# Ethiopia, Coverage Validation Survey
# July 2015


Evidence
Action

SCI Schistosomiasis Control Initiative
Imperial College London

# 1. Programmatic recommendations

- Corrective action should be taken to improve the recording and reporting skills of drug distributors. This should be emphasized during the training cascade, with a focus on ensuring training materials and approaches are robust.
- Messaging around exclusion of ineligible populations and non-residents need to be strengthened for future rounds.
- Community mobilization approaches need to be strengthened in order to reach non-attending / non-enrolled school-aged children.
- There is uncertainty over the accuracy of census population figures, given the amount of time since the last census and particularly when focusing on lower administrative levels. Identifying the most accurate data will be a priority for the programme and partners in the upcoming year.

# 2. Background

The Ethiopian Federal Ministry of Health (FMOH) is scaling up programmes to deliver regular, large-scale treatment against schistosomiasis (SCH) and soil-transmitted helminths (STH) for at-risk populations. This is being achieved through repeated rounds of preventative chemotherapy (PC) using praziquantel (PZQ) and mebendazole (MEB) respectively. One of the key indicators of programme success is treatment coverage; that is, the proportion of the target population that actually ingested the drug in question. For PZQ, the target population is usually school-age children (SAC), including both school-enrolled and non-enrolled children, and may also include adults at risk of schistosomiasis infection in high prevalence areas. For MEB, the target population is SAC (pre-SAC populations are treated for STH through outreach and routine services, separate to this programme).For Ethiopia, the target coverage level is 75% for both drugs, in line with WHO guidelines (WHO, 2011). Following each round of treatment, treatment reports are collected at the health facility and return to the central level through a reverse cascade, being collated at the district (woreda), zonal, and regional levels before being returned to the FMOH. These, routinely-collected, coverage reports are calculated using the number of drugs recorded in treatment registers as having being distributed as the numerator, and the total target population by geographic areas as the denominator.

The national control programme uses PZQ against schistosomiasis and MEB against STH. While PZQ is the clear drug-of-choice against schistosomiasis, there are two main drugs used in the control of STH. Endemic countries are free to choose between albendazole and mebendazole for the treatment of STH. Both are donated through the WHO donation mechanism, by GlaxoSmithKline (ALB) and

Johnson and Johnson (MEB). They have comparable (although not identical) impact on the main STH species. Some countries use ALB, others use MEB, and some alternate between the two. The Ethiopian FMOH's direction is to use MEB for the treatment of STH (including in SCH / STH co-endemic areas) and to only use ALB for the treatment of lymphatic filariasis (in combination with ivermectin).

# 3. Aim and Objectives (of the survey)

## 3.1. General Objective

- The primary purpose of this coverage validation survey is to validate the accuracy of reported preventive chemotherapy (PC) coverage data reported by districts, zones, and regions of Ethiopia.

## 3.2. Specific Objectives

- To quantify and validate praziquantel (PZQ) and mebendazole (MEB) treatment coverage by district
- To assess coverage rates disaggregated by school enrolment status and gender
- To collect information on why those eligible did not receive or accept the treatment

# 4. Survey Methods

## 4.1. Survey Design, Sampling methods & Sample sizes

A community-based cross-sectional study design was employed in the survey to validate treatment coverage following the April 2015 PC treatment round. In this treatment round 99 districts (woredas) in three regions (Amhara, Oromia, and Southern Nations, Nationalities, and Peoples' Region [SNNPR]) received combined treatment with PZQ and MEB.

For the coverage validation surveys, ten districts (approximately 10% of those that received treatment) were chosen to ensure a representation from each of the three regions and of districts reporting both high and low treatment coverage. Districts were first stratified by the coverage of enrolled school-aged children as to 'high' (>75%) and 'low' (<75%). Once stratified districts were chosen randomly using a random number generator.

A total of 120 villages (kebeles; 12 per district) were randomly selected from within these districts. Within each selected kebele, 10 households were selected for the survey, and three eligible SACs aged 5-14 years residing in the selected households were interviewed.

## 4.2. Study areas and Population

Any districts experiencing significant security concerns were excluded from the choice of districts for the survey. Additional exclusion criteria included any household members who

had moved in after drug distribution, uninhabited houses, and houses with no eligible SAC and absence of eligible SACs in the given households were also considered not include households during the survey period.

## 4.3. Training and Logistics

A total of three days of training was provided on the survey protocol and data collection tools to 32 data collectors between the 25th and 27th July 2015. Training was provided at the CDC training centre at the Ethiopian Public Health Institute. The training was provided by staff from EPHI and from the Schistosomiasis Control Initiative (SCI). The training was observed by two representatives from IDinsights, Dr. Alison Connor and Amy Chen.

