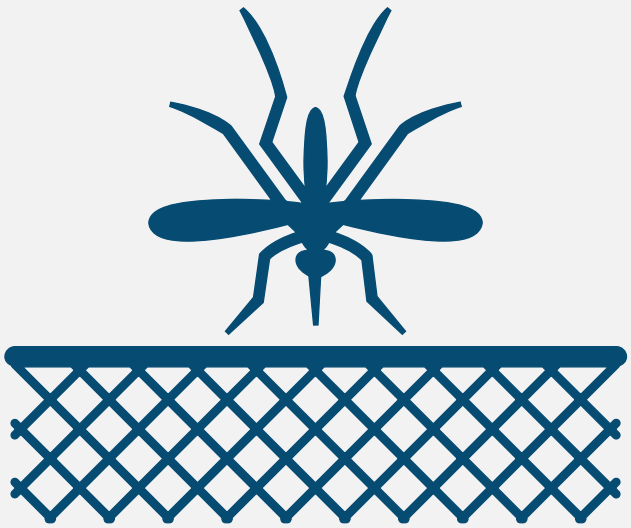


GUIDANCE ON ITN PRIORITIZATION

RBM Partnership To End Malaria
CRSPC

amp | The Alliance for Malaria Prevention
Expanding the ownership and use of mosquito nets

CONTEXT

In the context of limited resources, national malaria programmes may need to make prioritization decisions across all WHO-recommended interventions[1]. This guidance document has been developed to support national malaria programmes on prioritization decisions specifically for insecticide-treated net (ITN) deployment scope and product choice, to be used when programmes do not have sufficient budget to deploy the most effective ITNs to all populations at risk.

This guidance does not address distribution channel decisions or other issues such as frequency of ITN distribution. Nor does it cover every choice that a national malaria programme may need to make regarding ITNs, but rather is intended as a basis to start discussion and decision-making.

Routine distribution of ITNs to vulnerable groups, such as pregnant women and children under five years of age, remains critical. It is strongly recommended that these distribution channels are maintained in all areas, regardless of the plans for campaigns. This guidance document therefore includes ensuring this coverage as the first step, and then focuses on planning for high-volume, intermittent ITN distributions. While the term "campaign" is used throughout, the guidance is applicable to other high-volume, intermittent deployment approaches such as large-scale school or community distributions.

In the last three years, more than 50 per cent of national malaria programmes have implemented a mass campaign with two or more ITN types (i.e. pyrethroid-only, pyrethroid-piperonyl butoxide (PBO), pyrethroid-chlorfenapyr or pyrethroid-pyriproxifen). The ITN types were, as far as possible, targeted to geographical areas based on local insecticide resistance data. Going forward, increasing resource constraints resulting from flatlined funding, high inflation, population growth and competing priorities exerted by other malaria interventions may require national malaria programmes to make compromises, taking prioritization decisions that balance net quantities and types, distribution channels, target populations and the relative value for money of these choices, to best optimize impact.

This guidance document aims to support programmes in developing a prioritized deployment plan that balances efforts to optimize ITN effectiveness with ensuring coverage of the most at-risk populations. The proposed prioritization process is based on best practice generated in Africa over recent years but should be used by all countries deploying ITNs.

