Proposal for: Comprehensive Evaluation Scheme of Distribution of Insecticide Treated Bed-nets Activity

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Background:

The government through its National Malaria Control Program decided to establish nationwide project to distribute Insecticide Treated Bednets (ITNs) for the population those at most risk in the country. This includes different vulnerable groups in the population especially children under five years of age in addition to pregnant women at all ages. There is a clear need to develop an evaluation scheme for this project as requested by the Ministry of Health (MOH). Accordingly this evaluation scheme will consider only the scope of this project and its targeted population that include these groups in its processes, and it will exclude all of the other groups in the population even if they get benefits from the ITNs distribution.

Some relevant assumptions:

- This project is the first one of its kind conducted by the government considering its national scope.
- The targets in the coverage plan by ITNs services were based on reliable and well calculated data.
- The quality of the ITNs was assured and maintained throughout the distribution channels up to the end users.
- The supply of INTs through the targeted areas, in which the evaluation scheme was applied, is regular and no disruption was experienced in the supply chain.
- Malaria control program may consider, or adopt, another control strategy (e.g. the use of in-house residual spray) at the targeted areas.
- Malaria control program distribute ITNs for free at the service delivery points.
- Malaria Control Program plan to have concurrent health promotion plan among the targeted population to support the utilization of ITNs and accordingly these population know well how to use the ITNs.

Measurements:

- Measuring the programmatic effectiveness of the program by indicating the coverage by ITNs in the targeted population.
- Use of INTs by the most vulnerable groups in the targeted populations (children under 5 and pregnant women).

Objectives:

The program aim to:

1. Decrease the prevalence rate of malaria mortality and morbidity in the targeted populations.

The evaluation plan will aim:

1. To evaluate the impact of establishing insecticide treated bednets distribution program on health outcomes in the targeted populations (prevalence of malaria mortality and morbidity).
2. To evaluate whether introduction of insecticide treated bednets distribution program is providing more cost-effective option in comparison with the current situation (of no ITNs distribution) to the targeted population.
3. To assess the degree of individuals satisfaction by the outcomes of insecticide treated bednets among the targeted population.
4. To evaluate the degree of acceptability, among the targeted populations, by the distributed insecticide treated bednets and its usage.

Evaluation of effectiveness:

Study design:

Considering different types of study designs that could be used to evaluate the effectiveness, and for the sake of this case we, will adopt the ecological study design for this purpose. Specifically the most suitable design will be the mixed design that takes into the account the study about the impact of ITNs distribution at different geographical areas and at different time through the project and how this change the trend of malaria epidemic throughout the country.

Outcomes measurement:

In this study design the main aim is to assess the impact of ITNs distribution (in the targeted areas) on the prevalence rate of malaria through out the life time of the project (3 years). The exposure in this case is sleeping under the ITNs and the outcome is the percentage decrease in the prevalence rate of malaria in the project areas. (This was built on the hypothesis that people know how to use ITNs). The data required for this measurement most likely will be obtained from the routine data that is normally collected for the purpose of project monitoring and submitted through the regular reports. The other measures could include; evaluating the impacts of the ITNs distribution on malaria prevalence disaggregated by age, sex and geographical area. The ecological association between the usage of ITNs and the prevalence of malaria could be assessed in this case to see if there are any special patterns of association between the two factors. This study design could provide suitable device to assess the change of this association over the project lifetime.

These measures will be assessed based on the available data at different times of the project. This should include the total number of the targeted population, total number of population receiving ITNs over time in the targeted areas and demographic data about the targeted population (mainly age and sex). The measures of this data will be calculated as rate ratio or odds ratio. As it was mentioned before, this design takes the advantage of the availability of the required data within the routine monitoring system. Accordingly to obtain the required sample for this study design this could be driven form the ITNs distribution records and then to identify the targeted population (under 5 years of age and pregnant women) from the registry books. Depends on the availability of the required data; statistically representative random sample would be determined and calculated. In this regard clear criteria for inclusion and exclusion need to be identified before the sampling process is decided. Taking into the consideration the availability of recourses for this evaluation process, we can realize the reasons behind selecting this study design. In this regard there is only one staff available for collecting the required data and with limited financial resources to do that. In comparison to other study designs, ecological studies

provide the most suitable approach for this evaluation process as it is comparably cheap and easy. In addition to that the distribution of ITNs (as well as the evaluation scheme) is national in its scope and accordingly this design will enable the project management team to evaluate the impact of this project on different groups in the country and throughout the project period (Smith et al 2009).

Cost analysis and cost-effectiveness:

The evaluation of the efficiency for ITNs distribution program could be processed by performing cost analysis and then to assess the cost-effectiveness of the outcomes attained for this program.

Practical considerations for cost identification:

Note: this is conceptual description on how cost will be determined and doesn't include actual figures or numbers.

- Since the distribution of ITNs is managed by Malaria Control Program (the government), then the calculation of the financial cost of the intervention will be from this perspective and we will consider only the cost incurred by the governmental program.
- There is clear need to set guidelines for inclusion and exclusion criteria for the items that will be considered for this evaluation. For example the cost of this evaluation should not be included in the intervention cost while that actual cost of the intervention must be considered.
- Since the project will end for 3 years, then this should be considered in the calculation of the cost (especially for the cost of recurrent items).
- Considerations for the shared cost, which is not uncommon in the developing countries, will be considered especially when calculating the inputs cost. This will be considered in the determination of the proportion of the inputs allocated to ITNs among other similar interventions (both at malaria control program level or at the ministry of health level).
- There is clear need to consider the differential timing in this costing process (adjustment for discounting).

