



WHO GUIDELINES

for malaria

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World Health
Organization

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Summary of recommendations

1. ABBREVIATIONS

2. EXECUTIVE SUMMARY

3. INTRODUCTION

4. PREVENTION

4.1 Vector control

4.1.1 Interventions recommended for large-scale deployment

 Strong recommendation for , High certainty evidence

Pyrethroid-only nets (2019)

WHO recommends deployment of pyrethroid-only long-lasting insecticidal nets (LLINs) for the prevention and control of malaria in children and adults living in areas with ongoing malaria transmission.

Remark:

- WHO recommends ITNs that have been prequalified by WHO for deployment in protecting populations at risk of malaria.
- ITNs are most effective where the principal malaria vector(s) bite predominantly at night after people have retired under their nets.
- ITNs can be used both indoors and outdoors, wherever they can be suitably hung (though hanging nets in direct sunlight should be avoided, as sunlight can affect insecticidal activity).

 Conditional recommendation for , Moderate certainty evidence 

Pyrethroid-PBO nets (2022)

WHO suggests deploying pyrethroid-PBO nets instead of pyrethroid-only LLINs for the prevention and control of malaria in children and adults in areas with ongoing malaria transmission where the principal malaria vector(s) exhibit pyrethroid resistance.

Remark:

The conditionality of this recommendation is largely driven by the current higher unit cost of pyrethroid-PBO nets compared to pyrethroid-only LLINs and therefore the uncertainty of their cost-effectiveness. Furthermore, as PBO is less wash-resistant than pyrethroids, its bioavailability declines faster over the three-year estimated life of an ITN; therefore, the added impact of pyrethroid-PBO nets over that of pyrethroid-only LLINs may decline over time. The evidence comes from two sites in eastern Africa with pyrethroid resistance and not from other geographies where transmission levels and vector characteristics may vary. PBO acts by inhibiting certain metabolic enzymes, primarily oxidases, and so are likely to provide greater protection than pyrethroid-only LLINs where mosquitoes display mono-oxygenase-based insecticide resistance mechanisms.

In deciding whether pyrethroid-PBO nets may be appropriate in their context, malaria programmes should:

- consider the deployment of pyrethroid-PBO nets in areas where resistance to pyrethroids in local vectors has been detected;
- determine whether resources are adequate to cover the extra cost of pyrethroid-PBO nets, while ensuring that coverage of populations at risk of malaria is not affected;
- note that WHO recommends that ITNs prequalified by WHO be selected for deployment.

Strong recommendation for , High certainty evidence New

Insecticide-treated nets: Humanitarian emergency setting (2022)

WHO recommends that insecticide-treated nets (ITNs) be deployed for the prevention and control of malaria in children and adults in areas with ongoing malaria transmission affected by a humanitarian emergency.

Remark:

This recommendation is limited to classes of ITNs currently recommended by WHO. As with ITNs deployed in more stable settings, WHO recommends that ITNs that are prequalified by WHO be selected for use in humanitarian emergencies.

When considering deployment of ITNs in humanitarian emergencies, the infrastructure, access, logistical capacity and resources available must be taken into account, as these may influence the feasibility and cost of procuring and deploying nets.

Good practice statement

Achieving and maintaining optimal coverage with ITNs for malaria prevention and control (2019)

To achieve and maintain optimal ITN coverage, WHO recommends that countries apply mass free net distribution through campaigns, combined with other locally appropriate delivery mechanisms such as continuous distribution using antenatal care (ANC) clinics and the Expanded Programme on Immunization (EPI).

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

Good practice statement

Management of old ITNs (2019)

WHO recommends that old ITNs should only be collected where there is assurance that: i) communities are not left without nets, 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.

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 non-permeable soil.

WHO recommends that recipients of ITNs 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).

 Strong recommendation for , Low certainty evidence

Indoor residual spraying (2019)

WHO recommends IRS for the prevention and control of malaria in children and adults living in areas with ongoing malaria transmission.

Remark:

WHO recommends that WHO-prequalified insecticidal products be selected for IRS use and that these be selected based on the insecticide susceptibility of the local malaria vector(s). IRS is considered an appropriate intervention where:

- the majority of the vector population feeds and rests indoors;
- people mainly sleep indoors at night;
- the malaria transmission pattern is such that the population can be protected by one or two rounds of IRS per year; and
- the majority of structures are suitable for spraying.

 Conditional recommendation for , Very low certainty evidence 

Indoor residual spraying: Humanitarian emergency setting (2022)

WHO suggests deploying indoor residual spraying (IRS) for the prevention and control of malaria in children and adults in areas with ongoing malaria transmission affected by a humanitarian emergency.

Remark:

The conditionality of this recommendation is largely driven by the very low certainty of the evidence that IRS reduces malaria in such settings and due to concerns around feasibility and cost.

When deciding whether IRS may be appropriate for prevention and control of malaria in humanitarian emergency settings, programmes should consider:

- whether the structures are suitable for spraying. Some shelters provided in emergency settings may not be suitable for application of insecticides, such as open-sided structures and those built from materials that affect the residual nature of the insecticides;
- whether the target coverage of IRS can be feasibly achieved in the setting;
- whether there are sufficient resources to cover the relatively high costs associated with an IRS programme. In such settings, transport of commodities to hard-to-reach areas, coupled with the need to quickly procure items and establish human capacity to deliver the intervention, is likely to incur higher costs than when deploying IRS in more stable settings.

As with the deployment of IRS in more stable settings, WHO recommends that WHO-prequalified insecticides be selected for IRS use in humanitarian emergencies. It is important to ensure that the vector population is susceptible to the insecticide selected for spraying.

4.1.2 Co-deploying ITNs and IRS

Conditional recommendation against , Moderate certainty evidence

Prioritize optimal coverage with either ITNs or IRS over combination (2019)

WHO suggests not co-deploying ITNs and IRS and that priority be given to delivering either ITNs or IRS at optimal 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.

Remark:

In settings where optimal ITN coverage, as specified in the strategic plan, has been achieved and where ITNs remain effective, additionally implementing IRS may have limited utility in reducing malaria morbidity and mortality. Given the resource constraints across malaria-endemic countries, it is recommended that effort be focused on good-quality implementation of either ITNs or IRS, rather than deploying both in the same area. However, the combination of these interventions may be considered for resistance prevention, mitigation or management should sufficient resources be available.

Good practice statement

Access to ITNs or IRS at optimal coverage levels (2019)

WHO recommends ensuring access to effective vector control using ITNs or IRS at optimal coverage levels for all populations at risk of malaria in most epidemiological and ecological settings.

Good practice statement

No scale-back in areas with ongoing local malaria transmission (2019)

In areas with ongoing local malaria transmission (irrespective of both the pre-intervention and current level of transmission), WHO recommends that vector control interventions not be scaled back. Ensuring access to effective malaria vector control at optimal levels for all inhabitants of such areas should be pursued and maintained.

4.1.3 Supplementary interventions

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https://www.yunbaogao.cn/report/index/report?reportId=5_23268

