, and the number reporting fewer than 10 cases increased from four to 25 (2). The World Health Organization (WHO) launched the Elimination-2020 (E-2020) initiative in 2017, succeeded by the E-2025 initiative in 2021, to help countries achieve their national elimination goals and the elimination milestones set in the *Global technical strategy for malaria 2016–2030* (3). A 72% reduction in indigenous malaria cases was observed across the countries in the E-2025 initiative, from 2010 to 2022. Saudi Arabia achieved two consecutive years with zero indigenous cases in 2021 and 2022, and Bhutan and Suriname reported zero indigenous cases for the first time. However, several E-2025 countries experienced outbreaks in 2022, and the total number of indigenous cases reported by the E-2025 countries and area increased by 62% from 2021. The Islamic Republic of Iran experienced a resurgence in border areas after having reported zero indigenous cases for four consecutive years. In addition, *Plasmodium knowlesi* cases were reported in several South-East Asian countries and its presence in Malaysia has emerged as a notable concern.

WHO published the *Framework for malaria elimination* (1) in 2017 to provide guidance to countries on achieving malaria elimination. In 2021, WHO published the *WHO guidelines for malaria* (4) to consolidate all WHO recommendations on malaria control and prevention. Recognizing the policy gap and the specific challenges relating to prevention of re-establishment, a technical consultation on prevention of re-establishment was launched during the Fourth Global Forum of Malaria-Eliminating Countries in Cape Town in January 2023 to initiate the development of global guidance on prevention of re-establishment.

Since 2022, the Technical Advisory Group on Malaria Elimination and Certification (TAG-MEC) has been the technical body advising WHO on malaria-free certification. The TAG-MEC advises WHO to resolve bottlenecks for malaria elimination and acts as an advisory body on policy recommendation in the field of malaria elimination and prevention of re-establishment of transmission. In 2023, three countries completed the process of malaria elimination certification: Azerbaijan, Tajikistan and Belize. In addition, Cabo Verde had reported zero indigenous cases for four consecutive years and was in the final stage of the certification process.

WHO convened the third, fourth and fifth meetings of the TAG-MEC in 2023 to discuss the certification of Belize and Cabo Verde and other subjects related to malaria elimination and prevention of re-establishment.

## 2. Third and fourth meetings of TAG-MEC

The 3rd and 4th meetings of TAG-MEC took place virtually on 17 February and 26 May 2023, respectively.

### 2.1 Declarations of interest

All TAG-MEC members participating in the meetings submitted Declaration of Interest forms that were assessed by the WHO Secretariat. Based on the assessment, Dr Keith Carter was recused from the decision taken on certification of Belize.

### 2.2 Objectives

The TAG-MEC members met virtually on 17 February and 26 May 2023 to discuss the national elimination reports of Belize; to reach a consensus on whether Belize should be certified as malaria-free or whether certification should be postponed; and to review and discuss the progress made in preparing Cabo Verde for certification.

### 2.3 Process

Prior to the third TAG-MEC meeting, the national elimination report submitted by the Ministry of Health and Wellness of Belize was shared with all members of the Group. The report of the independent evaluation mission to Belize, prepared by Professor Brian Greenwood and Dr Laurence Slutsker, and the report of the first WHO pre-certification mission to Cabo Verde, prepared by Dr Li Xiaohong and other WHO staff, were shared with all the members.

### 2.4 Certification of malaria elimination in Belize

#### 2.4.1 History of malaria in Belize and review of the national elimination report

The history of malaria control in Belize prior to the eradication era is poorly documented. In 1930, records of health facilities in what was then British Honduras indicate that more than 10% of deaths were due to malaria. Both *P. vivax* and *P. falciparum* were transmitted. The indoor residual spraying (IRS) programme began in 1950 and reduced the malaria burden by 80% by 1957, with only 17 cases recorded in 1963. *P. falciparum* elimination was achieved in 1972. However, several epidemics occurred in the 1980s and 1990s due to a shrinking budget, an influx of refugees from neighbouring endemic countries experiencing political upheaval, and reduced spraying. Cases rose sharply in the 1990s, reaching a peak of 10 000 cases in 1994, the highest in Belize's malaria history. The National Health Plan 2007–2011 prioritized the national malaria control programme, aiming to achieve high coverage of IRS in high-risk areas and to strengthen surveillance and cross-border cooperation with neighbouring countries. By 2011, the annual number of malaria cases had fallen below 100. From 2011 to 2018, malaria cases continued to decline from 79 to seven. The last indigenous cases of *P. falciparum* and *P. vivax* malaria were reported in 2018.

During the third TAG-MEC meeting, Professor Brian Greenwood facilitated the review and discussion of the national elimination report. Overall, TAG-MEC members found the report to be comprehensive and well written. Surveillance among high-risk groups, such as migrant farmers, and in the areas bordering Guatemala and Mexico, and the sustainability of funding after elimination were key issues identified for further investigation and clarification during the certification mission.

#### **2.4.2 Independent evaluation mission**

The independent evaluation mission took place from 27 February to 9 March 2023. The mission was conducted by Professor Brian Greenwood (team lead) and Dr Laurence Slutsker. The team was assisted by Dr Elkhana Gasimov from the Elimination Unit of the WHO Global Malaria Programme and Dr Blanca Escribano Ferrer, Regional Advisor on malaria elimination at the Pan American Health Organization (PAHO)/WHO.

