amp The Alliance for Malaria Prevention

EXPANDING THE OWNERSHIP AND USE OF MOSQUITO NETS

Insecticide-treated net (ITN) distribution channel selection toolkit

A structured approach for identifying and prioritizing ITN delivery channels

Purpose and use of the toolkit

- It is well established that increasing access to ITNs will reduce malaria incidence as increased access generally leads to increased use[1].
- The most effective ITNs should be selected according to insecticide resistance profiles. After selecting ITN type(s), national malaria programmes (NMPs) are encouraged to explore optimal distribution channel mixes for sustained ITN access, in line with their priorities and available resources, and leveraging available data to inform prioritization and decision-making.
- This toolkit helps NMPs and their partners determine the optimal ITN channel mix for populations who need ITNs. It accompanies AMP's *Guidance on channel selection for distribution of ITNs* and provides a structured process for analysing population needs, identifying feasible channels and confirming operational readiness. Users are recommended to read the accompanying guidance and familiarize themselves with the full content of this toolkit before working through the toolkit steps.
- The toolkit's five steps can be applied for defined population groups and/or sub-national units aligned with sub-national tailoring outputs:
    - **Step 1**: Define population groups and set ITN access targets
    - **Step 2**: Assess minimally feasible channels
    - **Step 3**: Rate preferred channels on their performance and operational readiness
    - **Step 4**: Consider macrolevel ITN needs and available resources
    - **Step 5**: Finalize the strategy matrix and agree actions for channel-specific plans of action
- Distribution channels included in the toolkit are:
    - Routine health services (delivery to pregnant women through antenatal care [ANC] visits, to caregivers of children through the Expanded Programme on Immunization [EPI], and through other services targeting eligible groups as determined by the NMP[2])
    - Mass distribution campaigns
    - School-based distribution
    - Community-based distribution
    - The commercial sector
- Other channels may be considered where contextually relevant. Space is provided in the tools to record other channels.
- This toolkit does not provide in-depth guidance on planning for complex operating environments (COE). ITNs can be distributed through all these channels in COEs, with appropriate adaptations to their design and

[1] https://itnuse.org

[2] Examples of other eligible groups include children under five years admitted to a health facility with severe malaria; caregivers of children under five years, at their Maternal, Newborn and Child Health (MNCH) clinic, Integrated Management of Childhood Illness (IMCI) or other health contact (facility or community health worker); patients or caregivers, following completion of treatment for (severe) malaria; people living with HIV/AIDS who enrol for the first time at a care and treatment clinic; other vulnerable populations, e.g. mobile and migrant populations, those affected by natural disasters, orphans and the elderly.

strategy. Further guidance is available in AMP's *Operational guidance for insecticide-treated net (ITN) distribution in complex operating environments (COE)*.

- The toolkit is not intended to lead to small-scale pilots but to inform realistic, at-scale programme decisions and stakeholder coordination.

When and where to use the toolkit

- The guidance and toolkit can be used in a range of planning contexts:
    - **Strategy reviews and replanning** – as part of resources to assess whether existing channels are achieving their ITN access targets and revise approaches based on new evidence.
    - **National or sub-national strategy development** – to inform delivery channel selection during malaria strategic plan updates, sub-national tailoring or Global Fund grant design.
    - **Resource-constrained settings** – to prioritize channels when ITN quantities, procurement and operational budgets, or partner resources, are limited or subject to change.
- NMPs should convene a coordination forum to implement the toolkit steps, inviting technical and operational support from WHO and vector control technical and implementation partners.
    - The forum should use existing coordination structures, such as being defined as a time-limited subgroup of the national vector control technical working group, rather than being set up as a new, separate body.
    - Clear roles and facilitation responsibilities should be defined by the NMP for each step.
    - The process of channel decision-making is not a one-off exercise. Completing this toolkit will require multiple discussions among programme staff and partners, time to compile and review indicator data, and potentially revisiting earlier steps as the analysis clarifies earlier decisions on priority populations and feasible delivery options.
- Before modifying the current mix of ITN delivery channels, NMPs and their partners should assess current channel performance, following the considerations in *Guidance on channel selection for distribution of ITNs*. When working through the toolkit, the situation analysis component (Step 2) and the operational readiness assessment (Step 3) can be used for this purpose.

Why consider a mix of channels

- No single delivery channel can maintain ITN access for all populations at risk of malaria. Most countries will require a combination of channels, each with different deployment strategies, to meet ITN access targets. Channel mixes can vary sub-nationally to reflect population needs, ITN longevity, access to delivery channels and equity considerations. Using a mix of channels can:
    - Maintain ITN access
    - Reach targeted population groups, including hard-to-reach groups such as displaced populations
    - Improve efficiency and cost-effectiveness by matching delivery mechanisms to local contexts
    - Strengthen resilience by relying on several systems rather than one (while taking care not to oversupply households)

What the results look like

- By completing the toolkit steps, users will fill and complete an ITN strategy matrix summarizing population groups, their ITN access targets and a channel mix for each group. Strategy design decisions and key implementation considerations can be recorded in the matrix and/or with accompanying documentation.
- Each toolkit step produces inputs which are captured in the strategy matrix, while the final matrix and supporting documentation is the cumulative output from the toolkit. The strategy matrix components are populated through the toolkit as follows:
    - Population groups and ITN access targets are set in Step 1
    - Feasible delivery channels are identified in Step 2
    - Feasible channels are assessed on their performance and operational readiness in Step 3
    - ITN needs and available resources for feasible channels are considered in Step 4

    - Final delivery channel mixes for each population group are agreed in Step 5
- The strategy matrix and its use are presented visually below. A blank template is included for users to adapt to their needs.
- Teams should ensure decisions are clearly documented for transparency and future review. The tools included in Steps 2 and 3 can be used for this purpose, but additional documentation may be required.
- Examples of decisions that could be reached by applying the toolkit include:
    - Distribution through routine health services nationwide (through ANC, EPI and possibly other services), with mass campaigns every three years targeting populations in high-burden areas.
    - Distribution through routine health services plus annual school-based distribution in rural areas, replacing three-year mass campaigns once the school-based system is mature and operating at scale.
    - Commercial sector channels supporting ITN availability in low-burden, stable urban areas where mass campaigns are withdrawn.
    - Community-based distribution through existing trusted community networks in complex operating environments with restricted government access.