Two districts from Amhara regional stage (Raya Kobo and Efrata Gidim) did not send teams of data collectors for the training due to competing priorities in the districts during the survey period. Subsequently, these districts were excluded from the survey meaning eight districts were surveyed. Eight teams were deployed to the field in these eight districts for data collection for a one month period (4th week of July 2015 to 4th week of August 2015).

## 4.4. Quality Assurance

Data collectors were chosen who were familiar with the study areas, spoke the relevant local language(s), and had experience with the collection of household data. An independent monitoring team from EPHI and the SCI were assigned for supervision and on-site technical support during the survey. Verification methods, including the demonstration of pills and dose poles, were used to minimize recall bias.

## 4.5. Ethical considerations

A letter of support outlining the aims and objectives of the survey was submitted from the FMOH to the Regional Health Bureaux and their respective local administrations. In addition, informed consent from the household heads and individual school age children (SAC) was also obtained before data collection. The interviews directly targeted the school-aged children; parents/household heads did not answer on behalf of the children. At the end of data collection, participants within the surveyed households were provided with key health education messages on SCH and STH prevention and control mechanisms.

# 5. Results

## 5.1. Households and Individuals Interviewed

The survey was conducted in eight of the originally planned 10 districts (80%). The omission of two districts were from Amhara region was due to competing priorities in the districts during the survey period.

The survey was successfully undertaken in 89 out of 120 kebeles targeted (74%), and a total of 874 of the 1,200 households targeted were interviewed (73%). The absence of household heads at home and eligible SACs in the selected households were found to be major reasons for some of the households not be interviewed during the survey period.

A total of 1,964 SAC aged 5-14 years were interviewed in these eight districts. This was comprised of 53.2% males and 46.8% females. Table 1 below depicts households and individuals interviewed by gender and by district.

| Districts | Households Interviewed | Individuals Interviewed | | |
|---|---|---|---|---|
| | | Male | Female | Total |
| Abeshige | 95 | 104 | 90 | 194 |
| Aykel & Chilga | 116 | 105 | 122 | 227 |
| Bena Tsemay | 120 | 158 | 137 | 295 |
| Harena Buluk | 117 | 170 | 148 | 318 |
| Haromaya | 103 | 120 | 97 | 217 |
| Melkabelo | 119 | 158 | 137 | 295 |
| Wogera | 120 | 115 | 103 | 218 |
| Wondo Genet | 84 | 114 | 86 | 200 |
| **Grand Total** | **874** | **1,044** | **920** | **1,964** |

**Table 1: Total number of households and individuals interviewed by district**

## 5.2. Drug Coverage Information

The school-based deworming campaign was conducted in April 2015 in a total of 99 districts co-endemic for SCH and STH. Both praziquantel and mebendazole were used to treat school-aged children (enrolled and non-enrolled) aged 5-14 years.

### 5.2.1. Mebendazole Coverage

The overall treatment coverage, averaged across all districts, was found to be 85%. The results were similar for treatment coverage for male (85%) and female (86%) school-aged children (Table 2). The treatment coverage for MEB was found to be substantially higher among those SAC attending school (93%) compared to those not-attending school at the time of the survey (52%) (Figure 1). The fact that the deworming was held using a school-

based platform could be the likely reason for the higher coverage obtained among attending children. However, due emphasis should be given to address all children who are out of schools in future deworming campaigns.

| Districts | MEB distribution by Gender | | | | | |
|---|---|---|---|---|---|---|
| | # of Males | Coverage Males | # of Females | Coverage Females | Overall Total | Overall Coverage |
| Abeshige | 103 | 93% | 89 | 94% | 192 | 94% |
| Aykel & Chilga | 103 | 81% | 117 | 84% | 220 | 82% |
| Bena Tsemay | 153 | 85% | 133 | 83% | 286 | 84% |
| Harena Buluk | 170 | 98% | 148 | 92% | 318 | 95% |
| Haromaya | 119 | 67% | 97 | 62% | 216 | 65% |
| Melkabelo | 158 | 96% | 135 | 96% | 293 | 96% |
| Wogera | 115 | 70% | 103 | 77% | 218 | 73% |
| Wondo Genet | 114 | 85% | 86 | 92% | 200 | 88% |
| **Grand Total** | **1035** | **85%** | **908** | **86%** | **1943** | **85%** |

