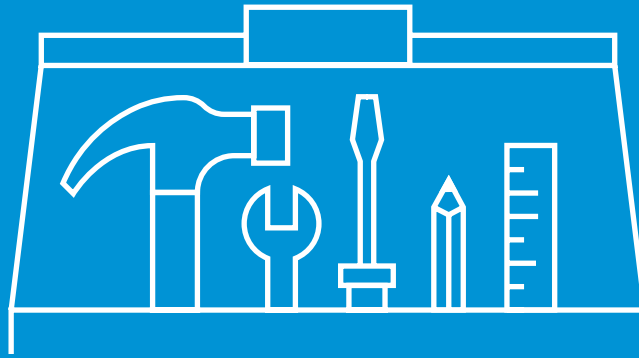


Global **Malaria** Programme



COMPENDIUM OF WHO MALARIA GUIDANCE

prevention, diagnosis, treatment, surveillance and elimination

APRIL 2019



World Health
Organization

Global **Malaria** Programme

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APRIL 2019



**World Health
Organization**

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Abbreviations & definitions

ACT	artemisinin-based combination therapies	NAAT	nucleic acid amplification test
HRP2	histidine-rich protein 2	PBO	piperonyl butoxide
IPTi	intermittent preventive treatment in infants	PCR	polymerase chain reaction
IPTp	intermittent preventive treatment in pregnancy	RDTs	rapid diagnostic tests
IRS	indoor residual spraying	SP + AQ	sulfadoxine-pyrimethamine + amodiaquine
ITN	insecticide-treated nets	SMC	seasonal malaria chemoprevention
LLINs	long-lasting insecticidal nets	TES	therapeutic efficacy studies
LSM	larval source management		

WHO guidelines, recommendations and good practice statements

A WHO **guideline** is any document developed by WHO containing recommendations for clinical practice or public health policy. A **recommendation** tells the intended end-user of the guideline what he or she can or should do in specific situations to achieve the best health outcomes possible, individually or collectively. It offers a choice among different interventions or measures having an anticipated positive impact on health and implications for the use of resources.

Good practice statements may be provided in lieu of evidence-based recommendations when there is a high level of certainty that the benefits of the recommended intervention outweigh the harms. This certainty may arise from a large body of linked or indirect evidence, from physical or biochemical properties, or the statement may be based on ethical principles or human rights conventions. Given the high level of certainty, a systematic review and detailed assessment of the evidence is not necessary in order to make the statement.¹

¹ Guyatt GH, Schünemann HJ, Djulbegovic B, Akl EA. Guideline panels should not GRADE good practice statements. J Clin Epidemiol. 2015 May;68(5):597-600

1

INTRODUCTION

DR PEDRO
ALONSO

Director, WHO Global
Malaria Programme

The Global Malaria Programme (GMP) is responsible for coordinating WHO's global efforts to support countries to control and eliminate malaria. Our work is guided by the *Global technical strategy for malaria 2016–2030* (GTS), endorsed by the World Health Assembly in May 2015.

GMP publishes technical documents – including guidelines, recommendations, information notes, policy briefs and operational manuals – on a range of topics relating to malaria control and elimination. According to a comprehensive review of our policy-making and dissemination processes, conducted in 2018, many of our country-based and global malaria partners find it difficult not only to locate WHO's malaria guidance, but also to understand how the documents fit together.

This compendium aims to simplify access for the end user by listing all WHO policy documents on malaria in a single resource. On pages 4–5, you will find a table with the full “toolkit” of WHO publications on malaria, including:

- the two current WHO guideline documents on malaria vector control and treatment;
- accompanying handbooks, manuals, information notes and policy briefs, including a reference manual on malaria surveillance and a framework for malaria elimination.

The compendium also includes a full list of all formal WHO policy recommendations on malaria. Importantly, you will find here only those that have been approved through a rigorous evidence review process by the Guideline Review Committee.²

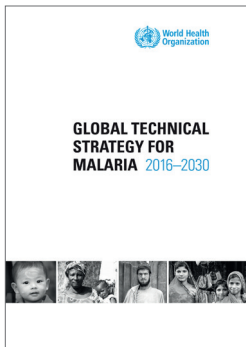
We hope you will find this to be a useful and easy-to-navigate resource. As always, we would welcome any suggestions for improvement; please direct any comments to: gmpfeedback@who.int

² The Guideline Review Committee was established by the WHO Director General in 2007 to ensure that WHO guidelines are of a high methodological quality and are developed through a transparent, evidence-based decision-making process.

2



GLOBAL STRATEGIES AND REPORTS



2015

Global technical strategy for malaria 2016–2030

This strategy, adopted by the World Health Assembly in 2015, provides a comprehensive framework for all countries working to control and eliminate malaria. It was the result of an extensive consultative process that spanned two years and involved the participation of more than 400 technical experts from 70 Member States.

The strategy targets a reduction in global malaria case incidence and mortality rates of at least 90% by 2030, compared to a 2015 baseline; the elimination of malaria in at least 35 countries that were endemic in 2015; and the prevention of the re-establishment of malaria in all countries that are malaria-free. It is founded upon three core pillars and two supporting elements.

Pillars:

- ensuring universal access to malaria prevention, diagnosis and treatment;
- accelerating efforts towards elimination and attainment of malaria-free status; and
- transforming malaria surveillance into a core intervention.

Supporting elements:

- harnessing innovation and expanding research; and
- strengthening the enabling environment.

<https://www.who.int/malaria/publications/atoz/9789241564991/en/>



2017

Global vector control response 2017–2030

This strategy was developed to strengthen vector control worldwide through increased capacity, improved surveillance, better coordination and integrated action. Member States welcomed this integrated approach at the 2017 World Health Assembly and adopted a resolution to support the strategy. Priority activities are based on four pillars underpinned by two foundational elements.

Pillars:

- strengthening inter- and intra-sectoral action and collaboration;
- engaging and mobilizing communities;
- enhancing vector surveillance, and monitoring and evaluating interventions; and
- scaling up and integrating tools and approaches.

Foundational elements:

- enhancing vector control capacity and capability; and
- increasing basic and applied research, and innovation.

<https://www.who.int/vector-control/publications/global-control-response/en/>



2018

World malaria report

The *World malaria report*, published annually, provides a comprehensive update on global and regional malaria data and trends. The report tracks investments in malaria programmes and research as well as progress across all intervention areas: prevention, diagnosis, treatment and surveillance. It also includes dedicated chapters on malaria elimination and on key threats in the fight against malaria.

The 2018 report is based on information received from 87 countries and areas with ongoing malaria transmission. This information is supplemented by data from national household surveys and databases held by other organizations.