Using situation analysis indicators

- Before assessing the feasibility of each ITN delivery channel in Step 2, users should review available data on population characteristics, service coverage and ITN access for population groups and geographies. The worksheets in Step 2 include space to document summary indicator results and their sources. These indicators provide the evidence base for group discussions and help ensure decisions are grounded in recent, reliable information. Each set of indicators highlights the factors most relevant to that channel.

- Where data are required for decision-making but are not available, assumptions should be clearly documented. Critical data gaps should be addressed before finalizing decisions.

- Summary results may mask important variations within the population group or geographic area being considered. Users should review disaggregated data where meaningful differences are known or suspected and consider how conclusions about channel performance and/or feasibility might differ across these sub-groups. Discussions and conclusions should be documented for transparency. In some cases, it may be necessary to split one population or geographic group defined in Step 1 into two or more groups based on meaningful differences in the situation analysis. Alternatively, important sub-group differences in performance of an existing channel may lead to different conclusions about operational readiness (Step 3) and/or follow-up actions when developing or revising the channel plan of action (Step 5).

Final considerations

- ITNs received from any channel contribute to household protection. Even if a channel may not provide ITNs directly to the most biologically vulnerable groups, data have consistently shown that ITNs received from any channel are prioritized within households for the most vulnerable when nets are insufficient to cover all household members.
- Channels should be complementary, not competing. Where multiple channels serve the same population group, users should consider eligibility criteria carefully to minimize the risk of oversupply.
- When assessing ITN channel mixes for broad population groups (e.g. the total population of rural areas), equity of ITN access for marginalized groups within the broad population should be considered and documented as part of final decision-making.
- The toolkit provides a minimum set of tools and templates to be used during channel decision-making, but these are not intended to replace detailed documentation on final ITN channel mix(es) and how these were decided. Documented discussions and justifications will require more space than these templates provide, and users should adapt the tools to their needs.
- Although the toolkit is presented in a linear format, channel decision-making and strategy design is non-linear. Users may need to consider multiple approaches simultaneously, weighing advantages, challenges and trade-

offs to reach the best-suited channel mix. It will thus be important to identify a clearly designated person responsible for final decision-making.

Sources

The following sources were used to develop this toolkit:

- PMI VectorWorks Project
- Global Fund Programmatic Reprioritization Approach guidance
- AMP continuous distribution website

ITN strategy matrix and associated toolkit steps

Although the steps are presented in a linear format, channel decision-making and strategy design is non-linear. Findings from later steps may require users to revisit earlier steps before a final channel mix is reached.

Step 1
Define population groups by characteristics and/or geography, based on malaria burden/risk.
Set an access target for each group.

Step 2
Indicate which channels are potentially feasible for serving each population group by working through the ITN channel selection questions.

Step 3
Update or prioritize channel options based on an assessment of operational readiness for each population group.

Population groups (by geography and/or group characteristics)	**ITN access targets** (as quantitative indicators or operational allocation rules)	**ITN delivery channels**							**Delivery strategy choices** Additional considerations can be recorded in this section based on discussions
		A	B	C	D	E	F	G	H	
		ANC	EPI	Other routine	Mass campaign	School	Community	Commercial	Other	e.g. frequency of distribution, eligibility considerations

Step 4
Consider macrolevel ITN needs for the target population group and compare ITN needs and channel costs with available resources. Finalize channel selection.

The final strategy matrix will identify which delivery channels will be implemented for each population group and outline key choices for delivery strategy.

ITN strategy matrix worked example

The table below presents a worked example of the strategy matrix after completing Steps 1-5 for a hypothetical country. The population groups defined in the first column are mutually exclusive and each group has an ITN access target. Final ITN channel mixes for each population group are shown by the tick symbols and summary design choices are noted in the final column.

Note that while the strategy matrix summarizes the toolkit outcome, it will be accompanied by documentation describing the data used, channels considered, discussions held and rationale for the final channel mixes. These elements are excluded from this example.

Population groups (by geography and/or group characteristics)	**ITN access targets** (as quantitative indicators or operational allocation rules)	**ITN delivery channels**								**Delivery strategy choices** Additional considerations can be recorded in this section based on discussions
		A	B	C	D	E	F	G	H	
		ANC	EPI	Other routine	Mass campaign	School	Community	Commercial	Other	e.g. frequency of distribution, eligibility considerations
All high, medium and low rural and urban areas, excluding regional capitals and internally displaced persons (IDP) camps	*70% population-level ITN access*	✓	✓			✓				*ANC and EPI through all public and private health facilities on a continuous basis. School-based distribution targets classes 1, 3 and 5 every year.*
IDPs living in stable camps in Northern region	*Two ITNs per permanent shelter*	✓	✓		✓					*ANC and EPI provided through humanitarian-run clinics within camps. Mass campaigns every three years quantified on two ITNs per shelter.*
Regional capitals (including capital city)	*Each household with a child under age five and/or a pregnant woman has at least one ITN*	✓	✓				✓			*ANC and EPI through all public and private health facilities in cities. Community-based (CBD) channel operationalized through urban civil society organizations (CSOs) using a pull system to provide one ITN per child under five or pregnant woman, with replacement ITNs distributed no more frequently than every two years.*

Blank ITN strategy matrix

Population groups (by geography and/or group characteristics)	**ITN access targets** (as quantitative indicators or operational allocation rules)	**ITN delivery channels**								**Delivery strategy choices** Additional considerations can be recorded in this section based on discussions e.g. frequency of distribution, eligibility considerations
		A ANC	B EPI	C Other routine	D Mass campaign	E School	F Community	G Commercial	H Other	

Step 1: Define population groups and set ITN access targets

Objective

- Identify population groups which need ITNs based on malaria risk and burden, per sub-national tailoring outputs and/or their characteristics or geography and set ITN access targets for each group.