**Table 2. Treatment coverage with mebendazole (MEB) by gender and district**

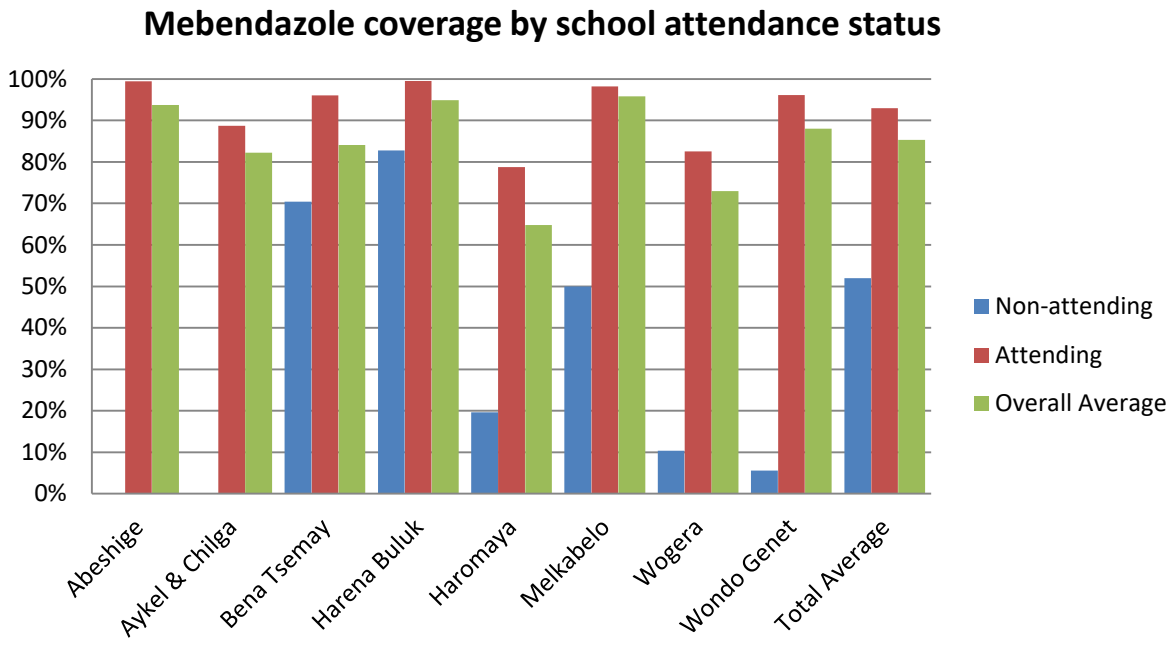


**Figure 1. Mebendazole treatment coverage by school-attendance status and by district**

### 5.2.2. Praziquantel (PZQ) Coverage

Treatment coverage of 85%, averaged across all districts, was observed for PZQ, similar to that observed for MEB. This is unsurprising given that the drugs were co-administered in this treatment round. Treatment results were similar for males (85%) and females (85%; Table 3). Nearly similar coverage was observed both by gender and school attendance of targeted

school age children. The overall coverage was again found to be 85% with only slight difference among non-enrolled SACs (51%).

| Districts | PZQ distribution by Gender | | | | | |
|---|---|---|---|---|---|---|
| | # of Males | Coverage Males | # of Females | Coverage Females | Overall Total | Overall Coverage |
| Abeshige | 104 | 93% | 90 | 94% | 194 | 94% |
| Aykel & Chilga | 103 | 81% | 117 | 84% | 220 | 82% |
| Bena Tsemay | 154 | 85% | 135 | 81% | 289 | 83% |
| Harena Buluk | 168 | 98% | 147 | 92% | 315 | 95% |
| Haromaya | 119 | 68% | 97 | 62% | 216 | 65% |
| Melkabelo | 156 | 97% | 134 | 97% | 290 | 97% |
| Wogera | 115 | 68% | 103 | 72% | 218 | 70% |
| Wondo Genet | 110 | 85% | 84 | 92% | 194 | 88% |
| **Grand Total** | **1029** | **85%** | **907** | **85%** | **1936** | **85%** |

