Malaria Programmatic Gap Analysis: Guidance Note August 2019

Introduction

A comprehensive programmatic gap analysis outlines the programmatic requirement needed to fully implement the strategic plan of a national malaria control programme. It also identifies components already funded, and highlights any outstanding financial gaps for which funding is being sought. The analysis covers key malaria control interventions including vector control (Long Lasting Insecticidal Nets (LLINs) and Indoor Residual Spraying (IRS)), case management (diagnostic testing and treatment), preventive chemotherapy (Intermittent preventive treatment in pregnancy (IPTp), and seasonal malaria chemoprevention (SMC) as well as supportive activities needed to effectively deploy and monitor these interventions such as management capacity, training, behavior change communication and monitoring and evaluation. The gap analysis follows an evidence-based approach to planning and programing based upon the targets and strategies outlined in the malaria national strategic plan (NSP).

Definition

Programmatic gap defined by the services and commodities needed to cover the gap between the current coverage and the planned objectives for a given malaria intervention. The services cover both technical and supportive activities.

Financial gap represents the difference between the available financial resources (or projected resources) and the total resources needed to fill the programmatic gaps. A comprehensive programmatic gap analysis is required to inform the resource estimate for the financial gap analysis.

Guiding principles

Evidence-based: Accurate and detailed data/information are needed to ensure a credible gap analysis. The relevant evidence includes the following:

1. Historical data and experience from previous programme implementation
2. Accurate national population data disaggregated by age group, and geographic location (population per district, urban and rural etc.)
3. Up to date information on the implementation status of current interventions
4. Information on the national funding landscape, both actual and promissory are needed to derive a credible financial gap analysis from a programmatic analysis.

Harmonization and Alignment: the gap analysis is based on the national strategic plan. Partner coordination, harmonization and information sharing will facilitate consensus on the programmatic and financial gaps. The Programmatic Gap analysis is an integral part of the programme planning and implementation cycle and is not a stand-alone exercise. It should be updated regularly when new information becomes available.

Equity: While assessing coverage of interventions, it is important for the national malaria programme to identify any disparity relating to gender, geographic location, particular population groups or age groups to make sure that the recommended implementation strategies are comprehensive and equitable. Particular attention should be given to the very vulnerable populations and the hard to reach groups such as refugees and IDPs.

Transparency and accountability: Transparent information sharing between the malaria programme and partners will avoid duplication of efforts and ensure mutual accountability.

Methods for malaria programmatic gap analysis

The RBM Partnership Country Regional Support Partnership Committee (CRSPC) recommends all countries undertake a comprehensive programme performance review that will be the basis for an evidence-based

National Strategic Plan. In order to facilitate the gap analysis, the CRSPC recommends the development of a multiyear implementation/business plan, and an annual operational plan (to guide the day to day work) from the NSP. The following steps are recommended:

1. Identify the Programmatic need

- Using accurate national population and malaria data, update the malaria stratification and population at risk (by age group, sex and geographic distribution)
- Using targets and interventions outlined in the national strategic plan, and based on the best available epidemiological information identify areas and populations that will benefit from each intervention and delivery approach
- Develop SMART[1] objectives and indicators (The performance framework from the national strategic plan should be the main reference)
    - Develop a multiyear implementation plan with quantified annual targets
    - Describe clearly the service delivery approaches or strategies to deliver the key interventions
    - Quantify the commodities needed for each intervention. Note that tools developed by RBM partners as well as guidance from the CRSPC and WHO can assist in the quantification exercise
    - Identify the detailed activities to be undertaken and timeframe (technical and supportive activities)

2. Identify what is currently financed. Assess the commodities and activities already covered with existing systems and resources including the identification of the contribution of all partners