<https://www.who.int/malaria/publications/world-malaria-report-2018/en/>



PREVENTION		CASE MANAGEMENT		SURVEILLANCE	ELIMINATION
Vector control <i>including insecticide resistance</i>	Preventive chemotherapies	Diagnosis	Treatment <i>including drug resistance</i>		
Guidelines for malaria vector control*	Guidelines for the treatment of malaria*				
<p>Handbooks, manuals, information notes and policy briefs</p> <p>Vector control</p> <ul style="list-style-type: none"> → Indoor residual spraying: an operational manual for IRS for malaria transmission, control and elimination → Larval source management: a supplementary measure for malaria vector control <p>Insecticide resistance</p> <ul style="list-style-type: none"> → Test procedures for insecticide resistance monitoring in malaria vector mosquitoes → Framework for a national plan for monitoring and management of insecticide resistance in malaria vectors 	<p>Handbooks, manuals, information notes and policy briefs</p> <p>Pregnant women</p> <ul style="list-style-type: none"> → WHO policy brief for the implementation of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine (IPTp-SP) <p>Infants</p> <ul style="list-style-type: none"> → Intermittent preventive treatment for infants using sulfadoxine-pyrimethamine (IPTi-SP) for malaria control in Africa: implementation field guide <p>Children under 5</p> <ul style="list-style-type: none"> → Seasonal malaria chemoprevention with sulfadoxine-pyrimethamine plus amodiaquine in children: a field guide <p>Mass drug administration</p> <ul style="list-style-type: none"> → Mass drug administration for falciparum malaria: a practical field manual 	<p>Handbooks, manuals, information notes and policy briefs</p> <ul style="list-style-type: none"> → Universal access to malaria diagnostic testing: an operational manual <p>Rapid diagnostic testing</p> <ul style="list-style-type: none"> → Good practices for selecting and procuring rapid diagnostic tests for malaria → Recommended selection criteria for procurement of malaria rapid diagnostic tests → False-negative RDT results and implications of new reports of <i>P. falciparum</i> histidine-rich protein 2/3 gene deletions → Transporting, storing and handling malaria rapid diagnostic tests in health clinics → Transporting, storing and handling malaria rapid diagnostic tests at central and peripheral storage facilities <p>Microscopy</p> <ul style="list-style-type: none"> → Malaria microscopy quality assurance manual <p>Low-transmission settings</p> <ul style="list-style-type: none"> → Policy brief on malaria diagnostics in low-transmission settings 	<p>Handbooks, manuals, information notes and policy briefs</p> <p>Treatment</p> <ul style="list-style-type: none"> → Information note on delayed haemolytic anaemia following treatment with artesunate → Policy brief on single-dose primaquine as a gametocytocide in <i>Plasmodium falciparum</i> malaria → Guide to G6PD deficiency rapid diagnostic testing to support <i>P. vivax</i> radical cure → Testing for G6PD deficiency for safe use of primaquine in radical cure of <i>P. vivax</i> and <i>P. ovale</i> → Rectal artesunate for pre-referral treatment of severe malaria → Management of severe malaria: a practical handbook → Malaria case management: operations manual <p>Procurement and pharmacovigilance</p> <ul style="list-style-type: none"> → Good procurement practices for artemisinin-based antimalarial medicines → A practical handbook on the pharmacovigilance of antimalarial medicines <p>Drug resistance</p> <ul style="list-style-type: none"> → Methods for surveillance of antimalarial drug efficacy → Methods and techniques for assessing exposure to antimalarial drugs in clinical field studies → Field application of in vitro assays sensitivity of human malaria parasites to antimalarial drugs 	<p>Malaria surveillance, monitoring & evaluation: a reference manual</p>	<p>A framework for malaria elimination</p>
<p>* These two guideline documents have been approved by the Guideline Review Committee (GRC) through a rigorous evidence-review process. The GRC was established by the WHO Director General in 2007 to ensure that WHO guidelines are of a high methodological quality and are developed through a transparent, evidence-based decision-making process.</p>					
EMERGENCIES					
<ul style="list-style-type: none"> → Malaria control in humanitarian emergencies: an inter-agency field handbook (under revision) → Guidance on temporary malaria control measures in Ebola-affected countries 					

4

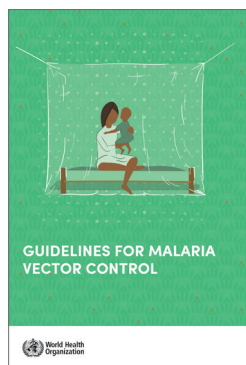


PREVENTION

Nearly half of the world's population is at risk of malaria. In areas with high malaria transmission, young children and pregnant women are particularly vulnerable to malaria infection and death. Since 2000, expanded access to WHO-recommended malaria prevention tools and strategies – including effective vector control and the use of preventive antimalarial drugs – has had a major impact in reducing the global burden of this disease.

4.1 Vector control

Vector control is a vital component of malaria control and elimination strategies as it is highly effective in preventing infection and reducing disease transmission. The two core interventions for malaria vector control are insecticide-treated nets (ITNs) and indoor residual spraying (IRS). In specific settings, and under special circumstances, these core interventions can be supplemented by larval source management and personal protection measures.



2019

Guidelines for malaria vector control

WHO's *Guidelines for malaria vector control* provide a single resource for all countries and partners working to implement effective malaria vector control interventions. They cover the two core malaria vector control tools – ITNs and IRS – as well as supplementary interventions, namely chemical and biological larvicides, and personal protection measures, such as the use of topical repellents.

These guidelines consolidate more than 20 sets of WHO recommendations and good practice statements in one user-friendly format. The web-based guidelines will be updated as new evidence is assessed by WHO.

<https://www.who.int/malaria/publications/atoz/9789241550499/en/>

Recommendations and good practice statements

See the *Guidelines for malaria vector control*

Malaria burden reduction and elimination

- Priority should be given to delivering either ITNs or IRS at high coverage and to a high standard, rather than introducing the second intervention as a means to compensate for deficiencies in the implementation of the first intervention.

*Conditional recommendation **against** combining the core interventions to reduce morbidity and mortality, moderate-certainty evidence*

- Universal coverage with effective vector control using a core intervention (ITNs or IRS) is recommended for all populations at risk of malaria in most epidemiological and ecological settings. The population at risk of malaria may increase or decrease as a result of changes in malariogenic potential of a given geographical area.

Good practice statement

- Once high coverage with one core intervention has been achieved, programmes may consider deploying the other core intervention as an approach to prevent, manage and mitigate insecticide resistance. The ITN and IRS products selected for co-deployment must not contain the same insecticide class(es). For instance, IRS with a pyrethroid should not be deployed in the same households or areas as ITNs. The decision to deploy a second core vector control intervention should only be taken after conducting a prioritization analysis across malaria interventions, not just vector control, to ensure maximum impact of any additional resources.

Good practice statement

- Once high coverage with a core intervention has been achieved, recommended supplementary interventions with proven public health value may be deployed in specific settings and circumstances.

Good practice statement

- In areas with ongoing local malaria transmission (irrespective of both the pre-intervention and current level of transmission), vector control interventions should not be scaled back. Universal coverage with effective malaria vector control of all inhabitants of such areas should be pursued and maintained.

Good practice statement

- In areas where transmission has been interrupted, the scale-back of vector control should be based on a detailed analysis that includes assessment of the receptivity and vulnerability, active disease surveillance system, and capacity for case management and vector control response.

Good practice statement

Insecticide-treated nets

- Pyrethroid-only LLINs prequalified by WHO are recommended for deployment as a core intervention in all malaria-endemic settings.

Strong recommendation as an intervention with public health value, high-certainty evidence

- Pyrethroid-PBO nets prequalified by WHO are conditionally recommended for deployment instead of pyrethroid-only ITNs where the principal malaria vector(s) exhibit pyrethroid resistance that is: a) confirmed, b) of intermediate level, and

c) conferred (at least in part) by a monooxygenase-based resistance mechanism, as determined by standard procedures.

Conditional recommendation as an intervention with public health value, moderate-certainty evidence

- Recipients of ITNs should be advised (through appropriate communication strategies) to continue using their nets beyond the 3-year expected lifespan of the net, irrespective of the condition of the net, until a replacement net is available.

