STEP 10

Compile, analyse, report and use data

Depending on the data collection tool selected (Annexes 4 and 5), processing the data collected is important to ensure a clean consistent data set.

10.1. Recruit data processing and analysis support

As noted in Steps two and six, the data analyst should be identified early, as part of the process for determining whether to undertake the assessment.

10.2. Enter data electronically

As described in Step four, all HH-level data should eventually end up in a spreadsheet format (one row or one record per HH) as shown in the Summary table (Annex 10). Paper-based and electronic data entry are most likely to occur directly into mobile devices or into spreadsheet applications on laptops or desktop computers at the end of the day's work (or a mixture of the two methods). Direct data entry using mobile devices, where feasible, has some advantages over data entry from paper forms into laptops or desktop computers. Mobile device data entry can be completed at the household or settlement level or at the town level at the end of the day and can be done offline to preserve battery or in the absence of a connection to a cellular network.

10.3. Transmit data to a web database

Data transmission is a separate step from data entry. At the end of the day, the assessment supervisors generally return to a more populated settlement, such as a town. Most towns will have at least 2G cellular service that can be used for the supervisors to transmit the paper-based or electronically collected data which have been entered into mobile devices or spreadsheet applications to a web database, as noted in Step 10.2. If the town(s) do(es) not have at least 2G cellular service, then at least one member of the team, identified by the supervisor or the supervisor her/himself will need to travel to a town or place with 2G cellular service at least once every two to three days during the field work to transmit data.

10.4. Reinforce data security

As the names of the heads of HH may be directly recorded, or may be traceable through field maps, HH level data collection tools and field maps should be collected by the assessment coordinator from assessment supervisors and should be destroyed within one to two weeks after data collection (when the data analyst has had a chance to fully examine and clean the data). Likewise, paper records of HH data should be destroyed within one to two weeks. This can be accomplished if data cleaning and examination by a data analyst start on day one of the fieldwork.

10.5. Analyse the data

The analyst should prepare for data cleaning and analysis prior to the start of the cLQAS. Indicators and dummy data tables should be listed and reviewed by members of the M&E sub-committee and/or assessment TWG and other stakeholders and decision-makers. A survey data analysis application (e.g. Stata, R, SPSS) should be selected and example coding for data cleaning and analysis should be written prior to the assessment beginning.

Use of real-time electronic data in managing the cLQAS process depends on the number of cLQAS lots being conducted at the same time. If only one lot is being conducted at a time, then the analyst can provide detailed, specific information based on the data, including issues to be addressed the following day. If five to 20 lots are being conducted at the same time, then the analyst might only provide general feedback about data cleaning and management issues (e.g. incomplete data). In general, data cleaning analysis should start on the evening of day one of the first lot. Complete data are very important for the data analyst to receive, especially on the first day. Many of the potential "errors" or issues with the assessment questionnaire can be uncovered on the first day. Many mobile device applications can update questionnaires or send new questionnaires to each device in near real time to help correct issues which arise. If the analyst examines the data on the evening of each day of the assessment, then supervisors can make procedural adjustments on the morning of the next day before the teams leave for their fieldwork. Data cleaning and analysis should continue during each day and evening of the field work and feedback should be provided to assessment supervisors as quickly as possible. Establishing a WhatsApp chat group of supervisors can be useful for quickly sharing feedback.

10.6. Include maps to visualize the results

With either paper-based or digital data collection, it is important to include maps to visualize the results of the data analysis for HHR and ITN distribution assessments. These maps will help sub-national and national ITN campaign personnel, as well as national malaria programme staff, to identify trends and take corrective action as needed in areas of low coverage or excess distribution (and possible wastage) of ITNs, including after the campaign has been completed.

10.7. Develop and disseminate reports

Assessment reporting

- Assessment results should be shared daily during HHR and ITN distribution as well as compiled into a final report highlighting key findings from the start to the end of the assessment timeframe. All corrective actions taken and updated results should be highlighted. Final reports should note if HHR or ITN distribution activities were stopped to undertake corrective action, or if HHR or distribution activities were conducted for a second time in any campaign areas.

- Results need to be clear and actionable to allow ITN campaign staff to determine key indicators which are not being achieved or are at risk of leading to sub-optimal campaign results. Where data collection and analysis are leading to unclear or contradictory results, the national malaria programme and M&E sub-committee should together determine actions to resolve any issues leading to lack of clarity.