3. Identifying the gap - Identify the commodities and activities that still need to be covered

[1] SMART – Specific Measurable Achievable Relevant Time-bound

Table 1: Generic programmatic gap analysis

Priority intervention	Historical		Mid-term			End term	
	-2Y	*-1Y*	*Y1*	*Y2*	*Y3*	*Y4*	*Y5*
A: Country annual needs (E.g., LLIN, IRS, RDT, ACT etc.)							
B: Extent of annual need already planned to be met under the existing program and resources							
B1. Government							
B2. External Resources							
B2.1. Global Fund							
B2.2. Other partners (name them)							
B2.3 3. Other partners (name them)							
B total							
C: Expected gap in achieving targets (= A – B total)							

The gap analysis should be carried out for all main interventions and service delivery areas that were identified based on malaria epidemiology and implementation approaches. The numbers in the programmatic gap analysis table are related to the size of the population groups targeted by the priority interventions, not the financial need for the interventions. The financial gap analysis will be done as a second stage in the process.

Specific guidance notes for gap analysis

LLIN gap analysis

1. Define national target. We recommend you aim for 100% sustained coverage of the targeted malaria endemic population. To ensure sustained universal coverage requires both periodic mass campaigns and continuous routine distribution of nets.
2. Define the population living in malarious areas targeted for campaigns. At present, based on the WHO recommendation, campaigns are carried out every three years.

2.1.1 Estimates of net requirements for campaigns are based on 1 net for 2 persons in malaria endemic areas. Based on experiences throughout Africa, and to account for people living in households with an odd number of family members, WHO and the RBM partnership recommend you use a calculation of the target population (A) divided by 1.8 (A/1.8).

2.1.2 For countries where the census is greater than 5 years old, consider including a 10% buffer, or use data from previous campaigns to justify a buffer amount. Remember to include the date of the census and any underlying assumptions.

3. WHO and the RBM partnership recommend nets are distributed through the continuous systems to maintain coverage between campaigns, including distribution through ANC on first visit by pregnant women and to infants through routine EPI, usually alongside DPT3 or measles vaccination.

3.1.1 To calculate the number of nets required through ANC, multiply the population living in malaria endemic areas by the percentage of pregnant women in the population (this is usually around 4-5%). Factor in current ANC coverage, with increases over time based on planned improvements in access to care and official projections where possible, as well as population increases.

3.1.2 To calculate the number of nets required through EPI, multiply the population in malaria endemic areas by the percentage of children under 1 (this is usually around 4%). Factor in current EPI coverage, with increases over time based on planned improvements in access to care and official projections where possible. If you are targeting children under five years of age through child health clinics instead, modify as appropriate.

3.1.3 If the country is using other mechanisms such as community based distribution, targeting of IDPs and refugees or school based distribution, these should also be factored in here and the CRSPC can provide guidance on this if necessary.

3.1.4 Adding the target population for EPI and ANC, and where applicable, for school based distribution, community based distribution or IDPs refugees etc. gives the total number of nets distributed through continuous systems.

4. The total number of LLINs required is calculated by adding the campaign nets (usually once every three years, unless the country has adopted a programme of rolling campaigns) and the routine and continuous nets in all years.

5. For campaign years, analyse whether the routine system will provide population coverage above 40%. This could occur if the routine system is strong, or there is a large school based distribution programme. If routine net population coverage is above 40%, these LLINs need to be subtracted from the number of nets needed in a campaign to ensure value for money. To do this you will need data on existing nets distributed through continuous distribution including ANC, EPI and schools. The CRSPC/AMP estimates that nets are lost at the rate of 8% during the first year they are distributed, 20% during the second year, and 50% during the third year. These lost nets will also require replacement, and these loss rates should be factored into the calculation routine coverage. Local country data should be used where information on durability exists, and efforts should be made to monitor LLIN longevity in the field.

5.1.1 The cumulative number of existing nets is calculated by adding the nets distributed in the current year, and previous two years **through continuous/routine systems only**. Any nets distributed more than three years ago should not be included in this calculation, as they will be coming to the end of their useful life (unless there is local data indicating durability beyond three years).