Guidance

- Planning should avoid both overly generalized national approaches and overly granular group designs. In the first instance, groups should be defined according to sub-national tailoring outputs where available. As time and resources allow, larger groups can be split into sub-groups as necessary for more detailed consideration.
- Many contextual factors that inform channel selection will vary sub-nationally and/or between population groups. For example, populations in different geographic regions will likely have different average household sizes and compositions. Vulnerable populations (e.g. IDPs, refugees, migrant/mobile populations) often differ in access to service delivery channels and ITNs compared with more stable population groups. Past and current ITN distribution activities will likely differ by geography. Differences in contextual factors may be related to geographical area, urban and rural settings, gender, vulnerability or other characteristics specific to the country.
- Discuss which population groups and/or geographic areas should be considered separately when planning the ITN channel mix(es) and enter them in the first column of the strategy matrix. Use one row per group. Population groups should be mutually exclusive where possible to avoid duplication.
- Set realistic and achievable ITN access targets for each group, considering epidemiological need and operational feasibility. Enter targets in the second column of the strategy matrix. Targets may be expressed as population-level ITN access (e.g. 80%) or specific distribution allocation strategies (e.g. one ITN per household with children under five years).
    - Examples of targets include:
        - Population ITN access of 60%
        - All households in the area receive two ITNs
        - Population ITN access of 80% in high and moderate burden areas
        - One ITN distributed to each pregnant woman in the target households
        - One ITN distributed to each child under five in the target households

Expected outputs

- Strategy matrix with “Population groups” and “ITN access targets” columns completed
- Accompanying documentation on the data used and discussions held during Step 1

Step 2: Assess minimally feasible channels

Objective

- Identify the channels that meet the basic operational requirements for each population group; dismiss channel options that are not currently feasible.

Guidance

- The tables below present core questions to determine whether a channel should be excluded for not meeting minimum operational requirements.
- Aim to complete the questions for each channel by considering all population groups or geographic areas listed in Step 1 together. If the geographic contexts or health system contexts differ substantially between groups, users can consider completing Step 2 for each population group separately. Considering population groups separately will take more time but will target discussions and decisions to the specific contexts.
- For each channel, users should source and record key indicator values as part of a situation analysis prior to answering the questions on minimal requirements. Situation analysis tables should be completed to the extent possible given access to available data within a reasonable timeframe[3]. Up-to-date results can help decide whether a channel should be included (this step) and suggest operational gaps (Step 3). Record the most recent, locally relevant data available and cite sources (e.g. Demographic and Health Survey (DHS), Malaria Indicator Survey (MIS), routine health management information system (HMIS), other government data systems, etc.).
- Summary results may mask important variations between and within population groups or geographic areas being considered. Users should review disaggregated data where meaningful differences are known or suspected and consider how conclusions about past channel performance and/or feasibility might differ across these sub-groups. Discussions and conclusions should be documented for transparency. In some cases, it may be necessary to further split one population or geographic group defined in Step 1 into two or more groups based on meaningful differences in the situation analysis. Alternatively, important sub-group differences in performance of an existing channel may lead to different conclusions about operational readiness (Step 3) and/or follow-up actions when developing or revising the channel plan of action (Step 5).
- As you work through the tables for each channel, complete the ITN delivery channel columns in the strategy matrix by marking channels as potentially included or excluded for a population group based on the guidance provided (e.g. put a tick or cross in each column for a given population group).

Expected outputs

- Completed situation analysis and minimum channel requirements tables
- Revised strategy matrix identifying feasible channels
- Accompanying documentation on the data used and discussions held during Step 2

[3] When the toolkit is being used for strategy review or channel review, it is recommended that all situation analysis indicators are completed for the channels under review to provide full evidence on context and historic channel performance.

Step 2

Assess minimally feasible channels

Aim to complete the questions for each channel by considering all population groups or geographic areas listed in Step 1 together. If the geographic contexts or health system contexts differ substantially between groups, users can consider completing Step 2 for each population group separately. Considering population groups separately will take more time but will target discussions and decisions to the specific contexts.

Population group or ALL	Name of population group from Step 1 or ALL if channels considered for all populations

Situation analysis: Key indicators for population group				
Summary population indicators		**Value**	**Source**	**Year**
SA1	Target group population (number)			
SA2	Average (mean) household size (number)			
SA3	Population living in urban areas (%)			
Estimates of ITN use and access		**Value**	**Source**	**Year**
SA4	Population-level ITN access (%)			
SA5	Population-level ITN use (%)			
SA6	Ratio of ITN use:access			
SA7	ITN use among pregnant women (%)			
SA8	Percentage of pregnant women who slept under an ITN the previous night among pregnant women in households with at least one ITN (%)			
SA9	ITN use among children under five (%)			
SA10	Percentage of children under five who slept under an ITN the previous night among children under five in households with at least one ITN (%)			

Distribution through routine health services				
Situation analysis		**Value**	**Source**	**Year**
RO1	Pregnant women as a percentage of the population (%)			
RO2	Children under one year old as a percentage of the population (%)			
RO3	Percentage of households with one or more pregnant women (%)			
RO4	Percentage of households with one or more children under one year (%)			
RO5	Antenatal care (1+ visit) (%)			
RO6	Measles-containing-vaccine first-dose (MCV1) immunization coverage among 1-year-olds (%)			
RO7	DPT3 immunization coverage among 1-year-olds (%)			
RO8a	Is the malaria vaccine being deployed to this group?			
RO8b	Malaria vaccine first dose coverage among 1-year-olds (%)			
RO8c	Malaria vaccine last dose coverage among target age group (%)			