**Table 3. Treatment coverage with praziquantel (PZQ) by gender and district**

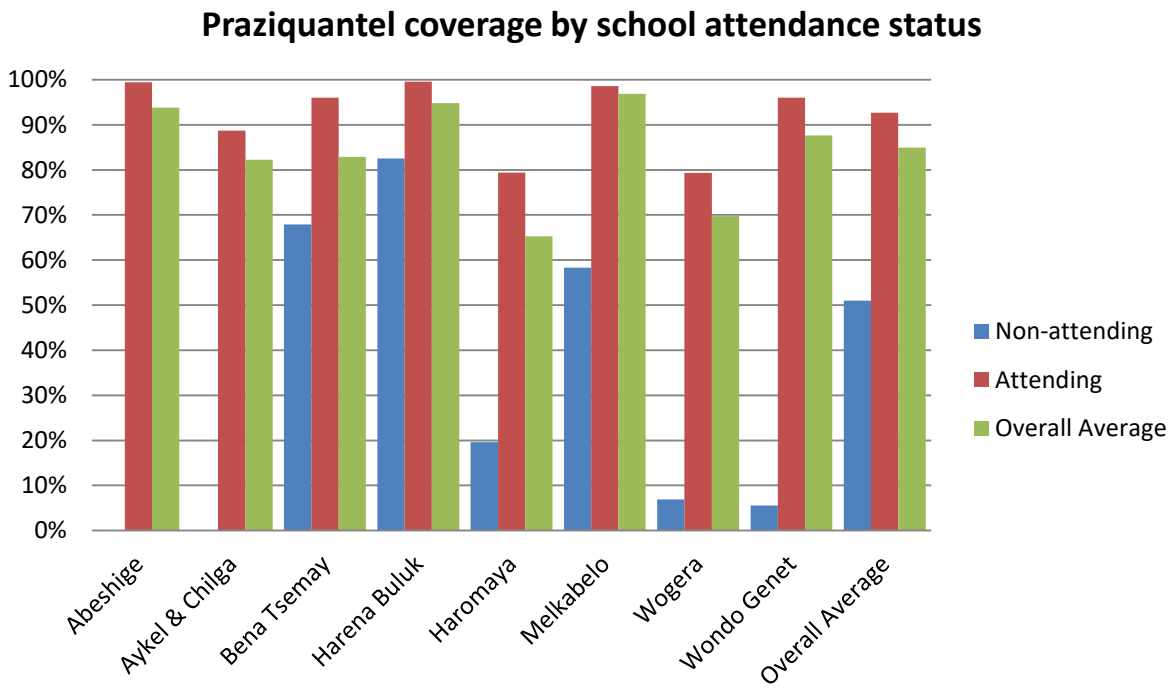


**Figure 2. Praziquantel treatment coverage by school-attendance status and by district**

## 5.3. FMOH's district-reported coverage vs. coverage validation report

The report so far has presented the results of the coverage validation survey. This section compares the results from the coverage validation survey with those of the routine, district-reported coverage from the FOH.

At the macro level, the FMOH's district -reported coverage was found to be similar, but slightly higher (89%) than the coverage validation surveys (85%) (note that the FMOH district-reported surveys only report one aggregated coverage for both PZQ and MEB. Here we compare those results to those of PZQ coverage in the coverage validation survey). The national target of 75% was achieved in both surveys. Treatment coverage was higher from FMOH's district-reported surveys in all districts with the exception of Melkabelo and Wogera.