5.1.2 If population coverage is >40%, subtracting the number of existing nets from the total number of nets needed gives the total net need for mass LLIN distribution campaign. Alternatively, emphasis should be placed on enhancing coverage through the continuous distribution channels.

6. LLINs planned to be met under other programmes (domestic resources, partners other than the Global Fund) are summed to show what is currently funded or expected to be funded.

7. The expected annual gap in achieving targets is calculated from the number of nets required minus number of nets funded. For the GF, consider including any gap LLINs in the Prioritised Above Allocation Request. Also highlight LLIN gaps to other donors.

8. Calculate the cost per net delivered based upon current LLIN prices and recent distribution costs.

9. Highlight the number of LLINs to be financed through GF funding proposal whilst row 10 summarises the number of LLINs to be financed from allocation amount and other resources. This leaves row 10 to highlight

the outstanding gap which can be considered for prioritising in the Prioiritised Above Allocation Request (PAAR). PBO LLINs

10. In line with WHO's guidance on PBO nets, ensuring coverage of all the at risk populations should be prioritized over the selection of more costly vector control tools. In order to help calculate the number of PBOs vs conventional LLINs that can be procured, a simple calculation tool has been incorporated into the gap analysis.
    - Insert the total budget available for procuring LLINs (do not include the distribution costs in this estimate) (row 42)
    - Insert the total number of LLINs to be procured (row 43)
    - Enter the estimated cost of a PBO and a conventional LLIN (for your country net specifications) based on the current prices included in this link (insert link).
    - The automatic calculator will calculate how many PBOs and conventional LLINs can be calculated with the resources available (row 55)

Summary of PBOs and conventional LLINs for the Global Fund gap analysis

11. From the total number of LLINs available highlight the number of PBOs required based on resistance data.

12. Record the number of PBOs already financed and highlight the number of PBO LLINs to be funded. Note that for the Global Fund, PBOs cannot be proposed within the GF allocation if there are gaps in pyrethroid-only nets.

IRS gap analysis

1. Define the objective of IRS within the goals of the national malaria programme
    - To rapidly reduce transmission in high malaria endemic areas
    - To prevent epidemics in moderate and low transmission areas
    - To eliminate malaria from malaria foci
    - To address insecticide resistance

Based on the programme need and objectives the IRS strategy may be universal coverage of all malaria risk districts and populations or selected and targeted coverage of a few districts or sub-districts. The national IRS population coverage is based on total population at malaria risk and the expected population to covered with IRS. Define number of districts/sub-districts, average size of households and total number and type of households and target populations for IRS

    - The population size will increase annually based on population growth rates
    - Traditional housing and urban housing vary with regards to size, surfaces and appropriate type of insecticide to be used

2. Quantify the **average area of sprayable surface (m^2) of structures and number of structures** in target areas
    - Periodic geographic reconnaissance at community level is required for better quantification and mapping

3. Define the **number of IRS cycles** per year

- The assumption depends on malaria transmission and insecticide duration of effective action. In areas of seasonal malaria transmission one spray round is sufficient but areas with transmission seasons longer than 8 months or two seasonal peaks, more than one spray round may be necessary.

Once the target districts and populations to be protected, structures to be sprayed, and cycles per year are determined, guidance and tools are available to calculate the human and financial resources required for insecticide, equipment, personnel, operational costs, monitoring and evaluation, etc.