During the mission, the team visited the Minister and Chief Executive Officer of the Ministry of Health and Wellness and other senior health officials at the central level, as well as the reference hospital and reference laboratory. Five regions (Corozal, Orange Walk, Cayo, Stann Creek and Toledo) and two major border posts were visited. The team also visited community hospitals, polyclinics, private clinics and pharmacies, Vector Control Unit offices, and met community health workers and malaria volunteer collaborators. Several banana and sugar cane farms were visited to review the health services provided related to malaria including the potential importance to malaria elimination of migrant agricultural workers from neighbouring countries with persisting malaria transmission. During the visits, the team reviewed data, records and documentation, and interviewed staff. At the end of the mission, the members of the independent evaluation team discussed their findings with the Ministry of Health and Wellness. The report of the independent evaluation mission to Belize was prepared by the mission team and shared with all members of the TAG-MEC.

#### **2.4.3 Summary of discussion at the TAG-MEC meeting**

During the fourth TAG-MEC meeting, Professor Brian Greenwood presented the findings from the mission. The team concluded that Belize had met the two criteria required for certification. The mission team highlighted the following as the main elements contributing to malaria elimination: high commitment of the Government and the people involved in malaria elimination and prevention of re-establishment of transmission; free diagnosis and treatment; a robust surveillance system, supported by an extensive network of community health workers and volunteer collaborators; effective community engagement; collaboration with the agriculture industry, for example, banana and sugar cane plantations; collaboration with neighbouring countries; and available capacity to respond to potential outbreaks. The following issues were discussed: the timeliness of case detection by community health workers and malaria volunteer collaborators; entomological surveillance and human resources for vector control; sustainable provision of antimalarial drugs for treatment and prophylaxis; cross-border collaboration with Guatemala and Mexico; and the budget for prevention of re-establishment. The committee made recommendations accordingly on the need to improve these areas.

#### **2.4.4 Recommendation**

The TAG-MEC recommended that Belize be certified as malaria-free.

### **2.5 Progress on preparing Cabo Verde for certification of malaria elimination**

Dr Li Xiaohong presented on the progress made in preparing Cabo Verde for certification of malaria elimination. She provided background information on Cabo Verde's malaria history, including the 2017 outbreak. Since that outbreak, WHO has conducted several missions to support outbreak containment and address weaknesses. Upon receiving the official certification request from Cabo Verde, WHO conducted the first pre-certification mission, which identified significant gaps in the system, some of which had already been noted during previous WHO missions. To support the Ministry of Health in preparing for certification and to strengthen the

system to prevent re-establishment, WHO initiated intensive technical support and monitored the implementation closely through collaboration across headquarters, regional office and country office. WHO was planning a second pre-certification mission to ensure that the recommendations of the previous mission had been implemented. It was decided that Professor Pedro Alonso would join this mission and be recused from subsequent decision-making on the potential certification of Cabo Verde.

### 3. Fifth meeting of TAG-MEC

WHO convened the 5th meeting of TAG-MEC on 27-28 November 2023 in Cairo, Egypt.

#### 3.1 Declarations of interest

All TAG-MEC members participating in the meeting submitted Declaration of Interests forms that were assessed by the WHO Secretariat. Based on the assessment, Professor Pedro Alonso was recused from the decision taken on certification of Cabo Verde.

#### 3.2 Objectives

The objectives of the fifth TAG-MEC meeting were:

- to reach a consensus on whether Cabo Verde should be certified as malaria-free;
- to review and reflect on WHO certification of malaria elimination and identify opportunities for improvement;
- to discuss the draft of the global framework for prevention of re-establishment of malaria;
- to review the situation of malaria elimination at the global level and to advise WHO on the update of the *Framework for malaria elimination*;
- to review and discuss findings on *P. knowlesi* from the mission to Malaysia; and
- to review data from malaria-free countries and the work plan of the TAG-MEC for 2024.

#### 3.3 Process

The national elimination report submitted by the Ministry of Health of Cabo Verde was shared with all members of the Group before the independent mission took place. The following reports and documents were shared with meeting participants before the Cairo meeting: the report of the independent evaluation mission to Cabo Verde, prepared by Dr Laurence Slutsker, Professor Martha L. Quiñones and Dr Eusebio Macete; the draft of the global framework for prevention of re-establishment of malaria, prepared by the Secretariat; and the report of the mission to Malaysia regarding *P. knowlesi*, prepared by Dr Allan Schapira.

During the session which discussed the draft of the global framework for prevention of re-establishment, participants were divided into four groups to discuss key questions that were shared in advance by the Secretariat. The four groups then reported back to the plenary session to reach a consensus.

The fifth meeting of the TAG-MEC commenced with welcoming remarks by Dr Yvan Hutin, Director of Communicable Diseases in the WHO Eastern Mediterranean Region, and Dr Li Xiaohong, Technical Officer in the Elimination Unit of the WHO Global Malaria Programme, representing the Global Malaria Programme. In her remarks, Dr Li stated that the fifth TAG-MEC meeting was convened in Cairo to highlight the distinctive role played by the WHO Eastern Mediterranean Region in the history of malaria elimination. Thanks to the request for certification of malaria elimination by the United Arab Emirates in 2004 and a subsequent WHO informal technical consultation in Tunisia in 2006 to set the WHO agenda for malaria elimination, WHO reactivated

the certification process after a 20-year hiatus. Globally, progress in the fight against malaria has encountered setbacks in recent years. However, malaria elimination has gathered momentum, with varied progress across countries and regions. Malaria elimination and certification not only acknowledges the substantial public health achievements of countries but also catalyses momentum within the global community to combat malaria. Dr Li thanked the TAG-MEC members for their dedication and contributions to the crucial work of malaria elimination and certification.