Good practice statement

- Recipients of ITNs should be advised (through appropriate communication strategies) to continue using their net even if it is damaged or contains holes, irrespective of the age of the net, until a replacement net is available. Recipients of ITNs should be advised (through appropriate communication strategies) not to dispose of their nets in any water body, as the residual insecticide on the net can be toxic to aquatic organisms (especially fish).

Good practice statement

- Old ITNs should only be collected where there is assurance that: i) communities are not left uncovered, i.e. new ITNs are distributed to replace old ones; and ii) there is a suitable and sustainable plan in place for safe disposal of the collected material.

Good practice statement

- If ITNs and their packaging (bags and baling materials) are collected, the best option for disposal is high-temperature incineration. They should not be burned in the open air. In the absence of appropriate facilities, they should be buried away from water sources and preferably in nonpermeable soil.

Good practice statement

Indoor residual spraying

- IRS deploying a product prequalified by WHO is recommended as a core intervention in all malaria-endemic settings.

Strong recommendation as an intervention with public health value, low-certainty evidence

➔ **See the operational manual on indoor residual spraying**

Larviciding

- The regular application of biological or chemical insecticides to water bodies (larviciding) is recommended as a supplementary intervention in areas where high coverage with a core intervention has been achieved, where aquatic habitats of the principal malaria vector(s) are few, fixed and findable, and where its application is both feasible and cost-effective.

Conditional recommendation as an intervention with public health value, low-certainty evidence

➔ See the operational manual on larval source management

Topical repellents

- Deployment of topical repellents is not recommended as a public health intervention; however, topical repellents may be beneficial as an intervention to provide personal protection.

*Conditional recommendation **against** deployment as an intervention with public health value, low-certainty evidence*

Insecticide-treated clothing

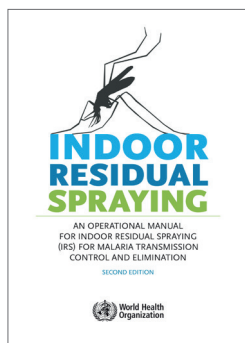
- Use of insecticide-treated clothing is not recommended as a public health intervention; however, insecticide-treated clothing may be beneficial as an intervention to provide personal protection in specific population groups.

*Conditional recommendation **against** deployment as an intervention with public health value, low-certainty evidence*

Space spraying

- Space spraying should not be undertaken for malaria control, and IRS or ITNs should be prioritized instead.

*Conditional recommendation **against** deployment, very low-certainty evidence*



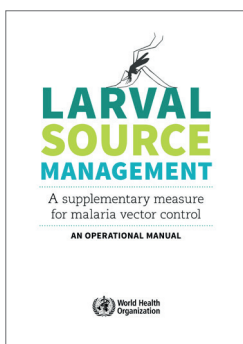
2015
Second edition

Indoor residual spraying: an operational manual for IRS for malaria transmission, control and elimination

Indoor residual spraying (IRS) is a core vector control intervention that can rapidly reduce malaria transmission. It involves the application of a residual insecticide to internal walls and ceilings of housing structures where malaria vectors may come into contact with the insecticide.

This operational manual aims to assist malaria programme managers, entomologists and public health officers in designing, implementing and sustaining high-quality IRS programmes.

<https://www.who.int/malaria/publications/atoz/9789241508940/en/>



2013

Larval source management: a supplementary measure for malaria vector control

Larval source management refers to the targeted management of mosquito breeding sites, with the objective of reducing the number of mosquito larvae and pupae. It is recommended as a supplementary vector control measure and should not be used to replace core interventions.

This operational manual is targeted primarily to national malaria control programmes as well as field personnel engaged in controlling mosquito breeding sites. It provides recommendations on the selection of larval control interventions as well as the planning and management of larval control programmes.

<https://www.who.int/malaria/publications/atoz/9789241505604/en/>

Insecticide resistance

Mosquito resistance to the four commonly used insecticide classes is widespread in all major malaria vectors across the WHO regions of Africa, the Americas, South-East Asia, the Eastern Mediterranean and the Western Pacific. A failure to mitigate this threat may result in an increased burden of disease, with significant cost implications.

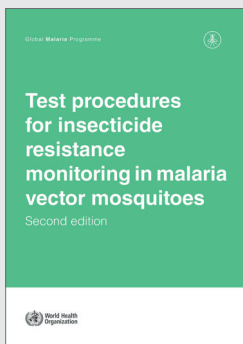


2017

Framework for a national plan for monitoring and management of insecticide resistance in malaria vectors

This framework provides support to countries for the development of a national insecticide resistance monitoring and management plan. It is designed to help countries ensure adherence to the objectives and recommendations of the *Global plan for insecticide resistance management in malaria vectors*.

<https://www.who.int/malaria/publications/atoz/9789241512138/en/>



2016

Second edition

Test procedures for insecticide resistance monitoring in malaria vector mosquitoes

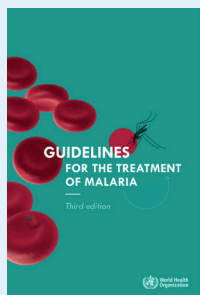
This revised guidance provides an overview of two methods for measuring insecticide resistance: the intensity bioassay and the synergist bioassay. Data generated through these tests enable countries to track the evolution of insecticide resistance and will inform the development of national insecticide resistance management strategies.

<https://www.who.int/malaria/publications/atoz/9789241511575/en/>

4.2 Preventive chemotherapies

Preventive chemotherapy is the use of medicines, either alone or in combination, to prevent malaria infections and their consequences. It includes chemoprophylaxis, intermittent preventive treatment of infants (IPTi) and pregnant women (IPTp), seasonal malaria chemoprevention (SMC) and mass drug administration (MDA). These safe and cost-effective strategies are intended to complement ongoing malaria control activities, including vector control measures, prompt diagnosis of suspected malaria, and treatment of confirmed cases with antimalarial medicines.

Recommendations



See the *Guidelines for the treatment of malaria*

Intermittent preventive treatment in pregnancy

- In malaria-endemic areas in Africa, provide intermittent preventive treatment with SP to all women in their first or second pregnancy (SP-IPTp) as part of antenatal care. Dosing should start in the second trimester and doses should be given at least 1 month apart, with the objective of ensuring that at least three doses are received.

Strong recommendation, high-quality evidence

- ➔ See “WHO policy brief for the implementation of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine (IPTp-SP)”

Intermittent preventive treatment in infants

- In areas of moderate-to-high malaria transmission of Africa, where SP is still effective, provide intermittent preventive treatment with SP to infants (< 12 months of age) (SP-IPTi) at the time of the second and third rounds of vaccination against diphtheria, tetanus and pertussis (DTP) and vaccination against measles.

Strong recommendation

- ➔ See “Intermittent preventive treatment for infants using sulfadoxine-pyrimethamine (IPTi-SP) for malaria control in Africa: implementation field guide”

Seasonal malaria chemoprevention

- In areas with highly seasonal malaria transmission in the sub-Saharan region of Africa, provide seasonal malaria chemoprevention (SMC) with monthly amodiaquine + SP for all children aged < 6 years during each transmission season.