- The timing for the reporting of daily results will depend on the time required for data entry, processing and quality checks. In some cases, reporting of the assessment results will be shared the day after data collection.

- Reporting the results of in-process assessments should follow the overall campaign reporting lines. In general, daily meetings are held at health facility and sub-national (district, region, province) levels to gather feedback from supervisors and ITN campaign teams and to inform decision-making and ongoing campaign process improvements. During these meetings, the assessment coordinator may provide reports directly to sub-national supervision teams in the geographic areas of the data collection.

- Final ITN campaign assessment reports should include a summary of the assessment protocol and process, as well as highlights and/or summary data from the assessment and recommendations for future campaigns and assessment activities.

Final report format

The outline below was made to guide the assessment data analyst in writing a final technical assessment report. The outline follows the usual sections of a published article: background, methods, results, and discussion.

- **Background:** Including the general overview of ITN mass campaign and main assessment indicators
- **Methods:** Precisely describing the sampling and including a description of the sampling frame (area), unit of strata and lots (e.g. region, district, sub-district), selection of primary sampling and lower units, approach to segmentation and the method and number of households selected, as well as handling of households that were not at home or refused interviews
- **Results:** Including tables, graphs, maps, and text of main and other indicators, using a data analysis program (e.g. Stata) to calculate weights, point estimates and confidence intervals for units above the lot level (district, region, national, for example) to calculate unweighted point estimates and confidence intervals above the lot level
- **Discussion:** Including the main findings in the first paragraph, other findings in subsequent paragraphs, a "limitations" paragraph, for example, the text, "our analysis did not include a calculation of the alpha and beta errors associated with the classifications" as a limitation

Report validation

- Daily in-process reports should be validated by the health facility and sub-national health authorities in charge of the geographic areas where the assessments have been conducted.
- Final reports should be validated by the M&E sub-committee before being submitted to the National Coordinating Committee.

Report dissemination

- It will be important to share validated assessment results, lessons learned and case studies with relevant MOH departments, national malaria and ITN distribution stakeholders, as well as global technical, financial and operational partners within one month of the end of implementation.
- Key findings highlighted in PowerPoint presentations or similar formats can also be shared by e-mail and through presentations to health, malaria and ITN campaign stakeholders, including through the National Coordinating Committee. National malaria programme teams may also choose to coordinate with global partners including the RBM Partnership to End Malaria and AMP to present key findings at global meetings. Through regional and global malaria partnerships, national malaria programmes may also choose to share findings with programmes in other countries, which can provide a foundation for cross-country and regional sharing and learning from the results and lessons of other countries, as well as from the assessment approaches and tools used to collect and analyse the results.

Using the data from assessments

Key data users and decision-makers identified in the data use plan developed in Step four for the assessment protocol should be consulted to confirm their priority information needs when preparing HHR and/or ITN distribution assessment results and reports.

- As draft reports are developed, preliminary results should be shared with key data users. This can be through electronic sharing and requests for inputs.
- Key data users and decision-makers may wish to organize a data review and decision-making meeting. The meeting should be led by the national malaria programme and the agenda can include time to provide feedback on preliminary results, to analyse and discuss the implications of the results on the recent campaign, and to document lessons learned and associated changes for planning and implementation for the next ITN campaign.
- Outcomes of data review meetings should be documented and shared with all participants for finalization and validation of action items to inform the planning and implementation of future campaigns (and assessments).
- Final documented action items should then be shared alongside the final validated HHR and/or ITN assessment reports with the National Coordinating Committee.

For further information, please consult these example reports, located in *AMP ITN Campaign HHR and ITN Distribution Global and Country Resources*[30]

- **Mozambique:** Use of rapid monitoring data for improvement of quality HH registration data collection: Lessons learned and recommendations, PowerPoint slide deck
- **Benin:** Use of rapid monitoring data for improvement of quality HH registration during Benin's 2017 insecticide-treated bed net distribution campaign; lessons learned and recommendations, Poster presentation for the American Society of Tropical Medicine and Hygiene
- **Benin:** Distribution gratuite de MILD dans le département du Centre et du Sud du Benin, Monitoring externe du dénombrement (MED), Rapport Provisoire, Leadership et Développement (LEADD)

30. https://drive.google.com/drive/folders/1YGoCbxCPLszLGjOcCv6utbYeEFb5M396?usp=sharing