

# Madagascar Coverage Survey Recommendation Report 2016

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## 1 Programmatic Recommendations

This reports reviews the coverage survey which was conducted in five Madagascan districts in 2016 following one round of mass preventive chemotherapy for schistosomiasis (SCH) and soil-transmitted helminths (STH). As discussed with the national programme, there following programmatic actions are:

**Table 1:** Observations and corrective measures to help maintain and improve the high coverage in Madagascar.

Finding or observation	What to look for	Corrective action
Reported coverage was much lower than surveyed coverage in two districts	<p>Figures on total population and eligible population (i.e. the denominator) are incorrect or outdated</p> <p>All sub-district reports are not returned on time for inclusion in final report</p> <p>Treatment registers are incomplete and/or aggregated data are incorrect</p>	<p>Update and correct population data if more accurate population data exists</p> <p>Strengthen registration process and extended practice on reporting treatment numbers during training. Reiterate the importance of sending reports back to the central level on time</p> <p>Consider conducting Data Quality Assessment to diagnose where the data reporting system is breaking down</p>
Both reported coverage and surveyed coverage were high in three districts	<p>A good reporting system is in place.</p> <p>Communities and drug distributors are motivated.</p> <p>All elements of the MDA programme are well in place and functional</p>	<p>Sustain programme momentum for the next year to maintain coverage levels.</p>
Coverage was substantially higher in children who attend school than children who don't attend school	<p>Poor communication of MDA in the communities</p>	<p>Investigate ways to improve coverage in non-enrolled SAC, including inviting non-enrolled SAC to take medication in schools.</p> <p>Investigate feasibility of increasing the number of days of distribution in the communities</p>

Communication channels were under-utilised	Main method of sensitisation is through teachers, other methods are under-utilised	<p>Reinforce the importance of sensitisation messages during training</p> <p>Consider conducting a needs assessment of all social mobilisation and evaluation of current tools (radio, posters, town criers, health professionals, etc.) in Madagascar</p> <p>Consider revisiting timing and frequency of broadcasted messages</p> <p>Consider reducing number of levels in the cascade training to decrease loss of information</p>
Refusal to take medications was low	Highest reasons given for refusal were around fear and rumours, followed by distribution not taking place in the village	<p>Reiterate the importance of sensitisation messages during training and increase the number of days of social mobilisation</p> <p>Conduct refresher training prior to distribution.</p> <p>Consider carrying out focus group discussions to identify why distributions didn't occur in certain villages</p>
Not all tablets were taken together	This may be due to multiple tablets of PZQ not being taken at once or simply PZQ and MBD not being administered together	<p>Investigate reasons why tablets weren't taken together</p> <p>Conduct refresher training prior to drug distribution.</p>

Associated protocol: (French) <https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG-Coverage%20survey%20protocol%20Madagascar-FR-Final-29.02.2016.docx>

(English) <https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG-Coverage%20survey%20protocol%20Madagascar-EN-Final-24.02.29.docx>

Associated dashboard:

[https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG\\_Coverage\\_2016\\_dashboard\\_2016\\_08\\_02.pdf](https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG_Coverage_2016_dashboard_2016_08_02.pdf)

## 2 Background

All 114 districts in Madagascar have been mapped for schistosomiasis (SCH) by the Ministry of Health with the support of Institut Pasteur in Madagascar, World Bank, WHO/AFRO and SCI. Of these districts 107 are SCH endemic and 99 are endemic for STH. Prior to first large-scale treatments in Madagascar in 2015, baseline parasitological data for both SCH and STH was collected in 29 sentinel sites across 18 districts. Two months later, both praziquantel (PZQ) and mebendazole (MBD) was distributed to all school aged children (SAC) in 36 districts, targeting 1.75 million school-age children (SAC)

Madagascar is currently in a start-up phase, and within two years has gone from treating in 6 to 36 districts. Targeted annual treatment numbers for 2016 to 2017 will be maintained at 1.2 -1.5 million SAC annual treatments.

## 3 Aim and Objectives

The aim of the coverage survey was to validate the reported coverage in five districts in Madagascar, where treatment for both SCH and STH was given to SAC in December 2015.