Strong recommendation, high-quality evidence

- ➔ See “Seasonal malaria chemoprevention with sulfadoxine-pyrimethamine plus amodiaquine in children: a field guide”

HANDBOOKS, MANUALS, INFORMATION NOTES AND POLICY BRIEFS

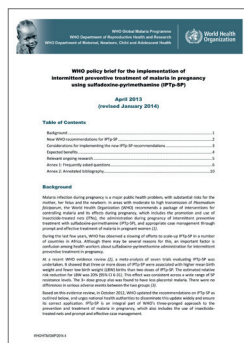
PREGNANT WOMEN

WHO policy brief for the implementation of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine (IPTp-SP)

WHO recommends three or more doses of IPTp-SP for all pregnant women living in areas of moderate-to-high malaria transmission in Africa; the preventive treatment should start as early as possible in the second trimester and can be administered at monthly intervals up to the time of delivery. IPTp has been shown to reduce anaemia and low birth weight – a major cause of infant mortality.

This brief provides guidance for national policy-makers and health care providers on the implementation of IPTp-SP. It addresses questions around the scale-up of this intervention; the management of side effects; quality, efficacy and resistance; co-administration with other medication; and the use of ITNs.

https://www.who.int/malaria/publications/atoz/policy_brief_iptp_sp_policy_recommendation/en/



2013

INFANTS



2011

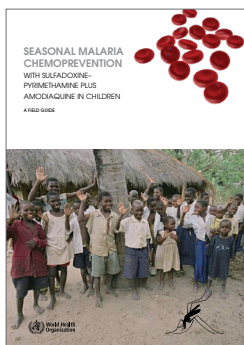
Intermittent preventive treatment for infants using sulfadoxine-pyrimethamine (IPTi-SP) for malaria control in Africa: implementation field guide

WHO recommends IPTi-SP for infants living in areas with moderate-to-high malaria transmission in sub-Saharan Africa. Treatment should be given three times during the first year of life at intervals corresponding to routine vaccination schedules. This intervention has been shown to reduce clinical malaria, anaemia and severe malaria in children under the age of one.

This field guide provides the necessary technical and operational information and tools to guide decisions by country-level policy-makers and programme managers around the implementation of IPTi-SP.

https://www.who.int/malaria/publications/atoz/whoivb11_07/en

CHILDREN UNDER 5



2013

Seasonal malaria chemoprevention with sulfadoxine-pyrimethamine plus amodiaquine in children: a field guide

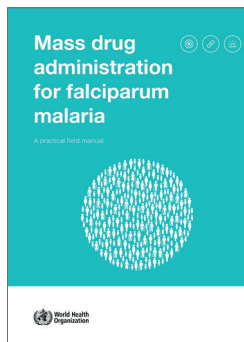
Since 2012, WHO has recommended SMC for children aged 3 to 59 months during the high-transmission season in Africa's Sahel sub-region. The provision of this preventive therapy at monthly intervals has been shown to have a significant protective effect against uncomplicated and severe malaria.

This field guide provides the necessary technical and operational information and tools to guide decisions by country-level policy-makers and programme managers around the adoption and implementation of SMC.

<https://www.who.int/malaria/publications/atoz/9789241504737/en/>

MASS DRUG ADMINISTRATION

Mass drug administration for falciparum malaria: a practical field manual



2017

Implementing mass drug administration is a complex operation requiring a significant investment of resources and careful planning. WHO currently recommends MDA for the interruption of transmission of *P. falciparum* malaria in areas approaching elimination; to reduce the risk for spread of multi-drug resistance in the Greater Mekong subregion; during malaria epidemics; and in exceptional complex emergencies.

This manual provides guidance for national malaria control programme managers on the practical aspects of organizing an MDA campaign for malaria. It offers examples of tools used in such operations that may be useful as templates for developing job aids, training and communication materials, and data collection forms.

<https://www.who.int/malaria/publications/atoz/9789241513104/en/>

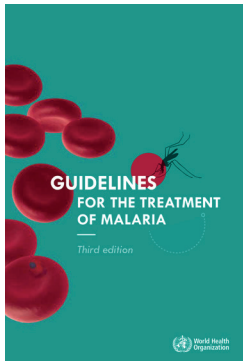
5



CASE MANAGEMENT

Each year, more than 400 000 people die of malaria – a treatable disease. Early diagnosis and treatment of malaria is essential for both rapid and effective case management. High-quality malaria diagnosis, through microscopy or rapid diagnostic testing, is important in all malaria-endemic settings. The best available treatment, particularly for *P. falciparum* malaria, is artemisinin-based combination therapy (ACT).

GUIDELINES



2015
Third edition

Guidelines for the treatment of malaria

These guidelines consist of recommendations on the diagnosis and treatment of uncomplicated and severe malaria, including among at-risk populations (young children, pregnant women, tuberculosis or HIV/AIDS patients, non-immune travellers), in epidemic situations and in humanitarian emergencies. They also include recommendations on the use of drugs to prevent malaria in high-risk groups.

The guidelines support national policy-makers and health care providers to design and implement effective national treatment policies and protocols; promote the use of safe, effective malaria treatment; and protect currently effective malaria treatment against the development of resistance.

<https://www.who.int/malaria/publications/atoz/9789241549127/en/>

5.1 Diagnosis

WHO recommends prompt malaria diagnosis either through microscopy or rapid diagnostic tests (RDTs) for all patients with suspected malaria before treatment is administered. Diagnostic testing enables health providers to swiftly distinguish between malarial and non-malarial fevers, facilitating appropriate treatment.

Good practice statement

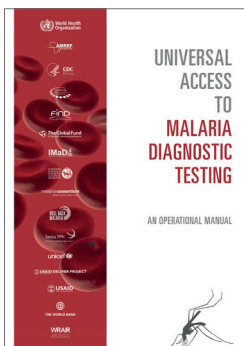
See the *Guidelines for the treatment of malaria*

Diagnosis of malaria

- All cases of suspected malaria should have a parasitological test (microscopy or RDT) to confirm the diagnosis. Both microscopy and RDTs should be supported by a quality assurance programme.

Good practice statement

HANDBOOKS, MANUALS, INFORMATION NOTES AND POLICY BRIEFS



2013

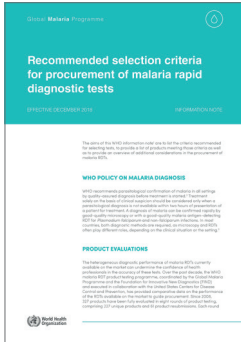
Universal access to malaria diagnostic testing: an operational manual

This operational manual provides comprehensive guidance to national malaria control programme managers and other stakeholders for rapidly increasing access to RDTs and microscopy in malaria-endemic countries. It includes the core elements of policy setting, strategy development and planning, as well as practical tools to deploy malaria diagnostic testing at all levels of the health care system, including the community.

<https://www.who.int/malaria/publications/atoz/9789241502092/en/>

RAPID DIAGNOSTIC TESTS

Recommended selection criteria for procurement of malaria rapid diagnostic tests

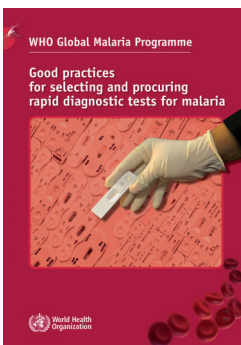


2018

Malaria rapid diagnostic tests detect specific antigens produced by malaria parasites that are present in the blood of individuals infected by the disease. The tests are relatively simple to perform and interpret, provide rapid results, require limited training, and allow diagnosis at community level.