- Refer to http://www.rollbackmalaria.org/toolbox/tool_IRStoolkit.html
- WHO operational manual on Indoor Residual House Spraying

4. Quantify **IRS chemical** needs for every year of the implementation plan
    - This is calculated based on total number of households and the total sprayable surface area
    - This is also based on type of insecticide used and the concentration of active ingredients dosage required per meters squared and the number of sachets/bottles required per household. Please look at insecticide manufacturers' guidelines and product labels for more specific guidance. Costs should include transport, storage and disposal. Identify in the analysis which insecticide will be used (and indicate if a different insecticide will be used in different areas within one year or across different years)
5. Quantify **IRS spray hand compression pumps** and repair kits needs for every year of the implementation plan
    - This is calculated based on the inventory of stocks of working spray pumps and those requiring repairs and the expected number of spray teams to be deployed.
    - It is best to standardize around use of 10 liters working capacity pumps
    - Standard spare kits are available from manufacturers for 4, 6, 8 or 10 IRS operation teams
6. Quantify **IRS protective equipment kit** needs for every year of the implementation plan
    - This is calculated based on the inventory of stocks of protective kit per spray operator and the expected number of spray operators to be deployed
7. Quantify the **operational and administrative costs** of the annual spray campaign
    - This will include all personnel costs such as spray operators' salaries and supervisors' per- diems, transport (vehicle purchase/rental, maintenance and fuel) as well as rental, security and refurbishment costs for the warehouses, staging areas, and washing areas and related waste management requirements
    - This can be for one or two cycles per year.
    - Preparation of the IRS component of the malaria vector control section of the malaria strategic plan as well as the annual operational work plan
    - Annual and quarterly IRS review and planning meetings to maintain high performance program management
8. Quantify **annual cascade training and supervision** costs
    - This is based on annual national training course for training of trainers
    - Then provincial training course for supervisors

- Then one or more districts training course of IRS spray operators
- Supervision includes monthly supervision to all spray teams by district supervisors and provincial and national supervisors visit to all districts at least once in spray cycle
- This will include facilitators and supervisor travel and per-diems, materials, food, facility rental etc.
- Community Mobilization includes human and financial resources needed for preparatory community meetings, information campaigns, and the door to door community mobilizers to accompany the spray teams for house preparation

9. IRS **monitoring and reporting** costs.
    - Production of daily, monthly and annual spray reports on houses sprayed, population covered, insecticides used and in stock, spray pumps in stocks and need for repair, protective gear in stock, transport used, financing allocated and used, etc.
    - Quality assurance of spraying (monitoring durability, etc) in various spray sites during and post campaign
    - Vector sentinel sites should be a minimum of one site per million population and representatively situated in different transmission eco-epidemiological areas
    - Annual bioassays should be conducted after each spray cycle
    - Annual insecticide susceptibility testing before each spray cycle

Determine what funding and support will be committed through domestic resources and partners and what gap remains.

10. Assess the commodities, logistic, human resources and activities already covered with the existing national systems and resources
    - Assess what is available for IRS service delivery from the national program and the health system
    - Meet with partners and stakeholders' to assess their level of planned specific IRS delivery contributions
11. Estimate the expected annual gaps that still need to be covered for commodities, logistic, human resources and activities
12. Specify which insecticide is being used and indicate if this will be changed during the funding cycle and if so, to what.

Gap Analysis for Malaria Diagnosis and Treatment

The defined needs of Artemisinin-based Combination Therapy (ACTs) and malaria diagnostic tests (microscopy and Rapid Diagnostic Tests (RDTs)) are influenced by the disease epidemiology and coverage of the health system. It is critical that the most up to date scientific, evidence based and rational assumptions be used. Note that not all assumptions in the table might be applicable to your local situation. Disregard assumptions that are not relevant to your national context. Similarly, be sure to include other assumptions which might not be listed in the table but that you consider relevant to your context. You must explain the rationale for all assumptions made.