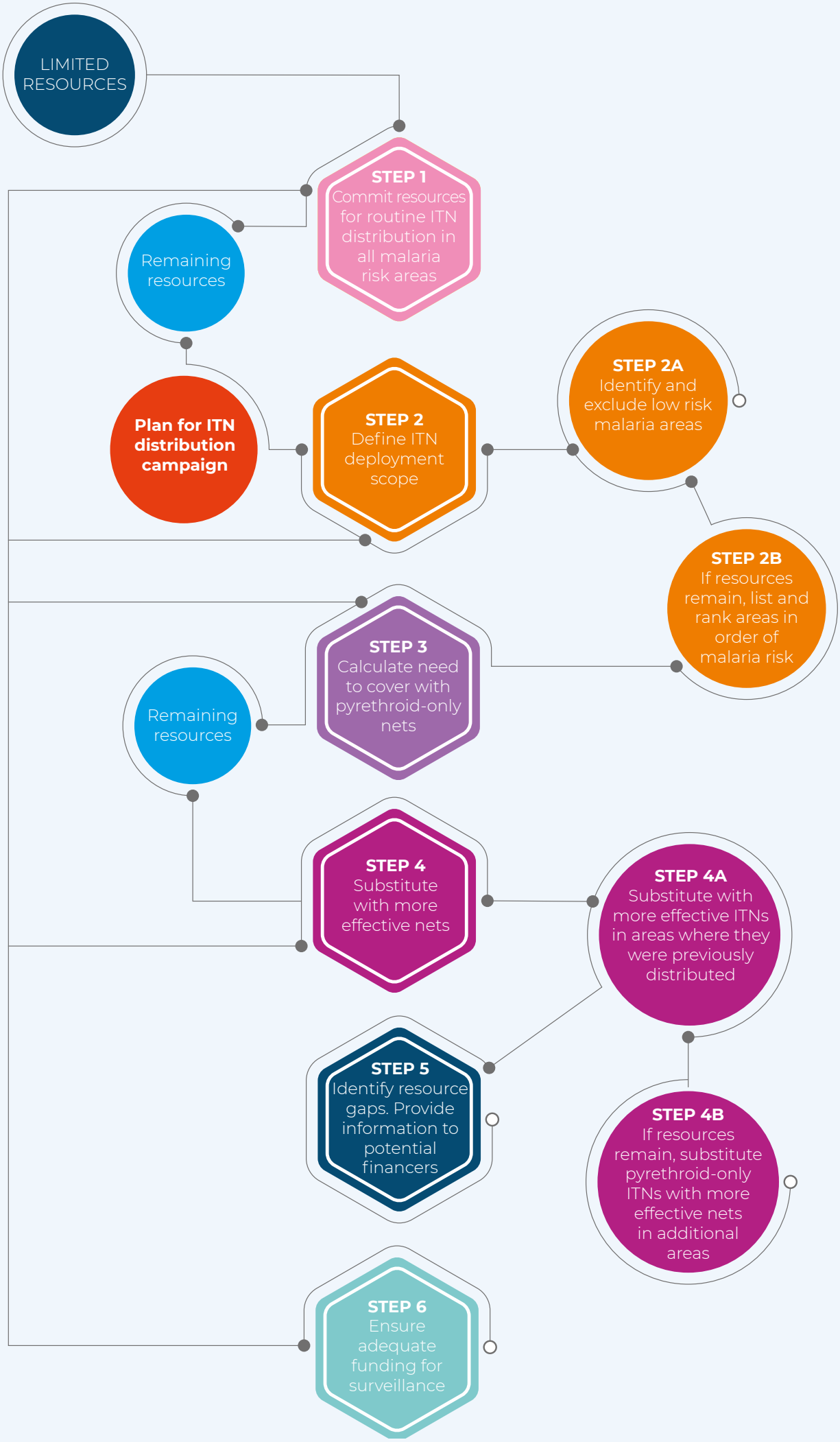
1. https://app.magicapp.org/#/guideline/6810

In summary this guidance works through the following steps:

1. Ensure access for vulnerable groups: commit funding for routine ITN distribution to vulnerable groups in all malaria risk areas

Then, for campaign deployment planning:

2. Define ITN deployment scope:
   a. Identify and exclude areas of very low current and historical malaria risk
   b. List and rank the areas for campaign ITN deployment in order of malaria risk
3. Maximize coverage: calculate the funding needed to ensure full coverage with pyrethroid-only nets. *If funding remains then:*
4. Maximize effectiveness: substitute pyrethroid-only ITNs with pyrethroid-PBO or pyrethroid-chlorfenapyr ITNs in areas of pyrethroid resistance, starting with areas that previously deployed non-pyrethroid-only ITNs and then in decreasing order of malaria risk.
5. Identify funding gaps that impede further effective coverage and make that information available to potential financers.