This information note provides procurers and national malaria control programme managers with a list of recommended criteria for selecting RDTs for malaria. It includes a full list of products evaluated by the WHO malaria RDT product testing programme, their prequalification status and performance indicators.

https://www.who.int/malaria/publications/atoz/rdt_selection_criteria/en/



2011

Good practices for selecting and procuring rapid diagnostic tests for malaria

This manual provides guidance on the selection and procurement of quality-assured malaria RDTs that provide reliable and accurate results. The target audience includes procurement officers, malaria programme managers, health officers and supply chain managers involved in the procurement of RDTs for malaria in the public and private sectors.

The manual covers all aspects of the procurement cycle, with special emphasis on product specifications, selection criteria for different epidemiological settings, quantification methodologies based on malaria surveillance and consumption data, and quality control through lot testing.

<https://www.who.int/malaria/publications/atoz/9789241501125/en/>



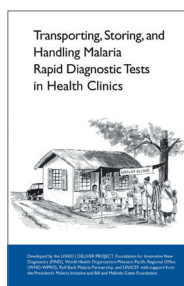
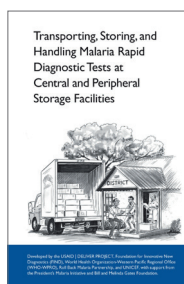
2017

False-negative RDT results and implications of new reports of *P. falciparum* histidine-rich protein 2/3 gene deletions

In some countries, increasing levels of histidine-rich protein 2 and 3 (*hrp2/3*) gene deletions threaten the ability of health providers to diagnose and appropriately treat people infected with *P. falciparum* malaria. Although the prevalence of *hrp2/3* gene deletions in most countries with high malaria transmission remains low, further monitoring is required.

This information note is intended for national malaria control programme managers and their implementing partners, procurement agencies, national regulatory authorities and manufacturers. It provides specific guidance on the implications of *hrp2/3* gene deletions for case management and advises on procedures for investigating suspected false-negative RDT results.

<https://www.who.int/malaria/publications/atoz/information-note-hrp2-based-rdt/en/>



2009

Transporting, storing and handling malaria rapid diagnostic tests

In most malaria-endemic countries, temperatures frequently exceed the recommended storage temperatures for malaria RDTs. Correct storage of the RDTs may be difficult, especially during transport and in locations where air-conditioning is unavailable.

These publications are intended to support health personnel who use RDTs. They describe the basic principles for management and storage of RDT stock; outline practical solutions for protecting RDTs against high temperatures during storage and transport; and describe how to manage waste generated from RDT use in health clinics and central and peripheral storage facilities.

https://www.who.int/malaria/publications/atoz/rapid_diagnostic_tests_storage_remote/en/

https://www.who.int/malaria/publications/atoz/rapid_diagnostic_tests_storage_central/en/

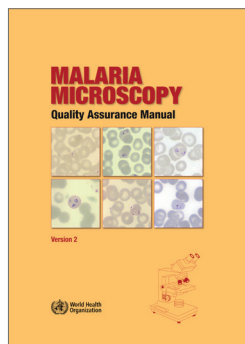
MICROSCOPY

Malaria microscopy quality assurance manual

Malaria microscopy is one of the methods used to identify malaria-causing parasites (*P. falciparum*, *P. vivax*, *P. malariae* and *P. ovale*), their various life-cycle stages, and the quantification of parasite density to monitor the response to treatment. It is the method of choice for the investigation of malaria treatment failure in clinical settings.

This update manual is designed to support managers of national malaria programmes and national reference laboratories to set up and maintain a sustainable malaria microscopy quality assurance programme.

<https://www.who.int/malaria/publications/atoz/9789241549394/en/>



2016
Version 2

LOW-TRANSMISSION SETTINGS

Policy brief on malaria diagnostics in low-transmission settings

While nucleic acid amplification tests (NAATs) are several orders of magnitude more sensitive than microscopy and RDTs, the use of microscopy and RDTs is sufficient for clinical management of patients with suspected malaria, routine surveillance and passive case detection in low-transmission areas.

This policy brief provides information on the role of NAATs in malaria, particularly in areas with low transmission. It includes a list of recommendations on the characteristics, performance and applications of such tests, as well as answers to frequently asked questions on their practical implementation.

<https://www.who.int/malaria/publications/atoz/policy-brief-diagnosis-low-transmission-settings/en/>

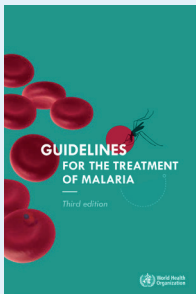


2014

5.2 Treatment

The primary objective of treatment is to ensure the rapid and full elimination of *Plasmodium* parasites from a patient's bloodstream in order to prevent an uncomplicated case of malaria from progressing to severe disease or death. From a public health perspective, effective treatment also reduces transmission of the infection to others by reducing the infectious reservoir and by preventing the emergence and spread of resistance to antimalarial medicines.

Recommendations and good practice statements



See the *Guidelines for the treatment of malaria*

Treating uncomplicated *P. falciparum* malaria

- Treat children and adults with uncomplicated *P. falciparum* malaria (except pregnant women in their first trimester) with one of the following recommended artemisinin-based combination therapies (ACT):
 - artemether + lumefantrine
 - artesunate + amodiaquine
 - artesunate + mefloquine
 - dihydroartemisinin + piperaquine
 - artesunate + sulfadoxine–pyrimethamine (SP)

Strong recommendation, high-quality evidence

Duration of ACT treatment

- ACT regimens should provide 3 days' treatment with an artemisinin derivative.

Strong recommendation, high-quality evidence

Revised dose recommendation for dihydroartemisinin + piperaquine in young children

- Children < 25kg treated with dihydroartemisinin + piperaquine should receive a minimum of 2.5 mg/kg body weight (bw) per day of dihydroartemisinin and 20 mg/kg bw per day of piperaquine daily for 3 days.

Strong recommendation based on pharmacokinetic modelling

Reducing the transmissibility of treated *P. falciparum* infections

- In low-transmission areas, give a single dose of 0.25 mg/kg bw primaquine with ACT to patients with *P. falciparum* malaria (except pregnant women, infants aged < 6 months and women breastfeeding infants aged < 6 months) to reduce transmission. Testing for glucose-6-phosphate dehydrogenase (G6PD) deficiency is not required.

Strong recommendation, low-quality evidence

- ➔ See “Policy brief on single-dose primaquine as a gametocytocide in *Plasmodium falciparum* malaria”

Treating uncomplicated *P. falciparum* malaria in special risk groups

First trimester of pregnancy

- Treat pregnant women with uncomplicated *P. falciparum* malaria during the first trimester with 7 days of quinine + clindamycin.

Strong recommendation

Infants less than 5kg body weight

- Treat infants weighing < 5 kg with uncomplicated *P. falciparum* malaria with ACT at the same mg/kg bw target dose as for children weighing 5 kg.

Strong recommendation

Patients co-infected with HIV

- In people who have HIV/AIDS and uncomplicated *P. falciparum* malaria, avoid artesunate + SP if they are being treated with co-trimoxazole, and avoid artesunate + amodiaquine if they are being treated with efavirenz or zidovudine.

Good practice statement

Non-immune travellers

- Treat travellers with uncomplicated *P. falciparum* malaria returning to non-endemic settings with ACT.

Strong recommendation, high-quality evidence

Hyperparasitaemia

- People with *P. falciparum* hyperparasitaemia are at increased risk for treatment failure, severe malaria and death and should be closely monitored, in addition to receiving ACT.

Good practice statement

- ➔ See “Information note on delayed haemolytic anaemia following treatment with artesunate”

Treating uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria

Blood stage infection

- If the malaria species is not known with certainty, treat as for uncomplicated *P. falciparum* malaria.