## **3.4 Certification of malaria elimination in Cabo Verde**

### **3.4.1 History of malaria in Cabo Verde and review of the national elimination report**

Cabo Verde is an archipelago with nine inhabited islands. Historically, malaria was present on all the islands. The first elimination campaign began in 1953, with the main strategy being IRS with the insecticide DDT (dichlorodiphenyltrichloroethane). Elimination was achieved nationwide for the first time in 1967. However, a few years later, in 1973, local transmission resumed in Santiago, the biggest and most inhabited island. Following the resumption of IRS operations, transmission was interrupted again for three years between 1983 and 1986. In 1989, the Programme National de Lutte Contre le Paludisme (PNLP) replaced the Malaria Control Brigade. The number of cases subsequently decreased, although several epidemics occurred in Santiago in 1995, 2000 and 2001. The first National Strategic Plan for the Elimination of Malaria was launched in 2009 to reduce the incidence. Only one local case was detected in 2012. A new epidemic occurred in Praia (Santiago Island) in 2017, resulting in 446 malaria cases. After the outbreak was effectively controlled, Cabo Verde reported its last indigenous case in January 2018.

The national elimination report submitted by the Ministry of Health of Cabo Verde was reviewed by the TAG-MEC prior to the independent mission. Written feedback was provided to the mission team for their consideration.

### **3.4.2 Independent evaluation mission**

The independent evaluation mission to Cabo Verde took place from 23 to 31 October 2023. The team included two members of the TAG-MEC, Dr Laurence Slutsker (team lead) and Professor Martha L. Quiñones, and one ad hoc member, Dr Eusebio Macete. The mission was supported by Dr Li Xiaohong from the Elimination Unit of the WHO Global Malaria Programme, and Dr Ebenezer Baba, Technical Officer on malaria elimination from the WHO Regional Office for Africa and Dr Carolina Lette from the WHO Country Office.

The team began the mission with an official visit with the Minister of Health and her staff. Three islands, Santiago, St. Vincent and Boa Vista, and nine municipalities were visited. In each municipality, the team visited the health delegation to interview key staff and review documentation on epidemiological surveillance and response, entomological surveillance and vector control, and laboratory diagnostics. Visits were made to regional hospital, health centres, health posts, basic health units, private clinics and laboratories, private pharmacies, and airports and seaports. The team also visited the outbreak sites in Praia and Boa Vista and met with representatives of migrant associations. The team met with the Ministers of Health, Tourism and Agriculture, and other senior health service staff. The Ministry of Health was debriefed at the end of the mission. The report of the independent evaluation mission to Cabo Verde was prepared by the mission team and shared with all members of the TAG-MEC.

### **3.4.3 Summary of discussion at the TAG-MEC meeting**

During the fifth TAG-MEC meeting, Dr Laurence Slutsker presented the findings from the mission on behalf of the team. The mission team concluded that Cabo Verde had met the two criteria for certification. The following elements were considered to be the factors contributing to malaria elimination: strong political commitment from the Government; commitment and knowledge of health professionals and staff at all levels; vigilance towards malaria among health staff; integration of malaria into the vector-borne diseases programme; training provided on a regular basis; an effective and timely surveillance and reporting system in place; and entomological surveillance and monitoring of insecticide resistance supported by the National Public Health Institute (INSP). The Group discussed some areas in which improvements could be made, and recommendations were proposed accordingly. These included enhancing collaboration between the PNLP and INSP, human resources for entomology at the national level, quality-assured diagnostic activities and their sustainability, vector surveillance and monitoring of insecticide resistance, and resources for prevention of re-establishment.

### **3.4.4 Recommendation**

The TAG-MEC recommended that Cabo Verde be certified as malaria-free.

## **3.5 Reflections on WHO certification of malaria elimination**

In this session, Dr Li Xiaohong first presented an overall reflection on WHO certification of malaria elimination. She started by providing a brief background of WHO certification of malaria elimination and the purpose of establishing an official register. Since the 1960s, 43 countries and one territory have been certified as malaria-free and added to the official register. Over the last 10 years, certification has been reactivated, with more countries being certified. Dr Li reviewed the establishment and evolution of the criteria and procedures for WHO malaria-free certification. She also reviewed and compared several independent certification missions selected from the 1960s, 1970s, 1980s and recent years. The current certification process involves the activities of three main parties: the requesting country, which has the main responsibilities of preparing the evidence for certification, including the documentation required for certification, and building and strengthening a system to prevent re-establishment; the WHO Secretariat, which supports the country in achieving elimination and preparing evidence for certification through WHO pre-certification missions and other activities; and the WHO TAG-MEC, which conducts the final independent evaluation mission and reviews the evidence. Dr Li also presented the current guidance and tools developed by WHO for certification, as well as the new tools developed by the Global Malaria Programme and regional offices to help countries prepare for certification.

Dr Giulia Manzoni presented on surveillance in disease eradication and elimination programmes. Globally, 33 diseases have been assigned global targets for eradication or elimination, with goals set as eradication, elimination of transmission, and elimination as a public health problem. She selected three diseases (dracunculiasis, poliomyelitis and yaws) for her review, as these diseases are targeted for eradication. She presented the context of each disease, the process, criteria and requirements for certification, and the activities of surveillance assessment, including the indicators used for each disease. Finally, she presented the requirements for surveillance for malaria-free certification and the indicators used. The surveillance assessment indicators used across different diseases were compared.

Dr Blanca Escribano Ferrer presented on the experiences of surveillance assessment in malaria-eliminating countries in the Region of the Americas. PAHO has developed a methodology to validate data in the context of the implementation of the Elimination

of Malaria in Mesoamerica and the Island of Hispaniola (EMMIE) project and the Regional Initiative to Eliminate Malaria (IREM) results-based financing project. PAHO has also supported countries in the Region that are part of the E-2025 initiative and working towards certification with such an assessment. The evaluations were found to be useful for validating the number of indigenous cases reported and improving surveillance and system capacity to detect cases and respond at the local level. It was felt that this type of evaluation could be used during subnational malaria elimination verification processes (along with other indicators) and pre-certification visits.