The primary objectives of this coverage survey were to:

1. Quantify and validate PZQ and MBD treatment coverage for SCH and STH, respectively;
2. Assess coverage rates disaggregated by school attendance and gender for SAC;
3. Collect information on why targeted eligible individuals did not receive or accept treatment.

**Reported coverage** was defined as, *number of SAC ingesting drugs / eligible SAC population<sup>1</sup> x 100*

**Survey coverage** defined as, *number of SAC interviewed that ingested the drug / total number of interviewed SAC x 100*

## 4 Methods

### 4.1 Sample size and selection

This survey took place 3 months after the MDA was completed, as per WHO guidelines, in March 2016. Five districts were selected as the budget allowed, and all treated districts were stratified by reported coverage, categorised as high (> 75%), medium (50% - 75%) and low (< 50%). Two districts each were randomly selected from the high and low reported coverage districts and one district randomly selected from the medium reported coverage districts. The two high reported coverage districts were Miandrivazo and Mitsinjo, the medium reported coverage district was Beroroha and the two low reported coverage districts were Anstsohihy and Mahajanga II. However, note that reported coverage was updated following the selection of districts as additional reports became available. The reported coverage in the results uses the most up to date figures and consequently differ from the categories described above.

Sample size calculations were carried out by SCI biostatisticians. Sample size calculations indicated that 14 villages per district and 30 households (HHs) per village were required for an expected 9 percentage points precision on assumed true coverage of 50%. Households were selected using the random walk procedure. A

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<sup>1</sup> 2013 national census data and growth calculations

central point in the village was designated and a bottle was spun to randomly select a direction of walk. All households along the direction of walk were counted. A sampling fraction was calculated and the households selected. Two randomly selected children from each randomly selected HH were interviewed. Data from the interviews were directly entered on mobile phones using the SurveyCTO data collection application and uploaded onto the company’s secure server.

More detailed information on sample size calculations and methodology can be found in Annex 5 in the coverage survey protocol. However, note that villages selected for interview were only those villages with a school, due to full village lists not being available. Consequently, coverage may be overstated as villages without schools were not surveyed. The extent to which coverage may be overstated is unknown. However, most villages within Madagascar are reported to have a school, suggesting that the magnitude by which coverage is overstated may not be high.

## 4.2 Training

Pre-field training was carried out by SCI Programme Manager for Madagascar together with the MoH NTD Focal Point over 3 days (including 1 day in the field) to the survey teams which covered the following aspects:

- Presentations - rationale and background for the conducting the survey; review of protocol; essential aspects to maintain unbiased data collection; review of equipment (mobile phones, dose poles); data collection
- Group and individuals tasks i.e. mobile data collection
- Mock interviews
- Logistical planning

**Table 2:** Field logistics

Description	Details
Number of selected districts	5
Number of teams	5
Number of individuals per team	3 – 1 team leader and 2 interviewers.
Number of days spent in the field per team	20

## 4.3 Deviations from protocol

There were difficulties with access to some villages. The survey was conducted towards the end of the rainy season at which point many roads, particularly in the more remote areas had become impassable due to flooding and/or mudslides. As a result, several reserves sites were used. In some cases, during the original site and reserve selection reserve sites had been selected in impassable areas. As a result, some reserve sites had to be reselected. In this case, from the original district village list we first excluded villages that had already been selected, we then excluded any areas (communes) known to be inaccessible at the time of the survey. Additional reserves were then randomly selected from the remaining villages.

Although the protocol called for 30 HH per village to be sampled, between 14 and 31 HH were actually sampled per village. The district with the lowest number of HH sampled per village was Mahananga II. Altering the original sample size calculations to incorporate 14 HH per village showed that expected precision dropped from 9% to 10%, which we consider acceptable given that the selection of HHs within villages was random.

#### **4.4 Ethical approval**

Ethical approval was granted by the National Ethics Committee of Madagascar (located here: [https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG\\_Autorisation%20ENQUETE%20DE%20COUVERTURE%20CNE%20SCI-FR-Final-17032016.pdf](https://share.imperial.ac.uk/fom/IDE/SCI/The%20Hub/MDG_Autorisation%20ENQUETE%20DE%20COUVERTURE%20CNE%20SCI-FR-Final-17032016.pdf) ) as well as by Imperial College.