Good practice statement

- In areas with chloroquine-susceptible infections, treat adults and children with uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria with either ACT (except pregnant women in their first trimester) or chloroquine.

Strong recommendation, high-quality evidence

- In areas with chloroquine-resistant infections, treat adults and children with uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria (except pregnant women in their first trimester) with ACT.

Strong recommendation, high-quality evidence

- Treat pregnant women in their first trimester who have chloroquine-resistant *P. vivax* malaria with quinine.

Strong recommendation, very low-quality evidence

Preventing relapse in *P. vivax* or *P. ovale* malaria

- The G6PD status of patients should be used to guide administration of primaquine for preventing relapse.

Good practice statement

- To prevent relapse, treat *P. vivax* or *P. ovale* malaria in children and adults (except pregnant women, infants aged < 6 months, women breastfeeding infants aged < 6 months, women breastfeeding older infants unless they are known not to be G6PD deficient, and people with G6PD deficiency) with a 14-day course of primaquine in all transmission settings.
Strong recommendation, high-quality evidence
- In people with G6PD deficiency, consider preventing relapse by giving primaquine base at 0.75 mg/kg bw once a week for 8 weeks, with close medical supervision for potential primaquine-induced haemolysis.
Conditional recommendation, very low-quality evidence
- When G6PD status is unknown and G6PD testing is not available, a decision to prescribe primaquine must be based on an assessment of the risks and benefits of adding primaquine.
Good practice statement

Pregnant and breastfeeding women

- In women who are pregnant or breastfeeding, consider weekly chemoprophylaxis with chloroquine until delivery and breastfeeding are completed, then, on the basis of G6PD status, treat with primaquine to prevent future relapse.
Conditional recommendation, moderate-quality evidence
- ➔ **See “Testing for G6PD deficiency for safe use of primaquine in radical cure of *P. vivax* and *P. ovale*”**

Treating severe malaria

- Treat adults and children with severe malaria (including infants, pregnant women in all trimesters and lactating women) with intravenous or intramuscular artesunate for at least 24 h and until they can tolerate oral medication. Once a patient has received at least 24 h of parenteral therapy and can tolerate oral therapy, complete treatment with 3 days of ACT.
Strong recommendation, high-quality evidence

Revised dose recommendation for parenteral artesunate in young children

- Children weighing < 20 kg should receive a higher dose of artesunate (3 mg/kg bw per dose) than larger children and adults (2.4 mg/kg bw per dose) to ensure equivalent exposure to the drug.

Strong recommendation based on pharmacokinetic modelling

Parenteral alternatives where artesunate is not available

- If artesunate is not available, use artemether in preference to quinine for treating children and adults with severe malaria.

Conditional recommendation, low-quality evidence

Treating cases of suspected severe malaria pending transfer to a higher-level facility (pre-referral treatment)

Pre-referral treatment options

- Where complete treatment of severe malaria is not possible but injections are available, give adults and children a single intramuscular dose of artesunate, and refer to an appropriate facility for further care. Where intramuscular artesunate is not available use intramuscular artemether or, if that is not available, use intramuscular quinine.

Strong recommendation, moderate-quality evidence

- Where intramuscular injection of artesunate is not available, treat children < 6 years with a single rectal dose (10mg/kg bw) of artesunate, and refer immediately to an appropriate facility for further care. Do not use rectal artesunate in older children and adults.

Strong recommendation, moderate-quality evidence

- ➔ See “Rectal artesunate for pre-referral treatment of severe malaria”

Antimalarial drug quality

- National drug and regulatory authorities should ensure that the antimalarial medicines provided in both the public and the private sectors are of acceptable quality, through regulation, inspection and law enforcement.

Good practice statement

Monitoring the efficacy of antimalarial drugs

- All malaria programmes should regularly monitor the therapeutic efficacy of antimalarial drugs using the standard WHO protocols.

Good practice statement

National adaptation and implementation

- The choice of ACTs in a country or region should be based on optimal efficacy, safety and adherence.

Good practice statement

- Drugs used in IPTp, SMC and IPTi should not be used as a component of first-line treatments in the same country or region.

Good practice statement

- When possible, use:
 - fixed-dose combinations rather than co-blistered or loose, single-agent formulations; and
 - for young children and infants, paediatric formulations, with a preference for solid formulations (e.g. dispersible tablets) rather than liquid formulations.

Good practice statement

TREATMENT

Policy brief on single-dose primaquine as a gametocytocide in *Plasmodium falciparum* malaria

The use of primaquine as a gametocytocide has great potential for reducing the transmission of *P. falciparum* malaria in low-transmission settings. Evidence has shown that a single dose of primaquine is effective in blocking transmission and is unlikely to cause serious haemolytic anaemia in individuals with G6PD deficiency.

This policy brief outlines WHO recommendations and their evidence base, expected benefits, and considerations for programmatic implementation.

<https://www.who.int/malaria/publications/atoz/policy-brief-single-dose-primaquine-pf/en/>

2015



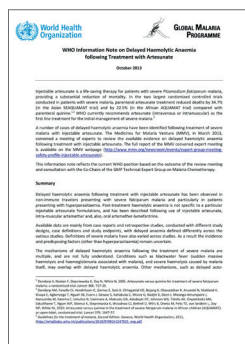
Information note on delayed haemolytic anaemia following treatment with artesunate

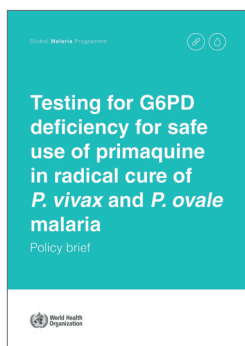
Injectable artesunate is recommended as a life-saving therapy for patients with severe *P. falciparum* malaria. Delayed haemolytic anaemia following this treatment is a condition that can affect non-immune travellers with hyperparasitaemia, i.e. high density of parasites in the blood.

This information note summarizes the therapeutic risks and benefits of injectable artesunate and provides practical steps for detecting and responding to adverse events.

https://www.who.int/malaria/publications/atoz/who_note_haemolytic_anaemia/en/

2013





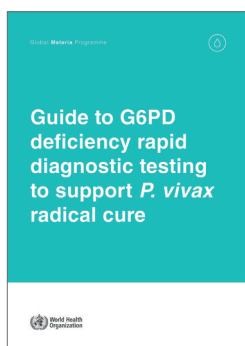
2016

Testing for G6PD deficiency for safe use of primaquine in radical cure of *P. vivax* and *P. ovale*

For the treatment of *P. vivax* malaria, WHO recommends standard antimalarial medicines followed by a 14-day regimen of primaquine to prevent relapses of the disease. Though highly effective, primaquine has been associated with a key safety challenge: among patients who have a deficiency of the enzyme G6PD, the drug can trigger a severe blood disorder known as acute haemolytic anaemia.

This policy brief summarizes the WHO recommendations on G6PD testing to ensure the safe administration of primaquine for preventing relapse of *P. vivax* and *P. ovale* malaria.

<https://www.who.int/malaria/publications/atoz/g6pd-testing-pq-radical-cure-vivax/en/>



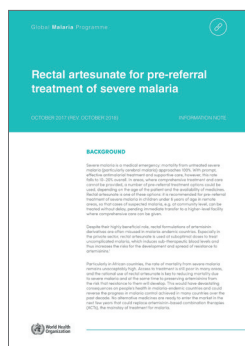
2018

Guide to G6PD deficiency rapid diagnostic testing to support *P. vivax* radical cure

Individuals with G6PD deficiency may be at risk of adverse effects from medicines commonly used to cure *P. vivax* malaria, as well as from other medicines and substances.