### 3.5.1 Conclusions of Session 2

- WHO certification of malaria elimination has maintained its technical and procedural consistency since its establishment. The process has served the purpose for which it was designed, namely to enter into the official register those countries and areas where the risk of contracting malaria infection is minimal.
- The credibility and accountability of certification depends on all parties involved in the certification process. However, the bulk of the work in a certification process is preparation, as the country should first achieve elimination, continue to strengthen the surveillance system and the programme to prevent re-establishment, and prepare evidence and dossiers for consideration of certification. Technical assistance and resources are needed to help countries prepare for certification.
- The surveillance requirements and the indicators used for certification across diseases are different and difficult to harmonize, as each disease has its own specificities. Nevertheless, completeness and timeliness of reporting, sensitivity, epidemiological investigation, follow-up and laboratory performance are all required for malaria-free certification. Assessment of the alertness of the general health service can be improved to ensure that surveillance is adequate.
- Continuous surveillance assessment and data validation will help to identify areas that are under-reporting, identify gaps in access to diagnosis and treatment, and prepare countries for certification.

### 3.5.2 Recommendations from the TAG-MEC

- Certification of malaria elimination should continue to be rigorous and consistent as it is an official recognition of a significant public health achievement.
- Different assessments, including regular surveillance assessments and subnational verification, should be leveraged to prepare countries for the final certification.
- Many indicators used by other disease elimination certification programmes are used in malaria certification, with targets set in the *Framework for elimination*. However, the importance of some indicators should be highlighted. Indicators for assessing the adequacy of surveillance may be re-visited as a follow-up to the discussion at the second Malaria Elimination Certification Panel meeting (5).



## 3.6 Review of the findings on *P. knowlesi* from the mission to Malaysia

### Background of the mission to Malaysia

Before the establishment of the TAG-MEC, WHO convened the 9th meeting of the former Malaria Elimination Certification Panel on 21 December 2021, 10th meeting on 3 March 2022, to discuss the issue of *P. knowlesi* in relation to WHO certification of malaria elimination. In these two meetings, the MECP reviewed the background and the purpose of the official register and WHO malaria elimination certification, the available evidence on the disease profile, severity and fatality of *P. knowlesi*; a systematic literature review on the available evidence of whether human–mosquito–human transmission can occur; and an analysis of *P. knowlesi* case surveillance data from Malaysia. This information served as the background for a substantive discussion on the implications for WHO certification of malaria elimination.

The MECP noted that:

1. The Official Register, established by the WHO Director General through the World Health Assembly Resolution WHA13.55 in 1960 is intended to register countries and territories where elimination has been achieved and the risk of contracting malaria is zero or negligible. The process of certification serves to confirm a country's malaria-free status before it is entered into the Official Register.
2. Until now, certification is granted to countries when they have interrupted transmission of *P. falciparum*, *P. vivax*, *P. malariae* and *P. ovale*, often termed "human malaria parasites". However, the term "human malaria parasite" is poorly defined and has at times been taken to mean "parasites that can infect humans" or more rarely "parasites that can be transmitted from humans to vectors and to humans again".
3. *P. knowlesi* can infect humans and cause severe disease and death in a way that is very similar to or indistinguishable from other "human malaria parasites".
4. Human–mosquito–human transmission of *P. knowlesi* has been conclusively demonstrated in experimental human studies. *P. knowlesi* gametocytes have been identified by microscopy in natural infections in humans. However, there is limited evidence documenting *P. knowlesi* human–mosquito–human transmission in endemic settings. The consensus emerging from the preliminary findings of the analysis of the Malaysia data is that, while short chains of human–mosquito–human transmission have likely occurred, most transmission is likely to be zoonotic.
5. Malaysia has reported zero indigenous cases of the four main "human malaria parasites" for the past few years. However, reported data show that *P. knowlesi* has caused more than 20 000 cases between 2015 and 2022 (2). In 2021 alone, 3575 cases were reported (2) and nine deaths in 2022 were attributed to local *P. knowlesi* transmission in Malaysia (2). The MECP was requested to provide guidance on whether countries with human cases of *P. knowlesi* can be certified as malaria-free by WHO and entered into the Official Register.

The MECP concluded

- For countries where transmission of the four “human” Plasmodium species has been interrupted but *P. knowlesi* cases continue to occur, certification should depend on careful assessment of the risks. When countries are reporting hundreds or thousands of *P. knowlesi* cases, certification of malaria-free status should be withheld.
- The MECP calls on WHO and partners to support countries dealing with relatively high levels of *P. knowlesi* transmission to strengthen control based on appropriate multidisciplinary approaches.
- The MECP proposes the establishment of a joint working group involving WHO and the ministries of health of affected countries to better define the problem and develop more effective strategies to control the transmission of *P. knowlesi*.