RO9	Percentage of target households with ≥1 ITNs from routine health service distribution (%) *Can be derived by secondary analysis of DHS, MIS or other household survey data that included an ITN roster with ITN source data*			
RO10	ITN administrative coverage for ANC distribution (%, from routine reporting data)			
RO11	ITN administrative coverage for EPI distribution (%, from routine reporting data[4])			
Minimum channel requirements				
Q1	Is ANC uptake fair or good in the target populations, considering the percentage of pregnant women who complete ANC1 *(see situation analysis and note)*?	YES	Consider including ANC distribution in the strategy. Decisions will be required on: ● Eligibility criteria ● Allocation strategy	**Go to Q2**
		NO	Consider including ANC distribution in the strategy but note the need to strengthen service uptake. Plan for additional continuous channels to ensure targets are achieved.	**Go to Q2**
Q2	Is EPI uptake fair or good in the target populations, considering the coverage of MCV1, MCV2, or last malaria vaccine *(target vaccine and eligibility can vary; see situation analysis and note)*?	YES	Consider including EPI distribution in the strategy. Decisions will be required on: ● Eligibility criteria ● Allocation strategy	**Go to Q3**
		NO	Consider including EPI distribution in the strategy but note the need to strengthen service uptake. Plan for additional continuous channels to ensure targets are achieved.	**Go to Q3**
Note: Determining whether uptake is "fair" or "good". There is no guidance on a threshold for ANC and EPI attendance above or below which these channels should be considered. WHO advises that "*ANC [and] EPI … should be considered high-priority continuous ITN distribution channels in countries where these services are used by a large proportion of the population at risk of malaria, as occurs in much of sub-Saharan Africa*"[5]. Teams should discuss health facility service attendance with relevant counterparts in assessing whether a channel is likely to be cost-effective in reaching the most vulnerable groups directly. Consider also sub-national variation in both levels of attendance and malaria burden. It will be necessary to consider the reach and effectiveness of other channels in the channel mix after Steps 2 and Step 3, which may lead users to revisit an initial decision.				
Q3	Are there other health facility-based services, within and beyond malaria, which provide opportunities for ITN distribution to this population (*see note*)?	YES	Consider including other health facility-based distributions in the strategy. Decisions will be required on: ● Eligibility criteria ● Allocation strategy	**Go to Q4**
		NO	Omit other health facility-based distributions from the strategy.	**Go to Q4**

[4] Note: EPI distribution data may undercount actual distribution due to recording limitations. In many settings, DHIS2 lacks a dedicated EPI ITN field. Cross-check with procurement and stock-out data where available.

[5] https://iris.who.int/server/api/core/bitstreams/4b3b8f78-2764-4159-ae2f-0b49dcb3b102/content

Note: Other health facility-based services
Examples of other eligible groups include children under five years admitted to a health facility with severe malaria; caregivers of children under five years, at their MNCH, IMCI, or other health contact; patients or caregivers, following completion of treatment for (severe) malaria; people living with HIV/AIDS who enrol for the first time at a care and treatment clinic; other vulnerable populations, e.g. mobile and migrant populations, those affected by natural disasters, orphans and the elderly.

Q4	Would it be practical for health facility staff to distribute ITNs during outreach activities to this population? (e.g. carry ITNs with ANC/EPI supplies or with mobile health and nutrition teams)	YES	Consider including outreach distribution in the strategy. Decisions will be required on: • Eligibility criteria • Allocation strategy	**Go to Q5**
		NO	Omit outreach activities from the strategy.	**Go to Q5**
Q5	Can routine health services continue to operate reliably during armed conflict, insecurity, population displacement and other complex operating situations (COE)?	YES	Continue to include the above choices in the strategy. Consider channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*.	
		NO	Consider channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*.	

Distribution through mass campaigns				
Situation analysis		**Value**	**Source**	**Year**
MC1	Percentage of target households with ≥1 ITNs from the last mass campaign (%) *Can be derived by secondary analysis of DHS, MIS or other household survey data that captured appropriate data on ITNs*			
MC2	Percentage of the population in hard-to-reach or insecure locations (%)			
MC3	Percentage of the population living in urban areas (%)			

Minimum channel requirements				
Q6	Are the target populations large and cohesive enough to justify a mass campaign-style operation (e.g. target populations cover entire regions or districts, cover entire refugee settlements)?	YES		**Go to Q7**
		NO		**Go to Q7**
Q7	Is it operationally feasible to reach most households within a defined campaign period, considering accessibility, population mobility and security?	YES		**Go to Q8**
		NO	Omit mass campaigns from the strategy and consider alternative channels.	**Go to next channel**
Q8	Does evidence from previous campaigns indicate that coverage and equity targets were achieved for similar population groups and/or contexts?	YES		**Go to Q9**
		NO	Review the campaign lessons learned and assess the likelihood that a future campaign could mitigate or overcome past challenges.	**Go to Q9**

Q9	Are there opportunities to integrate ITN distribution with other interventions that target the same population group (e.g. SMC, malaria vaccination or other health campaigns)?	YES	Explore integration options if mass campaigns are included as a channel.	**Go to Q10**
		NO	Maintain standalone mass campaigns in the strategy.	**Go to Q10**
Q10	Would the target populations be more efficiently reached through continuous channels (routine, school, community-based or commercial) than through a periodic campaign?	YES	Explore the readiness for all feasible channels (including mass campaigns) to inform a final decision on channel mix.	**Go to Q11**
		NO	Consider including mass campaigns in the strategy.	**Go to Q11**
Q11	Are the target populations or parts of the target geography affected by armed insecurity, population displacement or seasonal inaccessibility that would limit the feasibility of a mass campaign?	YES	In the context of the above guidance, consider including mass campaigns in the strategy with adapted operational approaches for COE environments and implementation outside the seasons that create bottlenecks.	
		NO	In the context of the above guidance, consider including mass campaigns in the strategy. Decisions will be required on: • Target geographies • Eligibility criteria • Allocation strategy	