## **5 Results**

Statistical methodology available on request from SCI.

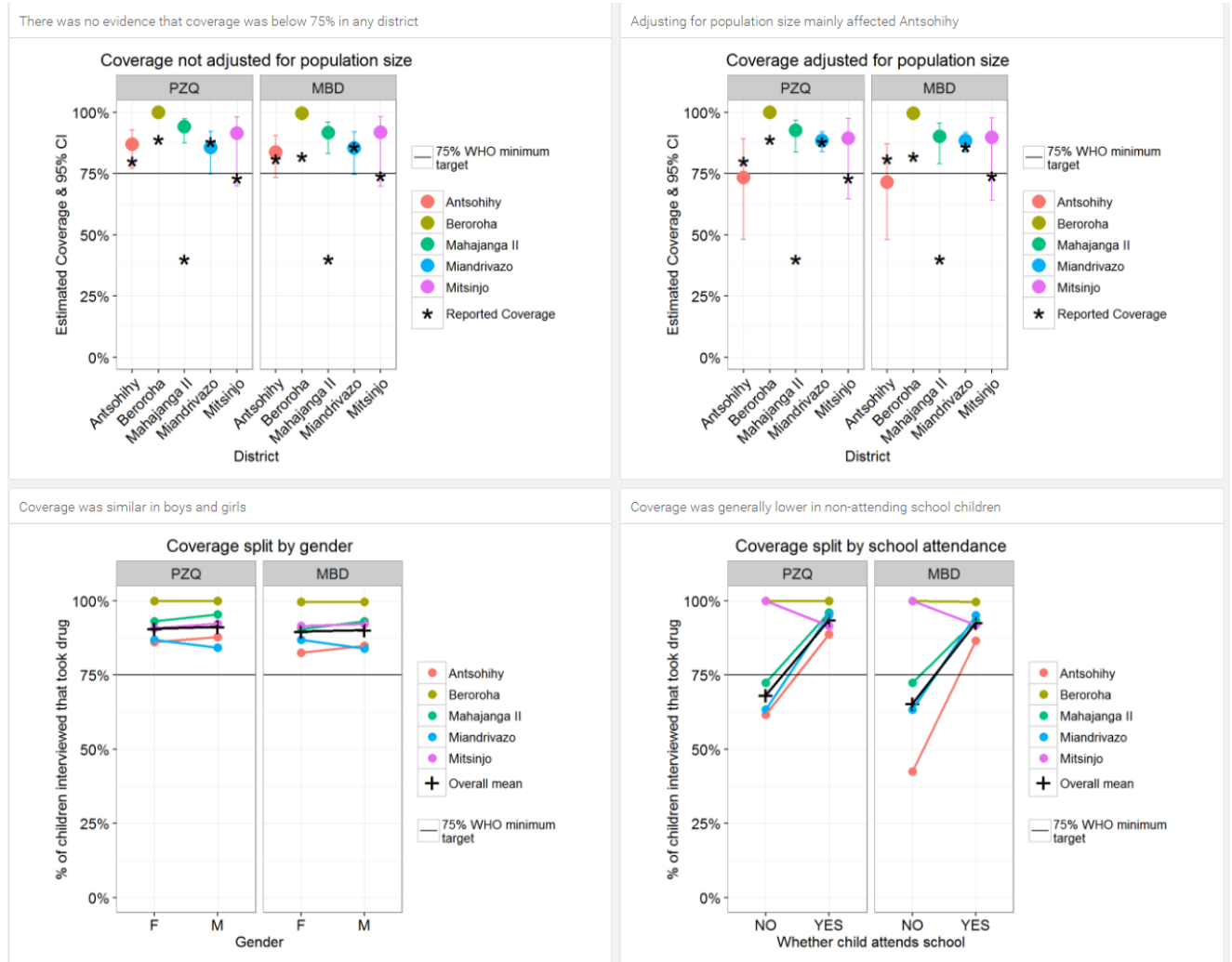
Overall, the surveyed coverage was above the WHO recommended coverage of 75% of SAC in all 5 districts. However, adjusting for population size suggested that coverage in Antsohihy may have been below 75%, and only two districts, Beroroha and Mahajanga II, showed clear and consistent evidence that coverage was above 75% for both drugs. Reported coverage was not significantly different from surveyed coverage in three of the districts, and reported coverage was significantly lower than surveyed coverage in the remaining two districts.