As a follow-up to the discussions on *P. knowlesi* issue, Dr Allan Schapira was asked to join the mission to Malaysia. He presented the findings from the mission to Malaysia on 24–28 July 2023 at the meeting. The mission team was made up of Professor Datin Dr Indra Vythilingam from University of Malaya, Malaysia, Dr Allan Schapira, Dr Elkhan Gasimov and Dr James Kelley. The mission team observed that Malaysia has established an excellent *P. knowlesi* control programme. In spite of these efforts, *P. knowlesi* malaria has become a major public health problem in Malaysia, with a high number of cases reported in humans over the past few years. The mission team considered transmission of *P. knowlesi* to be largely zoonotic in Sabah. The causes of the sharp increase in the incidence of *P. knowlesi* malaria in Malaysia and to a lesser extent in neighbouring countries are not fully understood, but they could include environmental change and change in behaviour of the host monkeys bringing them into increased contact with humans as well as changed immune response in humans resulting from the elimination of the four human malaria parasites. There is concern that the transmission dynamics might change given the high number of cases in humans year after year. Reducing the transmission to humans should therefore be a priority in Malaysia, and this will require research, innovative strategies, funding, commitment and intersectoral collaboration. The mission team recommended close monitoring and documentation of possible changes in the transmission pathways in Malaysia, using case investigation as one approach. Furthermore, the impact of outdoor residual spraying should be assessed using more rigorously designed studies. The team also recommended that personal protection for risk groups be considered, using chemoprophylaxis, repellents or protective clothing, and that intersectoral collaboration with the Departments of Wildlife, Agriculture, and Forestry be strengthened. A coordinated, budgeted and funded research agenda on zoonotic malaria should be established, e.g. through a WHO Collaborating Centre, and health education and community engagement should be improved, among other recommendations.

Key discussion points and consensus for the Session 3 were as follows:

- The TAG-MEC acknowledged the challenges of tackling the transmission of *P. knowlesi* and encouraged the Secretariat to continue working closely with Malaysia to reduce the disease burden and *P. knowlesi* transmission. The TAG-MEC expressed its willingness to continue supporting WHO in this endeavour.
- Official recognition could be considered to acknowledge Malaysia’s achievement of interrupting transmission of the four main human malaria species, if this is verified. The process for such official recognition has yet to be defined and the country will be consulted in advance.
- Certification of malaria elimination cannot be granted to a country where several thousand local cases are reported annually, as the risk cannot be considered negligible.

### 3.7 Update of the Framework for malaria elimination

Dr Chinorumba presented the outline of the second edition of the *Framework for malaria elimination* and the proposed additions and changes. Feedback from the TAG-MEC included the importance of clearly outlining the rationale of the document and aligning it with existing guidance to avoid repetition. The document should be operational, especially in the section on reactive case detection. Feedback received from malaria programme managers during the meeting in Cape Town should be addressed. The section on molecular markers for resistance could be improved, e.g. by referring to existing guidelines and standard operating procedures. Similarly, the terminology related to acceleration (chemoprevention may be more appropriate) and the role of surveillance assessment tools should be well explained. The Group also suggested the addition of specific sections such as zoonotic malaria, vaccines, and resource mobilization.

### 3.8 Draft of the global guidance for prevention of re-establishment of malaria

Dr Li Xiaohong presented the process and methods followed to develop the current draft of the global guidance on prevention of re-establishment, which was shared with the meeting participants prior to the meeting. After launching the technical consultation on prevention of re-establishment during the Fourth Global Forum of Malaria-Eliminating Countries in Cape Town in January 2023, a virtual meeting was convened on 21–23 February 2023 to review and discuss the activities to prevent re-establishment in seven invited malaria-free countries. This was followed by a face-to-face meeting in Tbilisi on 29–30 March 2023 to review the evidence related to prevention of re-establishment and to discuss the early draft of the global framework. The evidence reviewed included a literature and grey literature review on prevention of re-establishment, data analysis of the risk of re-establishment of transmission in recently certified countries, review and analysis of the occurrence of outbreaks in malaria-free countries, an updated literature review on compatibility/refractoriness of *Plasmodium* to *Anopheles* mosquitoes, and a synthesis of practices, experiences and lessons learned from malaria-free countries on prevention of re-establishment. Two study tours to certified countries and the development of case studies on the prevention of re-establishment were also part of the process.

The TAG-MEC members and WHO staff were then divided into four groups to discuss pending questions that are important to the development of the prevention of re-establishment guidance. The questions were shared with the members and other participants prior to the meeting. Each group presented their discussions after the breakout.

The Group appreciated the amount of work that had been invested in addressing the current policy gap on prevention of re-establishment and praised the progress that had been made on the current advanced draft. The TAG-MEC made the following suggestions for further improvement:

- The document should be a guidance document. It should be succinct and operational. Guiding principles should be highlighted.
- The target audience should be health staff who work at the national level. These staff are expected to have experience and knowledge of malaria, since their countries have eliminated malaria. However, it should be considered that changes can occur as new people come in and experienced people leave. The target group could include cadres that have been integrated to tackle multiple diseases and therefore have little or limited experience with malaria.

- Some content in the current draft is academic and not suitable for inclusion as guidance. However, this is valuable information that should be published, probably in peer-reviewed journals. A link should be provided on the WHO website so that such articles are accessible to a broader audience.
- The use of case studies would make the document more operational and help to illustrate some specific issues. However, the number of case studies should be limited, and the document should be revised based on the evidence generated by the case studies.
- It is advisable to maintain the national advisory group or committee for elimination, rather than establishing a new one. Multisectoral collaboration should be one of the focuses. The roles of academic institutions should be established. The advisory group may help institutional memory for malaria and advise the Ministry of Health on technical or other challenges to the prevention of re-establishment
- Operational research will be critical to guide the implementation or removal of interventions.
- Suggestions related to terminology include the following:
  - Consider excluding the strength of the health system and vector control from the terminology related to receptivity. Receptivity should be an ecological concept that identifies the problem to which the health system may need to respond. Therefore, an appropriate health system response, such as vector control, reduces malaria risk but does not reduce receptivity.
  - Replace infectivity of the parasites with susceptibility of *Anopheles* vector species and strains.
  - Consider replacing the term “risk of reintroduction” with “malariogenic potential” as the preferred term.
  - Avoid using the term “vigilance”, as it is difficult for Spanish- and Portuguese-speaking countries. Use “alertness of general health services” instead.
- Suggestions related to integration include the following:
  - Consider defining the concept of integration and include evidence for integration if available. Consider presenting the pros and cons of integration. Acknowledgement that the quality of malaria activities may decline naturally after integration would be helpful.
  - Highlight the principles of integration and consider including a framework to guide contextualization.
  - Even a lean central structure for malaria should be sustained within the MoH with dedicated staff for monitoring the quality of implementation and reporting on key malaria indicators.