This user guide is designed to provide national malaria control programme managers with general information on G6PD deficiency. It includes generic instructions on how to conduct point-of-care testing for G6PD deficiency using currently available RDTs as part of malaria control and elimination programmes.

<https://www.who.int/malaria/publications/atoz/9789241514286/en>



2017
Updated in Oct 2018

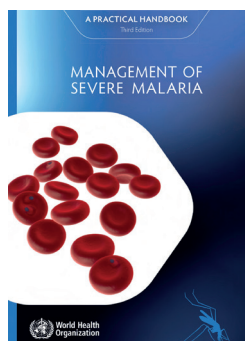
Rectal artesunate for pre-referral treatment of severe malaria

Severe malaria is a medical emergency requiring prompt and effective antimalarial treatment. In areas where comprehensive treatment cannot be provided, several pre-referral treatment options can be used, depending on the age of the patient and the availability of medicines.

Rectal artesunate is recommended for children under six years of age living in remote areas. Children with severe febrile illness and suspected severe malaria can be treated without delay, pending immediate transfer to a higher-level facility where comprehensive care can be given.

This information note aims to prepare countries for the large-scale deployment and correct use of this life-saving commodity.

<https://www.who.int/malaria/publications/atoz/rectal-artesunate-severe-malaria/en/>



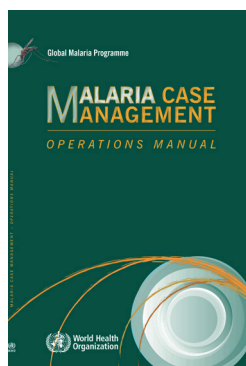
2013
Third edition

Management of severe malaria: a practical handbook

Delayed malaria treatment, especially of cases caused by *P. falciparum* parasites, may result in a patient's rapid deterioration and the development of life-threatening complications. Recognizing and promptly treating patients with severe malaria is essential.

This handbook provides practical guidance on the diagnosis and clinical management of severe malaria. It outlines the necessary general nursing care, considers possible complications, and provides advice on their management. While intended primarily for clinical professionals and health staff responsible for in-patient facilities in malaria-endemic countries, it is also of practical use to physicians in non-endemic areas.

<https://www.who.int/malaria/publications/atoz/9789241548526/en>



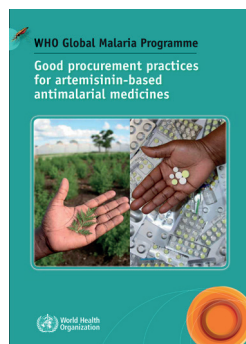
2009

Malaria case management: operations manual

Strategies for malaria case management are an integral part of malaria control programmes. They should be based on sound epidemiology, taking into consideration the population at greatest risk and the seasonality of malaria.

This manual advises national malaria control programmes on the best methods to ensure access to early diagnosis and appropriate, effective case management based on sound practice and experience in the use of ACTs. It is intended for adaptation in all malaria-endemic countries.

<https://www.who.int/malaria/publications/atoz/9789241598088/en>



2010

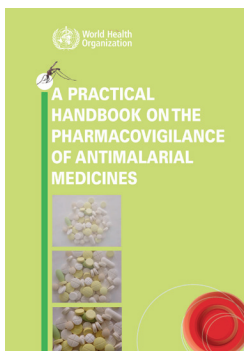
PROCUREMENT AND PHARMACOVIGILANCE

Good procurement practices for artemisinin-based antimalarial medicines

Quality is one of the most important considerations in the manufacture and procurement of medicines. Poor-quality medicines affect the health and lives of patients, damage the credibility of health-care programmes and increase the burden on the health-care system.

This practical manual guides the selection and procurement of safe and effective artemisinin-based antimalarial medicines that meet international quality standards through a concise 16-step checklist. It covers all aspects of the procurement cycle, with a special emphasis on product specifications and the evaluation of product quality.

<https://www.who.int/malaria/publications/atoz/9789241598927/en>



2008

A practical handbook on the pharmacovigilance of antimalarial medicines

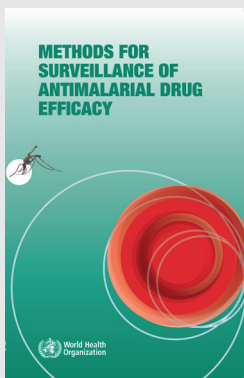
Pharmacovigilance is the practice of monitoring the effects of medical drugs after they have been licensed for use, especially to identify and evaluate previously unreported adverse reactions.

This manual provides a step-by-step approach for antimalarial pharmacovigilance. Designed for health officials, planners, and other health workers, it focuses on active and passive pharmacovigilance, reporting, event monitoring and other key factors.

<https://www.who.int/malaria/publications/atoz/9789241547499/en>

Drug resistance

The emergence of multidrug resistance is a public health concern threatening the sustainability of ongoing global efforts to eliminate and reduce the burden of malaria. Regular monitoring of drug efficacy is needed to inform treatment policies in malaria-endemic countries, and to ensure early detection of, and response to, drug resistance.



2009

Methods for surveillance of antimalarial drug efficacy

Routine monitoring of antimalarial drug efficacy is necessary to ensure effective case management and for early detection of resistance. WHO recommends that the efficacy of first- and second-line antimalarial treatments be tested at least once every 24 months at all sentinel sites. Data collected from studies conducted according to the standard protocol inform national treatment policies.

This document includes tools and materials to conduct routine therapeutic efficacy studies (TES). It is a reference for national programmes and investigators conducting routine surveillance studies to assess the efficacy of medicines that have already been registered.

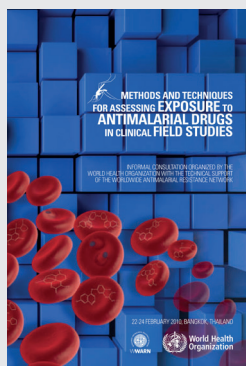
<https://www.who.int/malaria/publications/atoz/9789241597531/en>

Tools for monitoring antimalarial drug efficacy

WHO has developed templates and tools to facilitate the work of national programmes and investigators conducting routine testing of antimalarial drug efficacy, and to ensure standardization at all steps. These tools are regularly updated.

- Template protocol for therapeutic efficacy studies
- Methods and techniques for clinical trials on antimalarial drug efficacy: Genotyping to identify parasite populations
- WHO data entry and analysis tool
- Template checklists for quality control monitoring
- Parasite clearance estimator

https://www.who.int/malaria/areas/drug_resistance/efficacy-monitoring-tools/en/



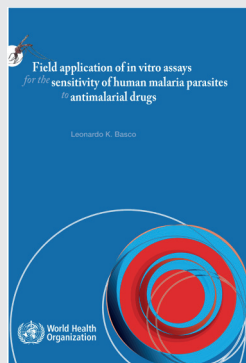
2011

Methods and techniques for assessing exposure to antimalarial drugs in clinical field studies

Achieving adequate concentrations of antimalarial drugs in the blood is pivotal to curing malaria. An accurate measurement of drug concentrations is needed to ensure optimal dosing and to differentiate between inadequate exposure and true resistance to the drug.

This document is a reference guide for investigators conducting clinical trials and laboratories performing antimalarial drug assays, as well as national malaria control programmes, study sponsors and regulatory authorities responsible for evaluating antimalarial drugs.