LIMITED RESOURCES
STEP 1
Commit resources for routine ITN distribution in all malaria risk areas
Remaining resources
Plan for ITN distribution campaign
STEP 2
Define ITN deployment scope
STEP 2A
Identify and exclude low risk malaria areas
STEP 2B
If resources remain, list and rank areas in order of malaria risk
STEP 3
Calculate need to cover with pyrethroid-only nets
Remaining resources
STEP 4
Substitute with more effective nets
STEP 4A
Substitute with more effective ITNs in areas where they were previously distributed
STEP 5
Identify resource gaps. Provide information to potential financers
STEP 4B
If resources remain, substitute pyrethroid-only ITNs with more effective nets in additional areas
STEP 6
Ensure adequate funding for surveillance

STEP 1

Commit resources for routine ITN distribution to vulnerable groups in all malaria risk areas

- Calculate the ITN needs for continuation of routine ITN deployment to vulnerable groups (e.g. pregnant women and infants under five through antenatal care [ANC] and Expanded Programme on Immunization [EPI] routine visits). Calculate the required funding for pyrethroid-only nets at this step. These can be incrementally substituted for more effective nets at later steps in the prioritization process as geographical areas are allocated more effective nets for campaign deployment; alternatively, programmes may decide to keep one type of ITN throughout the country for routine distribution in which case the required funding for pyrethroid-PBO or pyrethroid-chlorfenapyr nets should be calculated at this step.

Then move on to campaign planning:

STEP

2

Define ITN deployment scope

2a : Identify and exclude geographic areas of very low malaria risk

- Identify areas where the current and historical risk of malaria is very low based on national programme data (including most urban areas). In Africa very low-risk areas (e.g. consider a range of one to three per cent malaria prevalence) are generally found in highly urbanized centres or in specific rural areas; the identification of "very low risk" areas should consider the complexities below:

  i. In highly urbanized centres of large towns and cities malaria transmission is often heterogenous and hotspots of transmission may exist. Identify any such areas of higher *local* transmission (i.e. excluding hotspots linked to imported cases) and ensure they are not classified as "low risk"[2].

  ii. The invasive vector *An. stephensi* is being reported from an increasing number of locations, including urban areas. To effectively control this vector, urban areas that have been invaded by *An. stephensi* will require some form of vector control. Depending on context this could include ITN distribution.

  iii. In rural areas, very low risk areas are only found at very high altitudes, deserts, or at the edge of malaria's geographical distribution. However, the receptivity of these regions may have changed due to activities other than malaria control, such as irrigation, mining, infrastructure development and climate change. It is therefore critical to look at recent and historical epidemiological trends to determine whether an area is of very low malaria risk and can be deprioritized.

  iv. Use data from ITNuse.org in addition to other data to support decision-making on ITN campaign prioritization. For example, consider whether ITNs are more effective in urban areas versus use of another vector control strategy.

2. The approach is explained in the WHO urban malaria framework: World Health Organization. (2022). Global framework for the response to malaria in urban areas. World Health Organization. https://apps.who.int/iris/handle/10665/363899. License: CC BY-NC-SA 3.0 IGO

- Use this analysis to determine areas to be excluded from campaign ITN deployment, considering the following guidance:

  - Cease campaign ITN distribution in areas with historic and current very low-risk – i.e. zero coverage provision – or areas with documented low ITN use unless action to rectify this issue has been identified and included in the budget.
  - Maintain ITN distribution in areas with persistently high or moderate malaria risk, including urban clusters of moderate to high local transmission.
  - Maintain ITN distribution in areas currently at low risk that were historically moderate or high risk (i.e. low risk has only been achieved recently through vector control).
  - Maintain ITN distribution in areas of historically low risk, where risk is increasing due to climate change or other factors.
  - After appraising vector control options for *An. stephensi*, consider whether ITN distribution in areas where An. stephensi has been detected should be maintained or if other alternatives such as larval source management would be more cost-effective. This decision should not be affected by historical/current malaria risk.