The committee also discussed and made suggestions on the indicators to be used for entomological and case surveillance and response.

### **3.9 Overview of activities implemented by the Elimination Unit of the Global Malaria Programme in the biennium 2022–2023**

Dr Elkhan Gasimov, who joined the meeting virtually, presented on the activities implemented by the Elimination Unit of the Global Malaria Programme in the biennium 2022–2023. He highlighted the progress made by the E-2025 countries, including the number of cases reported in each country, the Fourth Global Forum of Malaria-Eliminating Countries and its outcomes, and the WHO malaria guideline on elimination. He said that the Global Malaria Programme had also developed videos to disseminate the new recommendations on reactive strategies. Dr Gasimov informed the TAG-MEC of the closure of the STOP-Malaria programme, the recent release of case studies on malaria elimination and an update to the elimination training curriculum. Finally, he spoke about the financial challenges the WHO malaria elimination team is facing.

The TAG-MEC raised serious concerns about the challenges WHO is facing in the area of malaria elimination. Over the past few years, malaria elimination has gathered momentum across countries and regions. More and more countries are moving towards elimination, with many crossing the finishing line and being certified as malaria-free. The number of countries certified as malaria-free over the past few years has reached a level comparable to that achieved at the peak of the Global Malaria Eradication Programme. This progress has been achieved largely by the countries themselves, supported by partners and donors. However, the projects or activities, such as the E-2020 and E-2025 initiatives, leading to certification of countries as malaria-free and many other initiatives implemented by the Global Malaria Programme and the WHO malaria team have played a critical role in, and directing, efforts to reach malaria elimination in countries and sustaining momentum in the global fight against malaria. Without the necessary investment, the progress made over the past few years could be jeopardized. The TAG-MEC urges donors and partners to continue their support, as they commit to the vision of a world free of malaria. The TAG-MEC stands ready to support WHO as necessary, ensuring that the Organization can effectively carry out its role in leading global efforts towards malaria elimination.

### **3.10 Review of data from recently certified countries and workplan for 2024**

Dr Giulia Manzoni presented data on malaria cases reported by countries and territories certified as malaria-free or listed in the WHO supplementary list. According to the data received by WHO, most of the cases reported in malaria-free countries were imported. Brunei Darussalam and Trinidad and Tobago reported indigenous cases.

Dr Li presented the workplan of the TAG-MEC.

TAG-MEC conclusions and recommendations:

- The Group took note of the efforts made by the Secretariat to follow up with malaria-free countries on the implementation of activities to prevent re-establishment, with two missions to certified countries in 2023. There was a plan to verify data from malaria-free countries. The Group recommended that WHO continue to follow up with malaria-free countries, particularly countries where local cases have been reported, and request data from all certified countries, including those certified long time ago.

- Due to the long absence of sustained malaria transmission in Egypt, the pre-certification and certification missions can be combined into one.
- The Group considers the reports of WHO pre-certification missions or travel reports of current and former WHO staff to be informative. These should be shared with the Group before the final independent mission, as was done for the previous certification.

### **3.11 Meeting closure**

Dr Elkhan Gasimov closed the meeting on behalf of the Global Malaria Programme. He thanked all the members of the TAG-MEC for their contributions to a productive meeting. He specifically thanked Professor Brian Greenwood (Chair of the former Malaria Elimination Certification Panel, Chair of the TAG-MEC from June 2022–November 2023) and Dr Frank Richards (Chair of the former Malaria Elimination Oversight Committee, Co-Chair of the TAG-MEC from June 2022–November 2023) for their excellent chairmanships over the past few years. On behalf of the Director of the Global Malaria Programme, Dr Gasimov announced that Dr Kamini Mendis and Dr Laurence Slutsker have been named as the Chair and Vice-Chair of the TAG-MEC.

## References

1. Framework for malaria elimination. Geneva: World Health Organization; 2017 (<https://iris.who.int/handle/10665/254761>, accessed 5 March 2024).
2. World malaria report 2023. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/374472>, accessed 5 March 2024).
3. Global technical strategy for malaria 2016–2030, 2021 update. Geneva: World Health Organization; 2021 (<https://iris.who.int/handle/10665/342995>, accessed 5 March 2024).
4. WHO guidelines for malaria, 16 February 2021. Geneva: World Health Organization; 2021 (<https://iris.who.int/handle/10665/339609>, accessed 5 March 2024).
5. Report of the second meeting of the Malaria Elimination Certification Panel, 14–16 May 2019, Geneva, Switzerland. Geneva: World Health Organization; 2019 (<https://www.who.int/publications/m/item/WHO-CDS-GMP-MPAC-2019.11>, accessed 5 March 2024).

# Annex 1. Agendas

## Third meeting, 17 February 2023

Chaired by Brian Greenwood: discuss the national elimination report from Belize.