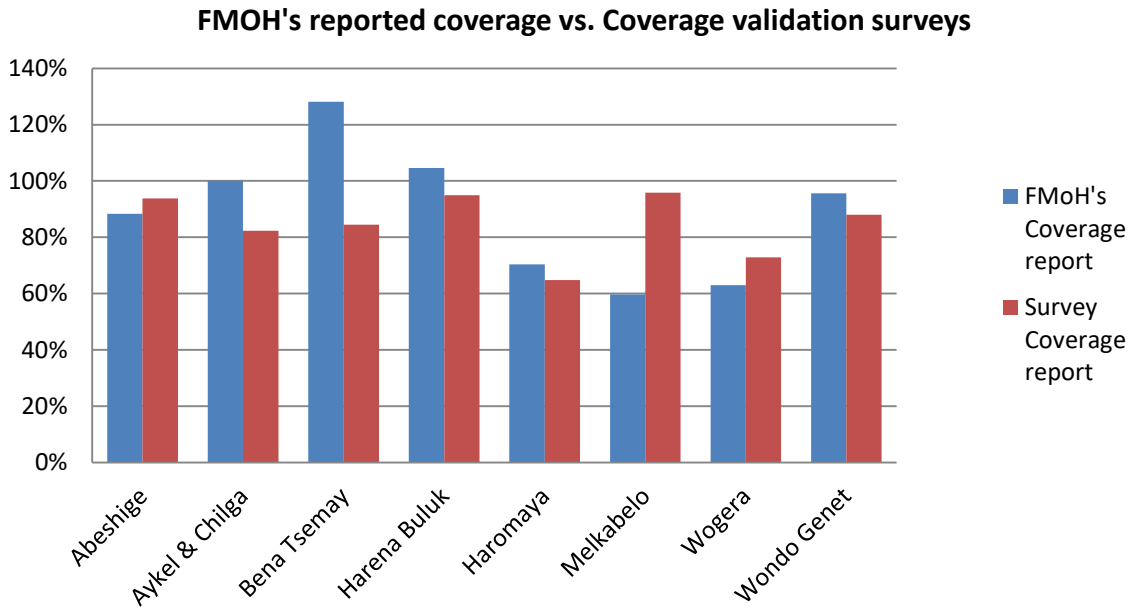


**Figure 3. Comparison of treatment coverage results from FMOH's district-reports and coverage validation surveys**

When examining the data more closely, it can be seen that there are substantial differences in the results between the two surveys. For example for children who attend school the figure obtained from the FMOH's surveys (82.34%) was found to be lower than that from the coverage validation surveys (92.95%). Even more striking was the difference in non-attending school children, with the FMOH reporting 97.95% coverage and the coverage validation surveys reporting 52.22% (Table 4).

The reasons for such a large discrepancy in coverage of non-attending school-aged children are not immediately clear. However, possible and plausible explanations include the following:

- Inaccurate denominator figures for the targeted number for non-attending school-aged children. These targeted figures are taken from the last census data (2006) with a regional annual growth rate assumed. A certain proportion of school-aged children are

then assumed to be non-enrolled / non-attending. Whilst this may provide a reasonably accurate estimate at the macro level, it would inevitably be open to an increased level of error as smaller administrative areas are considered. Reported coverage figures of over 100% (such as in Bena Tsemay and Harena Buluk districts) immediately identify a possible issue with the accuracy of the denominator data.

- The proportion of school-aged children who are not attending school receives a significant amount of attention, both domestically and internationally. It is possible there is a bias (conscious or unconscious) for districts to report low numbers of non-attending school children (and therefore high coverage figures in the FMOH district reported surveys) and for inhabitants to claim attendance / enrolment (and therefore lower coverage figures in the coverage validation figures).
- Although difficult to accurately quantify, there is likely to be a difference between the enrolment rate and the attendance rate. The majority of children are enrolled in school at the start of the year. However, for many reasons, some will drop-out as the year goes on. In these cases, the children would be classed as enrolled but not attending. Nuances in the way the questionnaires are addressed, and sensitivity to the cultural and political background on these issues need to be taken into account when designing and implementing coverage surveys.

| District | Non-attending SACs | | Attending SACs | |
|---|---|---|---|---|
| | FMOH District report (%) | Coverage validation report (%) | FMOH District report (%) | Coverage validation report (%) |
| Abeshige | 99.8% | 0% | 88.1% | 99% |
| Aykel & Chilga | 147.0% | 0% | 100.0% | 89% |
| Bena Tsemay | 142.0% | 71% | 73.7% | 96% |
| Harena Buluk | 131.0% | 83% | 87.3% | 100% |
| Haromaya | 62.5% | 20% | 72.0% | 79% |
| Melkabelo | 65.3% | 50% | 59.3% | 98% |
| Wogera | 19.5% | 10% | 83.0% | 83% |
| Wondo Genet | 98.1% | 6% | 95.4% | 96% |
| **Overall Average** | **95.7%** | **52%** | **82.3%** | **93%** |

**Table 4. FMOH reported and coverage validation results by school enrolment status**

A summary of the key indicators from the survey is shown below in Table 5.

| Indicators | |
|---|---|
| Number of districts included in the analysis | 8 |
| Number of kebeles included in the analysis | 89 |
| Number of households Interviewed | 874 |
| Number of individuals (SACs) interviewed | 1964 |
| MEB Coverage by gender-Males | 85% |
| MEB Coverage by gender-Females | 86% |
| PZQ coverage by gender-Males | 85% |
| PZQ coverage by gender-Females | 85% |
| MEB coverage by school attendance-Attending SACs | 93% |
| MEB coverage by school attendance-Non-attending SACs | 52% |
| PZQ coverage by school attendance- Attending SACs | 93% |
| PZQ coverage by school attendance- Non-attending SACs | 51% |

**Table 5: Summary of key indicators**

## 6. Next Steps

- Provide key findings of this coverage survey to FMoH so that possible corrective actions would be taken at all levels
- Finalize data collection, data entry and analysis for the round two Coverage survey being underway in almost all regional states of Ethiopia except Somali region.
- Finalize report writing and provide an input to FMoH for further programme follow up and corrective actions