School-based distribution				
Situation analysis		**Value**	**Source**	**Year**
SB1	Primary gross enrolment (%, disaggregated by gender and urban/rural) *Total number of students enrolled in a specific level of education, regardless of age, as a percentage of the population in the official age group for that level of education*			
SB2	Secondary gross enrolment (%, disaggregated by gender and urban/rural)			
SB3	Attendance – primary (% of enrolled, by school type and grade)			
SB4	Attendance – secondary (% of enrolled, by school type and grade)			
SB5	Households with primary school-aged children (%)			
SB6	Households with secondary school-aged children (%)			
SB7	Percentage of eligible households with ≥1 ITNs from the last school-based distribution (%) *Can be derived by secondary analysis of DHS, MIS or other household survey data that captured appropriate data on ITNs*			
SB8	Administrative coverage achieved by last school-based distribution (% of available ITNs that were distributed, from routine reporting data)			
Minimum channel requirements				
Q12	Is the target population served by the primary and/or secondary school network	YES		**Go to Q13**

	(public, private, boarding, and/or faith-based)?	NO	Omit school-based distribution from the strategy and consider alternative channels.	**Go to next channel**
Q13	Is primary and/or secondary school attendance or enrolment fair to good in the target geography *(see situation analysis and note)*?	YES	If enrolment is good but attendance is poor, the attraction of ITNs may increase attendance, and the enrolment suggests that access to schools is still reasonably good.	**Go to Q14**
		NO	Omit school-based distribution from the strategy and consider alternative channels.	**Go to next channel**
Note: Determining whether enrolment is "fair" or "good". Practice suggests that in areas of low school enrolment (less than 50% average in primary classes) schools are unlikely to be cost-effective or equitable. However, if geographic reach into communities is good, schools could play a role as distribution hubs to communities (beyond only enrolled students). In areas with average enrolment of 50% to 80%, school-based distribution may reach households not reached by other channels. If schools are considered, careful contextual analysis is required during Step 3, operational readiness. In areas of high school enrolment (over 80% average in primary classes) schools can be a highly efficient channel with the ability to modify the size of the target group in line with the number of ITNs required or available. More details are available in the AMP SBD toolkit and the guide *School-based distribution of long-lasting insecticidal nets: a short guide based on recent country experience*.				
Q14	Are you reasonably confident that Ministry of Education (MoE) enrolment data are available and accurate enough for planning?	YES		**Go to Q15**
		NO	If school-based distribution is included in the strategy, note the need to strengthen enrolment data or school data reporting. A standalone microquantification exercise could inform initial planning if resources are available but should not replace data system strengthening.	**Go to Q15**
Q15	Are schools serving the target population consistently functional and accessible during armed conflict, insecurity, population displacement and other complex operating situations?	YES	Consider including school-based distribution in the strategy. Decisions will be required on: ● Target geographies ● Target classes ● Allocation strategy Review relevant channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*.	
		NO	Consider channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*. Consider the need for complementary channels to serve COE.	

Community-based distribution				
Situation analysis		**Value**	**Source**	**Year**
CB1	Estimated number of community health workers (CHW) serving the target populations (or active in the target geographies)			
CB2	Percentage of communities with active CHWs (%)			

CB3	Ratio of CHWs to households *Ratio of CHWs to population can be used if the number of households is not known or difficult to estimate for this population group.*			
CB4	Reach of civil society organizations (CSOs) *Indicator will vary depending on availability of data on CSO operations. The purpose is to record a measure of the coverage and/or strength of implementation of CSOs or other community structures that could potentially support community-based distribution.*			
CB5	Percentage of target households with ≥1 ITNs from community-based distribution (%)			
CB6	Administrative coverage (%, from routine reporting data)			
Minimum channel requirements				
Q16	Is there a functioning CHW network serving the populations or active in the target geographies?	YES		**Go to Q17**
		NO		**Go to Q17**
Q17	Are there well-functioning and trusted community-based systems or networks in the target geographies with good community links among the population groups (e.g. religious groups, civil society organizations)?	YES		**Go to CHECK**
		NO		**Go to CHECK**
CHECK	Is a functioning CHW network **OR** a community-based system present? (If Q16 = YES **OR** Q17 = YES)	YES	This is a minimum requirement for CBD.	**Go to Q18**
		NO	Omit community-based distribution from the strategy.	**Go to next channel**
Q18	How confident are you that CHWs and/or other community agents could manage ITN distribution and reporting activities in addition to their current activities *(see note 1)*?	CONFIDENT		**Go to Q19**
		NOT CONFIDENT	Omit community-based distribution from the strategy.	**Go to next channel**
Q19	How confident are you that the health facility network and/or community-based networks could manage ITN logistics, issuing to CHWs or other community distribution agents *(see note 2)*?	CONFIDENT		**Go to Q20**
		NOT CONFIDENT	Omit community-based distribution from the strategy.	**Go to next channel**
Q20	How confident are you that local health facility personal and district health supervisors could reliably oversee community-based distribution activities *(see note 2)*?	CONFIDENT	Consider including community-based distribution in the strategy. Decisions will be required on: • Target geographies • Allocation strategies	**Go to Q21**
		NOT CONFIDENT	Omit community-based distribution from the strategy.	**Go to next channel**