Note: In areas where ITNs are scaled back due to low malaria risk it is critical that robust surveillance is in place to detect epidemics and that adequate access to case management is ensured. Additional information can be found in both the WHO Guidelines for Malaria[3] as well as the WHO Urban Malaria Framework[4].

3. Best Practice Statement: No scale-back in areas with ongoing local malaria transmission (2019), WHO, Guidelines for Malaria, p. 61. https://apps.who.int/iris/rest/bitstreams/1427681/retrieve
4. World Health Organization. (2022). Global framework for the response to malaria in urban areas. World Health Organization. https://apps.who.int/iris/handle/10665/363899. License: CC BY-NC-SA 3.0 IGO

2b : List and rank the areas for campaign ITN deployment in order of malaria risk

- Divide the country into the lowest administrative levels at which different ITN types could feasibly be deployed (i.e. districts or other second-level administrative areas). Prioritization steps will consider malaria risk, so it is better at this stage to consider the *smallest* practical implementation areas (e.g. districts rather than provinces), as smaller areas are more likely to have similar levels of malaria risk. Epidemiological data plus other contextual factors – such as access to care - should be considered to help define risk.

- Rank these areas by malaria risk:

  - The aim is to assess the potential for transmission in the absence of vector control, especially what may be expected if ITNs are **not** provided. Malaria programmes should use the best available indicators and data and triangulate both current and historic data, including prevalence of infection in surveys, incidence in health facilities, transmission intensity (from entomological studies), other contextual factors, and the best estimates of well-informed and experienced staff.

  - One approach would be to draft an initial ranking based on an assessment of historical (i.e. pre-intervention or natural) transmission intensity. Note that in areas where vector control coverage is currently moderate or high, current levels of malaria incidence and prevalence should **not** be considered a reliable indicator of historical/natural transmission intensity. In areas with low burden due to vector control, the immunity in the population may be diminished and if vector control is withdrawn, resurgence/epidemics can occur.

  - Having drawn up an initial ranking based on historical endemicity or background transmission intensity, this ranking will then need to be adjusted to account for additional risk factors.

- For each location, calculate how many nets would be needed for full campaign coverage (with a quantification ratio of 1:1.8 or a modified ratio based on local data). Programmes planning to “match” the type of ITNs in their routine system with their campaign deployment plan should include an additional column quantifying the nets and associated funding for routine distribution over a period of three years in each area.

STEP 3

Maximize coverage: calculate the need to cover these at-risk areas with pyrethroid-only nets

For the points below, use the cost of a pyrethroid-only ITN and include deployment costs:

- Starting with the area with the highest risk, assign the resources needed for full ITN coverage with pyrethroid-only ITNs.
- Repeating this step, continue down the list in order of malaria risk.
- Continue until the available funding has been depleted. (It is best to end on a completely covered area, rather than a half-covered area, which would create operational difficulties).
- *If resources still remain after Step 3, move to Step 4. If not, go to Step 5.*

STEP

Maximize effectiveness: “substitute” pyrethroid-only ITNs with more effective nets as far as possible

- Consider which areas in your ITN deployment plan have pyrethroid resistance. Ideally these will be provided pyrethroid-PBO or pyrethroid-chlorfenapyr ITNs following the processes in steps 4a and 4b. Recognizing that no programme is likely to have insecticide resistance data for all deployment areas, some extrapolation from adjacent areas is appropriate, including adjacent areas of neighbouring countries where relevant.
- Allocate resources remaining after step 3 by substituting pyrethroid-only ITNs in the deployment plan in the following stepped process.
- For the process below consider the incremental cost to substitute pyrethroid-only ITNs with pyrethroid-PBO or pyrethroid-chlorfenapyr ITNs, noting that delivery costs of ITNs to end users are already allocated in the step above.