Coverage estimates in non-attending SAC were below 75% in three of the districts, and was 100% in the remaining two districts. However, in one of these two districts (Mitsinjo) only one non-attending school child was interviewed. Finally, in all districts, PZQ and MBD uptake was similar and coverage was equitable in both genders.

A notable issue from the survey was that many children, reported taking all tablets but not together. It is not clear if this is because PZQ and MDB were administered separately or if the PZQ tablets themselves were taken separately. This requires further investigation.



**Figure 1.** Coverage survey un/adjusted for population size, by gender and by school attendance



**Table 3.** Coverage survey results overall and by district

Indicators	Overall	Antsohihy	Beroroa	Mahanjanga II	Miandrivazo	Mitsinjo
N villages	67	14	12	13	14	14
N children interviewed	3131	726	534	361	693	817
PZQ coverage: not adjusted for population size (95% CI)	90.9%	86.9% (77.2%, 92.9%)	100.0% (100.0%, 100.0%)	94.2% (87.6%, 97.4%)	85.6% (74.8%, 92.2%)	91.6% (70.0%, 98.1%)
MBD coverage: not adjusted for population size (95% CI)	89.8%	83.8% (73.3%, 90.6%)	99.6% (97.6%, 99.9%)	91.7% (83.1%, 96.1%)	85.4% (74.6%, 92.1%)	91.8% (69.7%, 98.2%)
PZQ coverage: adjusted for population size (95% CI)	n/a	73.5% (48.1%, 89.2%)	100.0% (100.0%, 100.0%)	92.6% (83.7%, 96.8%)	88.5% (83.9%, 92.0%)	89.3% (64.6%, 97.5%)
MBD coverage: adjusted for population size (95% CI)	n/a	71.5% (48.1%, 87.2%)	99.6% (97.4%, 99.9%)	90.1% (79.0%, 95.7%)	88.5% (83.8%, 92.0%)	89.8% (64.2%, 97.7%)
Percentage of children attend school	89.7%	93.5%	93.3%	92.0%	69.7%	99.9%
PZQ coverage in attending SAC	93.5%	88.7%	100.0%	96.1%	95.2%	91.5%
PZQ coverage in non-attending SAC	68.1%	61.7%	100.0%	72.4%	63.3%	100.0%
MBD coverage in attending SAC	92.7%	86.6%	99.6%	93.4%	95.0%	91.8%
MBD coverage in non-attending SAC	65.3%	42.6%	100.0%	72.4%	63.3%	100.0%
Percentage girls	49.2%	48.2%	46.6%	52.1%	50.8%	49.0%
PZQ coverage in girls	90.6%	86.0%	100.0%	93.1%	86.9%	90.8%
PZQ coverage in boys	91.2%	87.8%	100.0%	95.4%	84.2%	92.3%
MBD coverage in girls	89.6%	82.6%	99.6%	90.4%	86.9%	91.5%
MBD coverage in boys	90.1%	84.8%	99.6%	93.1%	83.9%	92.1%

## 6 Survey Recommendations

Finding or observation	What to look for	Corrective action
Only villages with schools were included in the sampling frame. This may have lead to coverage being overstated.	Full village lists not being available.	Obtain full village lists before the next survey.
In some districts, less than 30 households were interviewed per village.	Protocol being followed in the field.	Provide refresher training to all survey interviewers prior to the next survey.



Only one non-enrolled child was interviewed in one district.

This may be due to high school attendance rates but may also be due to protocol not being followed in the field.

Provide refresher training to all survey interviewers prior to the next survey.

Consider trialling an enlarged survey with focus on non-attending school aged children.

Due to the timing of the survey, towards the end of the rainy season, several of the selected sites were inaccessible and reserve sites had to be used.

Season should be considered when deciding the timing of the next survey.