Treatment

1. In order to estimate the projected requirement of ACTs by year, ACT consumption data are preferred where available, but epidemiological estimates can also be used.
2. **Reducing ACT consumption as a result of vector control.** Local data on the declining number of malaria cases as a result of universal coverage for vector control should be used. Exceptionally, where these data are not available, the following should be used as an estimate: when universal coverage with a vector control intervention is attained, assume a 10%, 20% and 30% reduction[2] in malaria cases beginning in the year following universal coverage for the successive three years, as long as universal coverage is maintained. Do not factor in a reduction where an increase in cases has been observed.
3. **Reducing ACT consumption as a result of increased parasitological diagnosis. This must take into account slide positivity rates and parasitological diagnostic testing coverage.** Insert the current and projected coverage of parasitological diagnostic testing by year. Where the parasitological diagnosis is already high, and especially where consumption data have been used, insert the increase in coverage of parasitological diagnosis over time (for example, if in 2019 parasitological diagnosis was at 80%, and is expected to increase to 90% in 2021, this would be an increase of 10%). Also insert the percentage negative tests based on slide positivity rates and consider care-giver compliance where this has been identified as an issue (i.e. where service providers provide an ACT despite a negative test). Multiply the total number of cases by the percentage coverage of parasitological diagnosis by the % of negative tests (and by compliance where applicable) to calculate the reduction in treatments. In summary, the number of ACTs required is calculated as the overall need based on national targets, and factoring in the relevant reductions as a result of vector control interventions and expanding parasitological diagnosis.
4. The proportional contribution to access (service delivery access by sector) from each sector: public, community case management and private sector should be estimated and broken down by each sector. This share by sector may change over time - for example, with shifts in treatment seeking in the public or private sector.
5. The proportion of malaria cases that are to be treated with ACTs should be aligned with the targets in the NSP and this should include the different coverage targets for each sector (e.g. public health facilities 100% of malaria cases targeted, iCCM 100%, private sector 15%). Do not include the malaria cases that are not accessing care and are not reached.
6. Multiply the number of ACTs required by each sector by the proportion of malaria cases in each sector.
7. Subtract the number of ACTs financed from the number required to calculate the gap by sector
8. Calculate the number of ACTs already financed or available over the projected period, preferably breaking these down by sector (e.g. public, iCCM, private).
9. Breakdown the required number of ACTs by age group in accordance with packaging requirements. The ACT gap at the end of the worksheet represents the total number of MALARIA TREATMENTS. To determine the financial gap you would need to allocate this total requirement into treatment courses per appropriate age group. For example if the ACT in use in country Y is artemether plus lumefantrine, the total treatment calculated should be sub-divided according to the four treatment pack sizes for the different age groups.

I Countries with rolling campaigns should pay attention to the percentage of the country that has achieved universal coverage

The country population profile and the proportion of cases in each age group should be used to make this division. The financial gap is then determined by applying the respective pack specific prices to the needs.

Diagnostic testing

1. Calculate the number of RDTs and microscopy slides required annually. Insert the number of suspected malaria cases annually based on epidemiological estimates and extrapolate to account for population increases. Calculate the total number of RDTs and microscope slides required annually.
2. Project the impact of vector control on fever cases. This should not be the same as the reduction in malaria cases as all fever is not malaria. Local data on the trends of reduction in fevers should be used, where available, otherwise we would suggest applying a 5%, 10%, 15 % as a pragmatic approach to estimating reduction in fevers. Do not factor in a reduction where an increase in cases has been observed.
3. Insert the national targets for diagnostic coverage based on the targets in the National Strategic Plan. Be sure to account for different diagnostic coverage by sector for example noting the percentage access to care through public health facilities, at community level and through the private sector. Diagnostic coverage at public, private and community levels will then need to be incorporated.
4. The number of RDTs and microscopy slides required is calculated by factoring in overall need, national targets, and reductions as a result of vector control, and relative proportion covered by microscopy or RDTs.
5. Calculate the number of RDTs/microscopy slides already financed or available over the projected period by sector.
6. Subtract the number of RDTs/microscope slides financed from the total number required to calculate the gap by sector.