<https://www.who.int/malaria/publications/atoz/9789241502061/en/>



2011

Field application of in vitro assays for the sensitivity of human malaria parasites to antimalarial drugs

In vitro assays for the sensitivity of human malaria parasites to antimalarial drugs provide information that complements data from drug-efficacy surveillance.

This report examines the roles of in vitro drug sensitivity assays in malaria control and their contribution to monitoring drug resistance. It is intended as a reference for national programmes, investigators conducting clinical trials, by laboratories performing antimalarial drug in vitro assays, and by study sponsors and regulatory authorities responsible for evaluating antimalarial drugs.

<https://www.who.int/malaria/publications/atoz/9789241595155/en/>

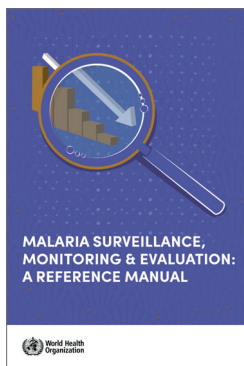
6



SURVEILLANCE

Malaria surveillance is the continuous and systematic collection, analysis and interpretation of malaria-related data, and the use of that data in the planning, implementation and evaluation of public health practice. Improved surveillance of malaria cases and deaths helps ministries of health determine which areas or population groups are most affected and enables countries to monitor changing disease patterns. Strong malaria surveillance systems also help countries design effective health interventions and evaluate the impact of their malaria control programmes.

REFERENCE MANUAL



2018

Malaria surveillance, monitoring & evaluation: a reference manual

Pillar 3 of the *Global technical strategy for malaria 2016–2030* calls for the transformation of malaria surveillance into a core intervention in all malaria-endemic countries, as well as in countries which have eliminated malaria but remain susceptible to re-establishment of transmission. This reference manual covers subjects that are relevant to both settings.

The target readership of this manual includes staff working in ministries of health, national malaria programmes and health information systems; partners involved in malaria surveillance; and WHO technical officers who advise countries on malaria surveillance.

<https://www.who.int/malaria/publications/atoz/9789241565578/en/>

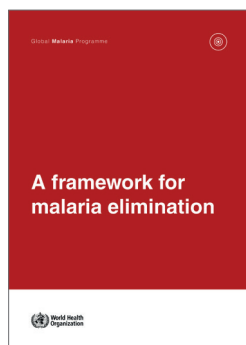
7



ELIMINATION

Malaria elimination is the interruption of local transmission of a specified malaria parasite species in a defined geographic area; continued measures are required to prevent re-establishment of transmission. Malaria-endemic countries are situated at different points along the road to elimination. The rate of progress will depend on the strength of the national health system, the level of investment in malaria control and other factors, including biological determinants; the environment; and the social, demographic, political and economic realities of a particular country.

FRAMEWORK



2017

A framework for malaria elimination

The malaria landscape has changed significantly in the last decade: funding has increased, coverage of life-saving tools has been scaled up, burden has decreased and more countries are pursuing elimination. This framework is fully aligned with the *Global technical strategy for malaria 2016–2030* and addresses updates to policy and practice.

The document provides guidance on the tools, activities and strategies required to achieve malaria elimination and prevent re-establishment of transmission in countries, regardless of where they lie across the spectrum of transmission intensity. It is intended to inform national malaria elimination strategic plans and should be adapted to local contexts.

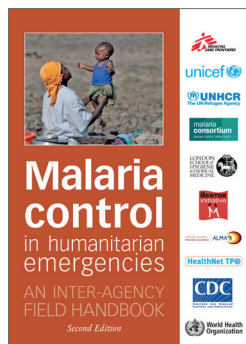
<https://www.who.int/malaria/publications/atoz/9789241511988/en/>

8



EMERGENCIES

Malaria control in humanitarian emergencies: an inter-agency field handbook



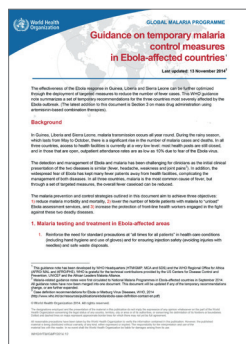
2013

Second edition

This inter-agency field handbook sets out effective malaria control responses in humanitarian emergencies, particularly during the acute phase when reliance on international humanitarian assistance is greatest.

The handbook provides policy-makers, planners and field coordinators with practical advice on designing and implementing measures to reduce malaria death and disease in all emergencies. It also includes measures to address the needs of all affected population groups and accommodate changing needs during emergencies.

<https://www.who.int/malaria/publications/atoz/9789241548656/en/>



2014

Guidance on temporary malaria control measures in Ebola-affected countries

The detection and management of Ebola and malaria have been a challenge for clinicians as initial symptoms of the two diseases – fever, headache, weakness and joint pains – are similar. This document, developed to support the emergency response during the 2014–2015 Ebola outbreak in Guinea, Liberia and Sierra Leone, summarizes how responses can be optimized through the deployment of targeted measures to reduce the number of cases of fever due to malaria and minimize the risk of Ebola.

<https://www.who.int/malaria/publications/atoz/malaria-control-ebola-affected-countries/en/>

9

ADVISORY BODIES

Malaria Policy Advisory Committee

The Malaria Policy Advisory Committee (MPAC), established in 2011, is the Global Malaria Programme's highest-level advisory body. The Committee provides independent and strategic technical guidance to WHO as part of a transparent, responsive and credible policy-setting process on malaria. MPAC convenes twice annually and is supported by evidence review groups, whose work focuses on specific thematic areas

More information about MPAC can be found at: <https://www.who.int/malaria/mpac/en/>

Meeting reports are available at: https://www.who.int/malaria/mpac/meeting_reports/en/

Guideline Development Group

Beginning in 2019, the Global Malaria Programme established a single Guideline Development Group (GDG) to streamline and standardize WHO's evidence review processes around malaria control and elimination. The GDG will be responsible for overseeing the development of all malaria recommendations and guidelines. Evidence review groups will continue to be convened on an ad hoc basis to support the GDG on specific topics.

Evidence Review Groups

Evidence review groups (ERGs) are expert groups convened for a limited period to review a specific area of work, and to provide evidence-based information and options for recommendations. To date, 16 ERGs have met under the umbrella of MPAC.

More information can be found at: <https://www.who.int/malaria/mpac/evidencereviewgroups/en/>

Other advisory groups and standing committees – including the Vector Control Advisory Group, the Malaria Elimination Oversight Committee, the Malaria Elimination Certification Panel and the Strategic Advisory Group on malaria eradication – will continue to provide advice to the Global Malaria Programme according to their terms of reference.

- Vector Control Advisory Group: <https://www.who.int/vector-control/vcag/en/>
 - Malaria Elimination Oversight Committee
 - Malaria Elimination Certification Panel
 - Strategic Advisory Group on malaria eradication
- } <https://www.who.int/malaria/areas/elimination/advisory-committees/en/>

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WHO MALARIA TERMINOLOGY



2016
(updated regularly)

WHO malaria terminology

In recent years, there has been a proliferation of new terms in relation to malaria in scientific literature, technical reports and the media. Concurrently, a number of terms with new or modified use and meaning have been introduced. This glossary of malaria terminology, updated regularly based on input from WHO technical expert groups, aims to improve communication and mutual understanding within the scientific community, as well as with funding agencies, public health officials responsible for malaria programmes, and policy-makers in malaria-endemic countries.

<https://www.who.int/malaria/publications/atoz/malaria-terminology/en/>