Inputs:

Capital cost:

1. Cost of ITNs (including all relevant expenses up to the central stores).
2. Central stores establishment or rental.
3. District stores establishment or rental.
4. Cost of vehicles.

Recurrent cost:

1. Central stores maintenance.
2. Transportation cost to district level (fuel + drivers).
3. District stores maintenance.
4. Transportation cost to the delivery points (fuel + drivers).
5. Cost of supervision.
6. Training of health professionals.
7. Cost for health promotion activities associated with the provision of ITNs.
8. Health professionals' payments.
9. Stationeries.
10. Cost of clerical payment for registration.
11. Cost for utilities.

Practical considerations for cost-effectiveness analysis (Smith et al 2009):

- Since the scenario of this case doesn't take into the considerations any other interventions to compare the effectiveness of ITNs distribution against it, then cost-effectiveness analysis will be conducted against the option of (to do nothing). In this case we consider that the program does not provide the ITNs to the targeted population and accordingly we will compare the outcomes in both situations.

- For the purpose of this evaluation, and based on the approach described above, some outcome measures will be used in this evaluation process. This include the following:
  - Cost per malaria case averted in the targeted communities.
  - Cost per averted death that attributed to malaria in the targeted communities.
  - Cost per disability adjusted life year averted that attributed to malaria in the targeted communities.
- Conducting the cost analysis-as described above.
- Computing the cost in relation to the selected outcomes above and then to compare the cost per outcome between the 2 options (distribution of ITNs versus no ITNs distribution). The comparison will provide evidence for whether or not ITNs distribution is more efficient than the other option of do nothing.
- Since the program in its nature is an extended program, then the population included were usually vary and different and based on that it is important to conduct a sensitivity analysis for the results obtain after the calculation of the outcome measures mentioned above.

Evaluating humanity:

Despite the fact that there is more than one dimension that is relevant to humanity measurement, still we need to evaluate to what extent the project respects the individuals autonomy and this is the most important aspect of humanity measurement in similar kinds of projects and interventions. By autonomy we mean: respecting the individuals' preferences towards receiving and using the ITNs or not (Smith et al 2009). The health intervention of our case is very simple one and its utilization usually depends on the individual choices whether to take it or not and this need to be respected. Otherwise there are no implications expected after the decision is taken to take the bednet, and accordingly there is less importance of considering the other aspects of humanity at this stage (still this is not contradictory with its importance).

Patient satisfaction by the health services is important aspect that needs to be assessed when we consider the humanity in its different aspects. The most relevant aspect of patient satisfaction to this evaluation process, of ITNs distribution, is the dimension related to the quality of information given from the health professionals to the targeted population. In addition to that we may be interested in considering also the satisfaction of the targeted population by the way that the health services provision is organized (in this case ITNs distribution). Since the practical dimension of humanity for this health intervention was defined, then the most suitable approach to assess humanity (through the assessment of patients satisfaction) is by conducting cross sectional patients satisfaction survey to evaluate the way that the relevant information for ITNs were provided by health professionals.

Evaluating equity:

For sure the evaluation of similar kind of interventions in the community should consider different aspects of equity within the evaluation plan. The determination of these aspects usually affected by the social context in the community in which the intervention was provided and evaluated; and accordingly these aspects may become different form one situation to another. In this case the assessment of equity should consider both aspects related to equality of access to equal needs combined with the aspect assessing the equality of utilization for equal needs. The importance of considering the access part come from the fact that this project is nationwide in its scope and with this situation it will be essential to ensure that people in the remote area have the right to receive the ITNs at their residence or at least near to it (in accessible points). In this regard we would like to ensure that the distribution system does not exclude this part of the population because they live in a remote or out of reach areas. On the other hand, once the distribution system ensured that there is an equal opportunity for all members (with equal needs) in the targeted population to get access to the ITNs this does not ensure the equal utilization and usage of ITNs. This especially true if there is any sort of discrimination in the communities towards the targeted population (children and women in this case). In addition to that, similar kinds of interventions usually

required some sort of health promotion to ensure that the targeted population have the adequate knowledge on how to use the ITNs in the right way. Since this is usually is another component of malaria control program, accordingly, we can't assume that there is equal knowledge about ITNs among all targeted population; and there is clear need to evaluate this point (Smith et al 2009). The best evaluation design in this case is to develop an ecological study to measure the outcomes of ITNs use in the targeted communities. Considering the that this study design was already described on how this could be used t evaluate the effectiveness, additional dimension to examine the degree of equitable outcomes obtained from using ITNs among the targeted groups.

Time table for the evaluation plan:

Activity/ Measure		Data collection method	Frequency of data collection	Data sources	Responsibility
Effectiveness (Ecological study)		Reviewing the regular reports	Continues - annually	Routine data records and reports	Monitoring & Evaluation Unit
Efficiency	Calculation of capital cost	Records review	Once – at the end of the project period	Project records	Monitoring & Evaluation Unit
	Calculation of recurrent cosy	Records review	Continues - annually	Projects accounts	Monitoring & Evaluation Unit
Patients satisfaction measurement (Cross-sectional survey)		Questionnaires	Once at the end of the project period	Questionnaires distributed to the targeted population	Monitoring & Evaluation Unit
Evaluation of equity (Ecological study)		Reviewing the regular reports	Once at the end of the project period	Routine data records and reports	Monitoring & Evaluation Unit

Note: the project will end after 3 years.