Note 1: ITN distribution and reporting activities

Community-based distribution designs can be highly flexible to fit the context in which they operate. For example, distribution could be via e-token and referral to a fixed redemption point or by direct delivery to households. CHWs or community agents could take on a range of activities depending on their existing responsibilities. At a

minimum, they would be expected to confirm eligibility, distribute coupons/alternatives and/or ITNs, and perform simple reporting. Staff capacity and workload should be assessed to consider implications of ITN reporting and distribution activities. **Note 2: Logistics and supervision activities** Sufficient capacity should exist within the routine health system and/or among local administrative, commercial or community-based networks to play a supporting role by acting as ITN redemption points, providing transport and conducting supervision of community-based agents. The answers to questions 16 and 17 are likely to be positive if community outreach services are already provided from health centres or health posts to the community, or civil society organizations are already active in promoting, delivering and/or monitoring health or development activities (these do not need to be related to malaria).				
Q21	Are CHWs and/or other community agents able to operate safely and maintain communication during armed conflict, insecurity, population displacement and other complex operating situations?	YES	Consider including community-based distribution in the strategy. Review relevant channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*.	
		NO	Consider channel adaptations to COEs as outlined in AMP's *Operational guidance for ITN distribution in COEs*. If safety cannot be assured based on the guidance, omit community-based distribution from the strategy.	

Commercial sector				
Situation analysis[6]		**Value**	**Source**	**Year**
CO1	Percentage of target households with ≥1 mosquito net from the commercial sector (%) *Can be derived by secondary analysis of DHS, MIS or other household survey data that captured appropriate data on ITNs*			
CO2	Percentage of target households that purchase mosquito control products (coils, plug-in emanators, sprays, incense sticks, etc.) (%)			
CO3	Estimated consumer willingness-to-pay for a standard size ITN (local currency)			
CO4	Volume and value of mosquito control products sold in target markets annually			
CO5	Number of prequalified ITN brands registered for private sector wholesale and retail sale			
CO6	Commercial sector mosquito net availability in shops in target markets (% of retail sales points)			

[6] Data on private sector mosquito net and ITN sales may be unavailable or sparse, particularly in settings that have never explored or monitored commercial sector sales. Information to populate CO1 may be available from the regulatory authority that deals with chemicals and insecticides. If existing survey data are unavailable, baseline information for CO2-CO4 can be gathered from light-touch surveys of key formal and informal markets in urban areas. Malaria programmes wanting to explore the ITN commercial sector should plan for a formal baseline market and consumer survey where this information does not already exist.

CO7	Commercial sector ITN availability in shops in target markets (% of retail sales points)			
CO8	Median commercial sector ITN cost for a standard size ITN (local currency)			
CO9	Estimated consumer willingness-to-pay for a standard size ITN (local currency)			

Minimum channel requirements				
Q22	Will some of the target population be willing and able to pay for ITNs?	YES		**Go to Q23**
		NO	Omit the commercial sector from the strategy.	**End**
Q23	Is there an existing commercial market for vector control products that could be supported to expand and sell ITNs?	YES	Consider including the commercial sector as a channel in the strategy. Decisions will be required on: ● Types of commercial approaches, considering equity – e.g. social marketing including full and/or partial cost recovery; market facilitation; exploration of local manufacturing ● Resources to cover coordination, communication, start-up costs, etc. ● Regulatory framework and requirements for product registration ● Costs and financial management	**End**
		NO		**Go to Q24**
Q24	Is there an existing commercial market for other goods that has potential to be supported and primed to distribute ITNs?	YES	Consider including the commercial sector as a channel in the strategy. Support will be required to prime the market (e.g. deal brokering, import support, technical assistance to marketing and price subsidies) and the return on investment of this approach will need to be considered against targeting resources to other channels. Decisions will be required on: ● Private sector engagement model to promote plan and generate demand ● Types of commercial approaches, considering equity – e.g. social marketing including full and/or partial cost recovery; market facilitation; exploration of local manufacturing ● Resources to cover coordination, communication, start-up costs, etc. ● Regulatory framework and requirements for product registration ● Costs and financial management	**End**
		NO	Omit the commercial sector from the strategy.	**End**

Step 3: Rate preferred channels on performance and operational readiness criteria

Objectives

- Determine past performance (where relevant) and operational readiness of feasible delivery channels and identify/prioritize operational gaps.
- Understand how selected channels would be implemented, as a prerequisite to developing plans of action.

Guidance

- For each population group, the feasible delivery channels from Step 2 should be assessed for operational readiness. This will help inform final channel selection and identify operational gaps to address before implementation. Ideally, existing systems should be ready to support a given ITN distribution channel without major new investment or restructuring.
- The table below presents operational questions for consideration and rating in terms of channel readiness for implementation. Each proposed channel should be scored for each question. The table is also available as an Excel template to which additional channel columns or operational questions can be added.
- This step should be completed for each feasible channel in the strategy matrix. Assessment of channels that could serve two or more population groups (or geographic areas) can consider the groups or geographic areas together where operational readiness considerations apply to all groups or areas. If operational readiness differs between population groups or geographic areas, make a note of these differences.
- Review the questions for each operational area, discuss responses and arrive at a consensus readiness classification using a traffic-light rating (green, yellow, red). Record one rating per question in the table and note any actions required to move the rating from yellow or red towards green. Separately, document any meaningful deviations in operational readiness and/or performance across population groups, geographic areas and/or administrative units in which the channel will operate.
- Each operational area has a series of specific questions about existing functions, followed by a summary question to assess the readiness of existing systems, staff and functions to expand to support ITN distribution. Summary readiness decisions should consider both existing readiness and the feasibility of addressing gaps with no more than minimal additional effort, input or resources.
- This activity can be performed as a desk review led by the NMP with partner inputs through the coordination body. Subject area experts at national and sub-national levels should be included in the review team to provide relevant inputs.
- In summarizing the outputs from this step, users may consider putting more weight on the results for certain operational areas based on their context. When reviewing existing channels, users can reference existing documents as evidence sources for the green, yellow or red classification (e.g. reports from recent mass campaigns or recent assessments of continuous distribution channels).

