Coverage Survey Report
Blantyre Institute for Community Ophthalmology, Malawi

1. Introduction

Nsanje and Mchinji are among the two districts in which the Blantyre Institute of Community Ophthalmology (BICO) in Malawi is implementing mass drug administration for the elimination of trachoma. The recent round of MDA was completed in late November 2014. This report discusses the subsequent coverage surveys in these 2 districts, focusing on the study methodology and how this was implemented in our setting, what challenges we encountered and recommendations for the future.

2. Training of teams

An initial training of trainers was conducted on 13th November by Dr Khumbo Kalua (Epidemiologist and manager) upon his return from NTD support Centre in the USA and involved training Dr John Hart (consultant) and Alvin Chisambi (supervisor) on how to conduct coverage surveys.

Dr Khumbo Kalua, Dr John Hart and Alvin Chisambi (BICO data manager) then trained five fieldworkers (University of Malawi graduates) to use the LINKS application on 14 November. The morning session involved an overview of the reasons for doing coverage surveys, training on the Malawi coverage form, time and distance form and village register form, followed by in-class practice.The afternoon session focused on the survey methodology: dividing clusters into segments with the help of the chief, selecting a segment, and selecting household number List A or List B.

Field training was conducted the following day and took place in the first survey district, Nsanje. This was done with a senior Health Surveillance Assistant (HSA) for the area. We visited a single village that was not selected as one of the coverage survey clusters. All trainees went to the same village, met the chief and decided how to divide the village into segments. Everyone walked around the village together and the trainees took it in turns to ask the questionnaires at each household, with everyone entering the data on their own device (Figure 1).

Figure 1: Fieldwork training

3. Activities – Operational Logistics

The coverage survey took place in Nsanje District on 16-18 November. Thirty clusters were randomly selected across the district prior to fieldwork using Coverage Survey Builder (NTD software). The entire list of the clusters in the district was obtained by visiting the district health office and obtained the head count list that they generate from the villages. The five trained fieldworkers visited clusters andtogether with community aids aimed to complete 2 clusters each day. Three clusters were deemed 'hard to reach' and when it was thought a fieldworker could only visit 1 village in a day, our supervisor would also visit a village so we could continue to complete 10 clusters/day and complete the work in 3 days. Four vehicles were used, with up to 2 fieldworkers travelling in each vehicle, and the supervisor using a separate vehicle.

4. Activities –Fieldwork Methodology

When arriving at a cluster, having completed the time and distance form, the fieldworkers visited the village chief to explain the planned work and complete the village registers form. Our fieldworkers had HSA village register details and used these, when deemed appropriate with the chief (see 'Considerations and Lessons Learned' below), to divide the village into segments. The segment to perform the survey in was selected by dividing the defined segments into two groups of segments, if necessary, and repeating until a single segmented was selected. After randomly selecting List A or List B, the village HSA or volunteer accompanied the fieldworker on his/her visits to the houses. This helper was encouraged to take a lead in counting through the houses on the proposed route through the village as he/she would know all households, even those hidden from view on the path taken.

5. Performance of Teams

The fieldworkers were motivated to follow the teaching and collect data as instructed. When visited for supervision, they were working politely at each household and didn't have any problems with rapport or refusal to participate. They completed their allocated clusters each day, usually with time to spare – many chose to start early in the mornings to complete the majority of the work in the cooler part of the day.

After the first day of fieldwork, however, all teams had visited exactly 7 households in both of their village segments. We refreshed the training, emphasizing that however large the segments is, once selected they should continue to follow the household numbers on their chosen list until they have completed the whole defined segment.

The teams moved to Mchinji District on 19 November, rested on 20 November, and completed the survey for 34 randomly selected clusters on 24 November. Out of the thirty four clusters , thirty segments were actually sampled for Mchinji as some were too small to even have a single segment so were combined.The summary of questionnaires performed in both Nsanje and Mchinji districts areshown in table 1, showing that the sampling methodology enabled data collection forthe desired sample size.

Survey data sets progress report

Coverage	2128
Time & Distance	180
Village Register	60

Table 1: Total surveys completed in the 2 districts

Table 2: COVERAGE SURVEY RESULTS:

DISTRICT	COVERAGE %		CONFIDENCE INTERVAL
MCHINJI	82%		77-88
NSANJE	88%		84-92

As seen from table below the coverage in Mchinji was estimated to be 82% (CI 77-88) and in Nsanje in was estimated to be 88% (CI 84-92).

Of note was that one of the selected clusters in Mchinji did not receive any MDA.

6. Considerations and Lessons Learned

The dividing of clusters into segments appeared to be done quickly and did not pose problems. There may be a subjective element to the exact order of houses when walking around the segment – the only way to avoid this would be to walk around the segment before starting the survey and number every dwelling – something that would take much more time to do. The subjective nature of household selection also applies to which household is 'chosen' as a start point – even if this is done before the fieldworkers select List A or List B, the fieldworkers will clearly know that households 2-5 from the start point will never be selected. If, for sample, the HSA wants to visit a friend's house or wants to avoid visiting a house where they speak a different language or drink a lot of alcohol, this could be possible.In many clusters, the chief was not present so discussions of the village register could not happen. It is worth noting that for all clusters in Malawi there are HSA lists that should include all households in every village – in effect there is a village register for every village – something to be noted when assessing whether each village has a chief's register or not and whether this is of importance.

Many clusters had been sub-divided between chiefs for various political reasons. In some, this was into as many as 8 smaller chiefdoms under what was listed as 1 HSA's village. When visiting such clusters, the fieldworkers only worked in the segment(s) that were under the 1 chief after sub-division. Visiting all chiefs and discussing with all of them how to divide their area into segments then combining all segments to randomly select one, would not be feasible and could potentially cause problems with those whose areas were selected/not selected against their wishes.Involving local Environmental Health Officers, senior health assistants and HSAs is important in understanding the locations of clusters and planning transport, as well as ensuring local support for the work. In future more early sensitization could occur to minimize the chances of selected clusters not being known locally and chiefs not being available during the visits.

7. Recommendations for NTD-SC and ITI

In the Malawi setting, using the HSA household register before going to the field to randomly select 7 households in their catchment area would simplify the work and remove the potential areas for conscious/subconscious selection or non-selection of specific households that are highlighted above. This would also avoid the issue where clusters have been sub-divided between chiefs and parts of clusters under new/different chiefs have a zero chance of being selected.

For wider application of this sampling technique where such lists are not available, more than 2 household lists to randomly select from would reduce potential for bias introduced from choosing the start point.

As we noted, it takes particular emphasis in the training for fieldworkers not to stop when they have visited 7 households in a village that this is just the number we may expect on average. As fieldworkers rarely have a background in epidemiological methods, this temptation to stop on reaching 7 households may be an issue in other countries if there is not close supervision.