4a : Substitute pyrethroid-only ITNs with more effective ITNs in areas where they were previously distributed

- Allocate the *additional* available resources needed to replace pyrethroid-only ITNs with pyrethroid-PBO or pyrethroid-chlorfenapyr ITNs in areas that previously received these net types, starting from highest burden areas. For programmes planning to "match" the type of ITNs in their routine system with their campaign deployment plan, allocate the additional resources needed to replace the pyrethroid-only ITNs for routine distribution with the net type to be used for the campaign.
- Continue area by area until resources are depleted.
- *If resources remain from step 4a, move to step 4b. If not, go to Step 5.*

4b : Substitute pyrethroid-only ITNs with more effective ITNs in additional areas

- Allocate the *additional* resources needed to substitute pyrethroid-only ITNs with pyrethroid-PBO or pyrethroid-chlorfenapyr ITNs in additional areas, starting from the next highest burden areas with pyrethroid resistance and expanding to neighbouring high burden districts without pyrethroid resistance data.
- For programmes planning to "match" the type of ITNs in their routine system with their campaign deployment plan, allocate the additional resources needed to substitute the pyrethroid-only ITNs for routine distribution with the net type to be used for the campaign.
- Continue area by area until resources are depleted.

STEP

5

Identify resource gaps

If either optimal coverage with any ITN, or with the most effective ITN, cannot be achieved with the available funding (taking into account all external and domestic sources) then a prioritization exercise amongst all interventions will need to be considered. If gaps persist, these additional funding needs should be identified and codified and this information should be provided to potential financers, such as the government, PMI and/or in the Global Fund Prioritized Above Allocation Request.

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STEP

6

Ensure adequate funding for surveillance

A robust surveillance system is needed to ensure appropriate monitoring of malaria indicators to provide timely signals of potential upsurges in areas no longer receiving ITNs, as well as for routine programmatic decision-making. Allocate sufficient funding to address any surveillance strengthening needs as well as system maintenance.

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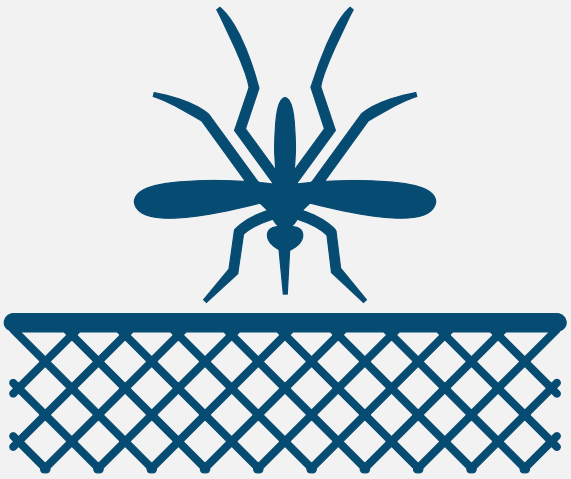

AMP CONTACTS

To join the weekly AMP conference call each Wednesday at 10:00 AM Eastern time (16.00 PM CET) use the following Zoom meeting line:
https://us06web.zoom.us/j/2367777867?pwd=a1lhZk9KQmcxMXNaWnRaN1JCUTQ3dz09

You can find your local number to join the weekly call:
https://zoom.us/u/acyOjklJj4

To be added to the AMP mailing list visit:
https://allianceformalariaprevention.com/weekly-conference-call/signup-for-our-mailing-list/

To contact AMP or join an AMP working group please e-mail:
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For further information please go to the AMP website:
https://allianceformalariaprevention.com

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