- Use the following guidance when deciding how to score each question:

Rating	Meaning	Guidance for scoring
Green	**Ready** Systems are in place and functional with only minor or routine improvements needed.	- Processes are already operating for similar interventions. - Staff have the required skills or training can be done through existing mechanisms. - Data systems and supervision structures are functioning and can incorporate ITN distribution requirements with minimal adaptation. - No significant additional costs or new structures required, and maintenance costs for systems are assured.
Yellow	**Partially ready/moderate gaps** Core elements exist but need strengthening or some additional resources before implementation.	- Processes like those required exist but are inconsistently applied or under-resourced. - Substantial additional training, supervision and/or logistics support would be required before roll-out. - Channel could be implemented if these moderate gaps are addressed within available resources and timelines. - Financial resources needed are moderate and primarily one-off.
Red	**Not ready/major gaps** Key systems or capacities do not exist or are non-functional. Major new resources or reforms would be needed.	- No established processes or mechanisms exist. - Required staff cadres are not consistently available at the required coverage. - Reporting and accountability systems would need to be built to cover ITN distribution or existing systems would require major redesign. - Costs or time exceed available resources.

- Once all questions have been answered, consider overall readiness by summarizing the colour classifications:
  - A channel with mainly green ratings is likely ready for inclusion in the final channel mix.
  - A channel with mostly yellow ratings may still be included, provided affordable actions are planned to close readiness gaps.
  - A channel with mostly red ratings should be excluded or deferred, unless the NMP and partners plan a specific investment to establish it and have identified sufficient funding which does not reduce the provision of other core malaria services.
- Where meaningful sub-national differences in operational readiness have been documented, consider the implications of these when assessing overall readiness. For example, how easily could learnings and practices from more operationally ready areas be applied to areas with gaps?
- Once all channels have been considered, update the strategy matrix to prioritize feasible channels based on their level of operational readiness. Some feasible channels may be excluded or deferred at this point if they are not operationally ready or have major gaps.

Expected outputs
- Completed channel operational readiness table
- Revised strategy matrix reflecting the inclusion of feasible and operationally ready channels
- Accompanying documentation on the data used and discussions held during step 3

Step 3

Channel operational readiness table

Channel operational readiness								
Discuss responses considering the usual or typical performance of the health system. While performance outliers exist, assess the readiness or performance of a typical unit. What constitutes a "unit" will vary by question and channel but will include government staff roles and coordination structures, potential distribution points, existing systems, processes and tools.								
Operational area and guiding questions	Channel One		Channel Two		Channel Three		Channel Four	
	Rating 	**Priority Actions**	**Rating** 	**Priority Actions**	**Rating** 	**Priority Actions**	**Rating** 	**Priority Actions**
Leadership, coordination and financing								
Are there clear ownership and oversight of the services provided through this channel within government structures (either under the Ministry of Health or another relevant Ministry)?								
Does this channel have an established coordination platform or working group at the national level?								
Does this channel have an established coordination platform or working group at sub-national levels?								
Are there national guidelines or standard operating procedures (SOPs) that outline coordination and accountability arrangements for this channel?								
Are mechanisms in place for coordination between government and partners/stakeholders (e.g. regular technical working group meetings, coordination committees)?								
Are financial, technical and implementing partner/stakeholder contributions mapped and coordinated to avoid overlap or duplication?								
Are payment or incentive mechanisms for frontline staff functional and timely?								

Summary: In your opinion, could existing coordination and accountability mechanisms manage ITN delivery through this channel effectively with no more than minimal additional effort?								
Integration opportunities								
Do national and/or sub-national teams have experience planning and implementing multi-intervention campaigns?								
Do national and/or sub-national teams have experience planning and implementing integrated outreach activities?								
Consider for school-based and community-based channels: Are there existing [health/education/community] programmes that could serve as delivery points for ITNs?								
Are mechanisms in place to plan joint activities across programmes (e.g. between malaria and other health areas, or between MoH and other Ministries)?								
Summary: In your opinion, could ITN distribution be effectively integrated with other health, education or community interventions through this channel, with no more than minimal additional inputs?								
Logistics								
Does adequate storage capacity exist at regional level for the required quantity of ITNs? *"Regional" refers to the level 1 administrative unit*								
Does adequate storage capacity exist at district level for the required quantity of ITNs? *"District" refers to the level 2 administrative unit*								
Are logistics management systems in place to monitor stock and coordinate transport to the lowest delivery points (e.g. health facilities, schools, community redemption points)?								
Do lowest delivery points have adequate storage capacity for the required quantity of ITNs?								
Do adequate security processes and measures exist at lowest delivery points or local storage points to prevent losses and diversion?								
Consider where relevant:								

Can transport systems and plans used by this channel for existing commodities be adapted to include the movement and storage of ITNs?								
Are personnel at distribution points sufficiently experienced or trained on commodity logistics and management (this does not have to be ITNs)?								
Summary: In your opinion, could the channel's supply chain for current commodities be used to manage ITNs for this channel with no more than minimal inputs to adapt the chain or strengthen known areas of non-critical weakness? *If not:* Could the public health commodity supply chain be used to manage ITNs for this channel with no more than minimal inputs?								
Training								
Does this channel have training modules for existing staff roles that can be adapted for ITN distribution through this channel?								
Are training modules available in the required language for where this channel would be implemented?								
Are trainers available to support the training for this channel?								
Are refresher trainings for existing and new staff budgeted and included in annual operational plans?								
Is it feasible to conduct training/retraining periodically as required by this channel? *Note whether activities are in-person, virtual and/or asynchronous.*								
Summary: In your opinion, could the current approach to staff training be used to manage this channel with no more than minimal inputs to address any gaps in training-related personnel, tools or systems?								
Supervision								
Are supervision visits a standard feature of this channel? *Note whether visits are standalone or integrated and who conducts them.*								
Are written supervision guidelines available or readily adaptable for this channel?								