## Fourth meeting, 26 May 2023

26 May 2023		
Opening session – Moderated by Elkhan Gasimov		
13:00 – 13:10	Welcome and opening of the meeting	.
13:10 – 13:15	<ul style="list-style-type: none"><li>Self-introduction</li><li>Group Photo</li></ul>	
13:15 – 13:30	Declaration of interests Meeting objectives	Xiaohong Li
Chaired by Frank Richards		
13:30 – 14:00	Findings of the certification mission in Belize	Brian Greenwood Laurence Slutsker
14:00 – 15:30	<ul style="list-style-type: none"><li>Discussion</li><li>Make recommendations on potential certification to Belize</li></ul>	TAG-MEC members
15:45 – 16:45	<ul style="list-style-type: none"><li>Progress on preparing Cabo Verde for certification</li><li>Q&amp;A</li></ul>	Xiaohong Li
16:45 – 17:00	Closure	Elkhan Gasimov

## Fifth meeting, 27–28 November 2023

Day 1 – Monday, 27 November 2023		
Opening session: Moderated by Li Xiao Hong		
Session 1, 2, 3: Chaired by Brian Greenwood		
8:30 – 8:35	Introduction	Li Xiao Hong
8:35 – 8:45	Welcome remarks from the WHO Regional Office for the Eastern Mediterranean	Yvan Hutin
8:45 – 9:00	Welcome remarks from the Global Malaria Programme	Li Xiao Hong
Session 1. Certification of malaria elimination in Cabo Verde		
9:00 – 9:45	Briefing from the certification mission in Cabo Verde	Certification team
10:15 – 12:15	Discussion on the findings of the certification mission and reaching a consensus on potential certification in Cabo Verde	All TAG-MEC members
Session 2. Reflection on certification of malaria elimination		
13:30 – 14:00	Reflections on certification of malaria elimination	Li Xiao Hong
14:00 – 14:20	Surveillance in disease eradication and elimination programmes	Giulia Manzoni
14:20 – 14:35	Experiences of surveillance assessment in malaria elimination countries in the WHO Region for the Americas	Blanca Escribano Ferrer
14:35 – 15:30	Discussion	All participants
Session 3. Review findings from the mission to Malaysia		
15:45 – 17:00	Presentation: Findings from Malaysia mission on <i>P. knowlesi</i> and discussion	Allan Schapira



**Day 2 – Tuesday, 28 November 2023**

**Session 4–6: Chaired by Kamini Mendis**

**Session 4. Global framework on prevention of re-establishment**

8:30 – 8:45	The global framework for prevention of re-establishment (draft): overview and update	Li Xiao Hong
8:45 – 9:30	Discussion within the group	
9:30 – 12:00	Discussion and reach a consensus on pending issues	Plenary discussion

**Session 5. Update malaria elimination framework**

13:30 – 14:30	Overview of the work done by ELI in the biennium 2022-23 and challenges	Elkhan Gasimov
14:30 – 15:30	Update the framework of malaria elimination – an overview and discussions	Anderson Chinorumba

**Session 6. Review data from malaria-free countries and workplan**

15:45 – 16:00	Review data from malaria-free countries	Giulia Manzoni
16:00 – 16:15	Workplan of TAG-MEC 2024	Xiaohong Li
16:15 – 16:30	Closure of the meeting	Elkhan Gasimov

## Annex 2. List of participants

### Third meeting, 17 February 2023

#### Group members

**Professor Pedro Alonso**

Faculty of Medicine & Hospital Clinic  
University of Barcelona  
Spain

**Professor Fred Binka**

School of Public Health  
University of Health and Allied Sciences  
Ghana

**Dr Keith H. Carter**

Senior Adviser, Malaria  
United States of America

**Professor Brian Greenwood**

Clinical Tropical Medicine  
London School of Hygiene and Tropical  
Medicine  
United Kingdom of Great Britain and  
Northern Ireland

**Dr Anatoly Kondrashin**

Martinovski Institute of Medical  
Parasitology and Tropical Medicine  
Sechenov First Moscow Medical  
University  
Russian Federation

**Professor Reza Majdzadeh**

School of Health and Social Care  
University of Essex  
United Kingdom

**Dr Kamini Mendis**

Independent Consultant on Malaria and  
Tropical Medicine  
Sri Lanka

**Professor Rossitza Ivanova Mintcheva**

Independent Consultant  
Bulgaria

**Dr Martha L. Quiñones**

Department of Public Health  
Medicine Faculty  
Universidad Nacional de Colombia  
Colombia

**Dr Frank Richards**

Senior Advisor  
River Blindness, Lymphatic Filariasis,  
Schistosomiasis and Malaria,  
Carter Center  
United States of America

**Dr Allan Schapira**

Independent Consultant  
Philippines

**Dr Leonardo SIMÃO**

Chairman of the Board of Patrons  
Manhiça Foundation  
Mozambique

**Dr Laurence Slutsker**

Independent Consultant on Malaria and  
Global Health  
United States of America

**Professor Linhua Tang**

Former Director and Professor  
National Institute of Parasitic Diseases  
China Center for Disease Control and  
Prevention  
China

#### WHO regional staff

**Dr Blanca Escribano**

Malaria Elimination Focal Point, PAHO  
United States of America

**Dr Roberto Montoya**

Regional Advisor, PAHO  
United States of America

#### Global Malaria Programme

**Dr Elkhan Gasimov**

Unit head  
Elimination Unit

**Dr Giulia Manzoni**

Consultant  
Elimination Unit

**Dr Xiaohong Li**

Technical Officer  
Elimination Unit

**Ms Selome Tadesse Worku**

Team Assistant  
Elimination Unit

## Fourth meeting, 26 May 2023

### Group members

**Professor Pedro Alonso**

Faculty of Medicine & Hospital Clinic  
University of Barcelona  
Spain

**Professor Fred Binka**

School of Public Health  
University of Health and Allied Sciences  
Ghana

**Dr Keith H. Carter**

Senior Adviser, Malaria  
United States of America

**Professor Brian Greenwood**

Clinical Tropical Medicine  
London School of Hygiene and  
Tropical Medicine  
United Kingdom of Great Britain and  
Northern Ireland