Specific guidance notes for preventive chemotherapy

Seasonal Malaria Chemoprophylaxis (SMC)

SMC is recommended in areas of highly seasonal malaria transmission throughout the Sahel sub-region. A complete treatment course of sulfadoxine–pyrimethamine (SP) plus amodiaquine (AQ) should be given to children aged 3–59 months at monthly intervals, beginning at the start of the transmission season, up to a maximum of four doses during the malaria transmission season. The target areas for implementation are those in which:

- malaria transmission and the majority (> 60%) of clinical malaria cases occur during a short period of about 4 months;
- the clinical attack rate of malaria is greater than 0.1 attack per transmission season in the target age group; and
- SP + AQ remains efficacious (> 90% efficacy).

Good quantification of supplies is a key determinant of successful implementation of SMC. Estimating the quantity of drugs requires a close approximation of the number of children aged 3–59 months per village, health zone, district, region or country where SMC strategy is applicable. If such estimates are not available but the fraction of children in this age group in the population is known, the quantity of SMC drugs can be estimated.

Population data can be obtained from the most recent national census or demographic and health survey or the national bureau of statistics. The example below is based on the average percentage distribution of children by age was 5% aged < 3 months, 18% aged 3–11 months and 77% aged 12–59 months.

SMC is delivered in two dosage groups: 3–11 months and 12–59 months.

If the number of children aged < 5 years is *N*, the number of tablets required is calculated from:

N x 0.18 = number of children aged 3–11 months

N x 0.77 = number of children aged 12–59 months

The number of tablets is the product of the expected number of children in the targeted area(s) and the number of doses given during the transmission season.

Evaluation of the cost of delivering SMC in large field trials shows that the greatest costs are for delivering the drugs and the incentives paid to health workers. In The Gambia, the cost of SMC delivery by village health workers was estimated to be US$ 1.63 per child per year.[3] In Senegal, where SMC was delivered by community health workers paid a daily rate and supervised by the health post nurse, the overall cost at 46 health posts was estimated to be US$ 0.5 per child per month, or approximately US$ 1.50 per child per year.

Highlight the number of children to be reached, the number financed and the outstanding gaps.

Specific guidance notes for M&E, Programme management, and Advocacy and BCC gap analysis

1. The list provided in the respective worksheets for monitoring and evaluation, programme management, advocacy and BCC are all indicative. This is not meant to be comprehensive as these support mechanisms differ significantly between and within countries.
2. Ensure you reflect the specific activities as per your National Strategic Plans. Ensure that evidence based approaches to BCC are used. Depending on the local situation consider a combination of monitoring and evaluation mechanisms including routine data through HMIS, LMIS etc. as well as surveys such as MIS's. Also include essential activities such as insecticide resistance monitoring, drug resistance monitoring and LLIN durability monitoring.
3. Determine the average cost per unit to fully undertake each of the activities, and use that to derive the total cost per activity per year.
4. As the costing of most of these activities are country specific, there is the need to justify the cost of these support activities in your financial gap analysis.

Method for conducting the malaria financial gap analysis

The financial gap analysis should be based on needs identified under the programmatic gap analysis for each intervention.

- Quantify the cost of commodities needed for each interventions.[4]
- Summarise the cost of commodities already covered with existing resources
  Both information from domestic funding and international partners will be taken into account
- Identify the cost of commodities that still need to be covered
- Quantify the cost of the detailed activities to be undertaken and timeframe (technical and supportive activities)
- Assess the cost of activities already covered with the existing resources
- Identify the cost of the activities that still need to be covered
  Both information from domestic funding and international partners will be taken into account. Unit cost for commodities and activities will always take into account international standards and local operational cost

Table 2: Summary budget gap analysis

[3] Bojang KA et al. Comparison of two strategies for the delivery of IPTc in an area of seasonal malaria transmission. *PLoS Medicine*, 2011, 8:e1000409.

[4] For GF sourcing information see: ACTs: http://www.theglobalfund.org/en/sourcing/acts/
LLINs: http://www.theglobalfund.org/en/sourcing/llins/

	2020	2021	2022	2023
Total need $				
Domestic resources				
External resources (insert name)				
External resources (insert name)				
Financial gap	0	0	0	0