Note topics covered - guideline availability and understanding, service delivery, data capture, review and use, etc.).								
Do supervisors currently have sufficient access to or funding for transport to enable them to conduct supervision as planned?								
Are financial resources currently sufficient to enable supervisors to conduct supervision as planned?								
Are digital resources currently sufficient to enable supervisors to conduct supervision as planned (e.g. phones and tablets with checklists)?								
Could written supervision guidelines be developed or adapted to cover ITN distribution, with minimal resource requirements?								
Does this channel have a track record of using data for decision-making and/or using supervision feedback to modify actions?								
Summary: In your opinion, could the current approach to supervision be used to manage this channel with no more than minimal inputs to address any gaps in supervision-related personnel, tools or systems?								
Social and behaviour change (SBC)								
Is there evidence that communities and staff in relevant local structures perceive ITN distribution through this channel as beneficial and feasible? *Relevant local structures may be schools, health facilities, CHW networks and community groups, depending on the channel.*								
Are health-specific SBC strategies and materials already in place in this channel?								
Could existing SBC strategies and materials be easily adaptable to include ITN messaging?								
Are communication channels active and trusted by all identified population groups that would be served by this delivery channel?								
Summary: In your opinion, could existing SBC mechanisms support this channel with no more than minimal inputs to address any gaps in personnel, tools or systems?								
Routine reporting and data management								
Is routine reporting already a standard feature of this channel?								

Are the necessary personnel in place for routine reporting, from the distribution points to the highest level?								
Are the necessary data capture and reporting tools in place for routine reporting, from the distribution points to the highest level?								
Are the necessary data systems in place for routine reporting, from the distribution points to the highest level?								
Can routine reporting for this channel make use of the national health management information system (HMIS) for data capture and reporting?								
Consider for distribution through routine health services: Are data from outreach services captured as part of health facility reporting?								
Consider for distribution through routine health services and community-based distribution: Are routine data (on ITNs or other commodities relevant to the channel) sufficiently reliable for monitoring stock for resupply?								
Do potential distribution points have identified persons for the recording and reporting of data?								
Summary: In your opinion, could the current approach to routine reporting be used to manage this channel with no more than minimal inputs to address any gaps in personnel, tools or systems?								

Step 4: Consider macrolevel ITN needs for delivery channels and revise strategy

Objective

- Estimate the macrolevel (i.e. total) ITN needs required to achieve the targets for each population group.
- Explore how the set of operationally-ready delivery channels can be combined for each population group to best meet ITN needs, considering channel costs and available financing for ITN distribution.

Guidance

- Use existing, costed optimized operational plans (COOPs), historical ITN distribution data, and/or the ITN quantification website to calculate annual ITN needs for different channel combinations and population groups.
- For mass campaign strategies that are considering an alternative to the 1.8 quantification factor, use the ITN allocation strategy website to explore alternative ITN allocations and compare ITN needs and expected coverage outcomes.
- Indicative costs for selected channels are available in the published literature, but NMPs will need to assess channel costs locally, considering the contribution from different domestic and international resources.
- Consider the total ITN needs and costs in the context of actual or projected resource envelopes. Further prioritize populations and delivery channels within available resources, if necessary.
- Revise the set of feasible channels in the strategy matrix to reflect viable delivery channel combinations within available resources, ensuring coverage is maintained between campaigns and that at least one continuous distribution channel is included.
- Document any assumptions or limitations in the decision-making process (e.g. data quality, resource uncertainty, costing).
- NMPs can contact AMP for support on macro quantification and costing if needed.

Expected outputs

- Estimated ITN quantification to achieve targets for identified population groups
- Proposed channel mix for each population group that meets available resources
- Accompanying documentation on the data used and discussions held during Step 4

Step 5: Finalize the strategy matrix and agree on the next steps for channel plans of action

Objectives

- Finalize the channel mix considering each population group.
- Agree on the next steps to develop a plan of action for each delivery channel in the final channel mix.

Guidance

- The NMP should reconvene the coordination body (if not already done) to validate findings and endorse final channel mixes for each population group. To broaden perspectives, consider additional representatives relevant to selected channel implementation at sub-national levels. Document final channel decisions directly in the ITN strategy matrix. Final decisions should include a rationale for the inclusion or exclusion of each channel, which can be documented in accompanying notes.
- For any population group affected by armed conflict, insecurity, displacement or natural disasters, document the specific operational adaptations required for selected channels.
- The coordination body should confirm that:
    - At least one continuous distribution channel is included for all populations.
    - The proposed mix is affordable within available budgets or projected funding, considering the strategy design for each channel (e.g. eligibility criteria and estimated ITN quantification).
    - The selected combination of delivery channels minimizes the risk of any malaria at-risk group being left unreached, given available funding.
- Following finalization of the channel mix, agree on a work plan and timeline showing how the final channel mix will be implemented. The timeline for implementation should include milestones and review points. Identify priority follow-up actions to resolve known gaps. One of the first actions should be the development of a plan for action for each channel in the channel mix.
- Use the work plan to assign responsibility for developing an action plan for each final delivery channel. Plan of action templates for mass campaigns and for school-based distribution are available on the AMP website and can be adapted for other channels. An outline of guidelines for routine distribution is also available. In developing the plans of action, monitoring indicators should be defined for each channel.
- Use the work plan to update partner implementation plans and budgets.

Expected outputs

- Finalized strategy matrix summarizing the agreed channel mix for each population group together with key delivery strategy choices
- Accompanying documentation on the rationale for channel choice, summarizing the outputs from toolkit Steps 1-5
- Workplan and timeline for channel implementation
- Responsibilities assigned to named individuals/partners to develop plan of action for each channel