**Dr Anatoly Kondrashin**

Martinovski Institute of Medical  
Parasitology and Tropical Medicine  
Sechenov First Moscow Medical  
University  
Russian Federation

**Professor Reza Majdzadeh**

School of Health and Social Care  
University of Essex  
United Kingdom

**Dr Kamini Mendis**

Independent Consultant on Malaria and  
Tropical Medicine  
Sri Lanka

**Professor Rossitza Ivanova Mintcheva**

Independent Consultant  
Bulgaria

**Dr Martha L. Quiñones**

Department of Public Health  
Medicine Faculty  
Universidad Nacional de Colombia  
Colombia

**Dr Frank Richards**

Senior Advisor  
River Blindness, Lymphatic Filariasis,  
Schistosomiasis and Malaria  
Carter Center  
United States of America

**Dr Allan Schapira**

Independent Consultant  
Philippines

**Dr Laurence Slutsker**

Independent Consultant on Malaria and  
Global Health  
United States of America

**Professor Linhua Tang**

Former Director and Professor  
National Institute of Parasitic Diseases  
China Center for Disease Control and  
Prevention  
China

### WHO regional staff

**Dr Sheshi Baba Ebenezer**

Malaria Elimination Focal Point,  
WHO Regional Office for Africa  
Congo

**Dr Blanca Escribano**

Malaria Elimination Focal Point, WHO  
Regional Office for the Americas/  
Pan-American Health Organization  
United States of America

**Dr Carolina Cardoso Da Silva Leite**

National Professional Officer  
Cabo Verde

**Dr Daniel Kertesz**

WHO Representative  
Cabo Verde

**Dr Roberto Montoya**

Regional Advisor, PAHO  
United States of America

### Global Malaria Programme

**Mr Anderson Chinorumba**

Consultant  
Elimination Unit

**Dr Elkhan Gasimov**

Unit head  
Elimination Unit

**Dr Giulia Manzoni**

Consultant  
Elimination Unit

**Dr Xiaohong Li**  
Technical Officer  
Elimination Unit

**Ms Selome Tadesse Worku**  
Team Assistant  
Elimination Unit

## **Fifth meeting MEC, 27–28 November 2023**

### **Group members**

**Professor Pedro Alonso**  
Faculty of Medicine & Hospital Clinic  
University of Barcelona  
Spain

**Prof Fred Binka** (Virtual)  
School of Public Health  
University of Health and Allied Sciences  
Ghana

**Dr Keith H. Carter**  
Senior Adviser, Malaria  
United States of America

**Professor Brian Greenwood**  
Clinical Tropical Medicine  
London School of Hygiene and Tropical  
Medicine  
United Kingdom

**Dr Anatoly Kondrashin**  
Martinovski Institute of Medical  
Parasitology and Tropical Medicine  
Sechenov First Moscow Medical  
University  
Russian Federation

**Professor Reza Majdzadeh**  
School of Health and Social Care  
University of Essex  
United Kingdom

**Dr Eusebio Macete**  
(ad hoc member, virtual)  
Investigador  
Centro de Investigação em Saúde de  
Manhiça (CISM)  
Mozambique

**Dr Kamini Mendis**  
Independent Consultant in Malaria and  
Tropical Medicine  
Sri Lanka

**Professor Rossitza Ivanova Mintcheva**  
(Virtual)  
Independent Consultant  
Bulgaria

**Dr Martha L. Quiñones**  
Department of Public Health  
Medicine Faculty  
Universidad Nacional de Colombia  
Colombia

**Dr Frank Richards**  
Senior Advisor  
River Blindness, Lymphatic Filariasis,  
Schistosomiasis and Malaria  
Carter Center  
United States of America

**Dr Allan Schapira**  
Independent Consultant  
Philippines

**Dr Larry Slutsker**  
Independent Consultant in Malaria and  
Global Health  
United States of America

**Professor Linhua Tang**  
Former Director and Professor  
National Institute of Parasitic Diseases  
China Center for Disease Control and  
Prevention  
China

### **WHO regional staff**

**Dr Sheshi Baba Ebenezer**  
Malaria Elimination Focal Point  
WHO Regional Office for Africa  
Congo

**Dr Blanca Escribano**  
Malaria Elimination Focal Point  
WHO Regional Office for the Americas  
United States of America

**Dr Yvan Hutin**  
Director  
Division of Communicable Disease  
Control  
WHO Regional Office for the Eastern  
Mediterranean  
Egypt

**Dr Ghasem Zamani**

Regional Advisor, Malaria  
WHO Regional Office for the Eastern  
Mediterranean  
Egypt

**Dr James Kelley**

Team lead, Malaria  
WHO Regional Office for Western Pacific  
Philippines

**Dr Risintha Premaratne**

Regional Advisor, Malaria  
WHO Regional Office for South-East Asia  
India

**Dr Giulia Manzoni**

Consultant  
Elimination Unit  
Madagascar

**Dr Xiaohong Li**

Technical Officer  
Elimination Unit  
Switzerland

**Mrs Selome Tadesse Worku**

Team Assistant  
Elimination Unit  
Switzerland

**Global Malaria Programme****Mr Anderson Chinorumba**

Consultant  
Elimination Unit  
Zimbabwe

**Dr Elkhan Gasimov**

(Virtual)  
Unit Head  
Elimination Unit  
Switzerland



For further information please contact:

**Global Malaria Programme**  
**World Health Organization**

20 avenue Appia

1211 Geneva 27

Switzerland

Email: [GMPinfo@who.int](mailto:GMPinfo@who.int)

