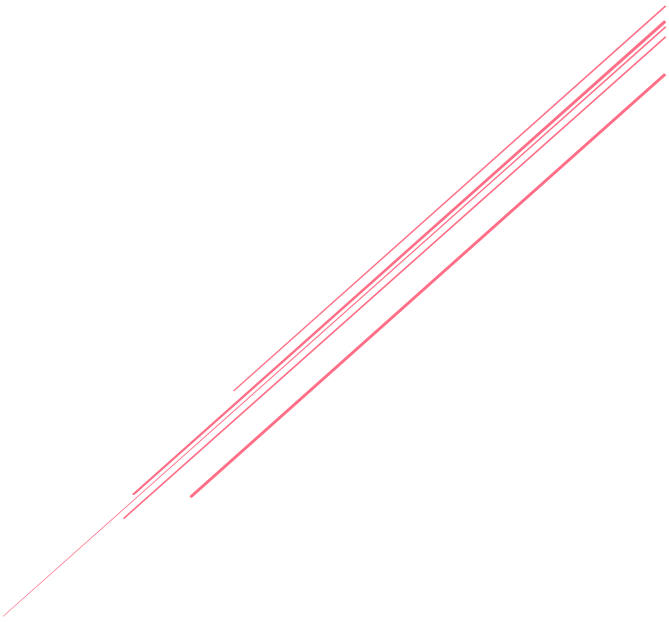
Evidence Action

Deworm the World Initiative

School-based Deworming in Cross River State, Nigeria

Process Monitoring and Coverage Validation Report



November 2019 Round

Contents

Glossary

FLHF. Frontline health facility

FMOH. Federal Ministry of Health

LGA. Local government area

MDA. Mass drug administration

NTD. Neglected tropical disease

SAE. Severe adverse event

STH. Soil-transmitted helminths

WHO. World Health Organization

1.0 Executive Summary

In November 2019, Cross River State carried out its first and only round of school-based deworming for the year, the fourth year of deworming, targeting both enrolled and non-enrolled children, ages 5-14 years. Treatment was given in eleven local government areas (LGAs) endemic for both soil-transmitted helminths (STH) and schistosomiasis. The state targeted **2,138** public and private primary and junior secondary schools for deworming, and approximately **660,517** children.

Evidence Action monitors the key implementation processes before, during, and after each MDA to assess the effectiveness of training and supply chain, adherence to deworming protocol, and treatment coverage to inform program design and improvements. Evidence Action recruited an independent firm to collect data from a sample of 24 teacher training sessions, 30 schools on Deworming Day, and 76 parents in the communities. In addition, 2,712 children from two LGAs were targeted from an expected 60 communities after Deworming Day for coverage validation.

On average, 67% of expected schools were in attendance for teacher training, with 82% on-time for the sessions. The most common reasons cited for late arrival were late invitations (47%), they had to go to school first (38%), the long distance to the venue (19%), and wrong information regarding the venue (4%).The best covered topics during training were worms and the target population, with coverage of key topics noted in 90% of training sessions. In post-training interviews, at least 90% of participants correctly responded to questions about this content area. Read more on training on **page 9**.

All schools (100%) had received drugs prior to Deworming Day, and 100% of participating schools had sufficient drugs to deworm all children on Deworming Day. However, only 70% of participating schools had all the key materials, including drugs, on Deworming Day. Read more on distribution on **page 14**.

Overall awareness of Deworming Day was higher among parents of enrolled children (82%) as compared to the parents of non-enrolled children (58%). Ninety-two percent of parents that were aware of deworming indicated that they would be sending their children for deworming. Of the 8% of parents that said they would not send their children for deworming, the reasons cited was that they were not aware (50%), their child was sick (25%), and that they would take their child on another day (25%). The main source of Deworming Day information cited by parents were children (57%) and town announcers (40%). Read more on awareness on **page 15**.

The rate at which schools conducted deworming was moderate, with 77% of expected schools distributing tablets on Deworming Day. All teachers provided the correct praziquantel dose and 94% gave the correct mebendazole dosage. The treatment register was used to record treatment in 97% of schools. Deworming Day however

indicated that non-enrolled children were deworming in only 13% of monitored schools. Read more on drug administration on **page 16**.

Coverage validation surveys were conducted within two weeks of MDA treatment in two LGAs to estimate the program reach and surveyed coverage in comparison to results reported by schools. Coverage validation for STH treatment indicated that 87% of targeted children in Ogoja were offered the drug ("program reach") and that 81% of targeted children swallowed the drug. Coverage validation for Schistosomiasis treatment indicated that 94% of targeted children in Yakurr were offered the drug and that 85% of targeted children swallowed the drug. The overall surveyed coverage in both LGAs was at least 80% in comparison to the WHO threshold of 75%, which suggests that the deworming exercise was successful. Read more on coverage validation on **page 17**.

Table 1: Key Performance Indicators

	Percent
Target schools represented at teacher training	67%
Target schools with adequate drugs during deworming	100%
Target schools utilizing at least one awareness activity or material[1]	92%
Parents who report seeing or hearing about deworming through IEC deworming materials or word of mouth this round	76%
Target schools distributing tablets on Deworming Day	77%
Enrolled children present in school on Deworming Day	90%
Targeted children who report receiving unprogrammed deworming in the last six months	8%
Target population validated as swallowing albendazole tablets on Deworming Day based on coverage validation	81%
Target population validated as swallowing praziquantel tablets on Deworming Day based on coverage validation	85%

Conclusions: Overall, round one deworming implementation was successful, highlighted by high post-training knowledge of teachers on worms and target population, drugs and drug administration, a high adherence to drug administration procedures, and a greater than 75% surveyed coverage in both LGAs, indicating a successful MDA. However, there were also challenges that should be addressed ahead of the next round of MDA, including enhancing the distribution of school summary forms, improving training attendance and increasing inclusion of non-enrolled children. The full summary of successes, challenges, and recommendations can be found on **page 20**.

[1] IEC deworming materials include posters

2.0 Background

Evidence Action provides technical support to Cross River State government as it conducts school-based deworming through mass drug administration (MDA) for school-age children (SAC) in a bid to control parasitic worm infections. In November 2019, the first and only round of its fourth year of state-wide school-based deworming took place in eleven LGAs in Cross River State which are endemic for STH and/or schistosomiasis. A total of **660,517** enrolled and non-enrolled children aged 5-14 years were targeted to receive deworming treatment in both public and private primary and junior secondary schools. Teachers (**3,464 in total**) were trained to properly administer the safe and effective deworming drugs, mebendazole and praziquantel.

Evidence Action recruited an independent firm, Infotrak Research and Consulting, to monitor random samples of program activities to assess the quality of implementation, adherence to protocol, and supply chain effectiveness. During this round, monitors observed 22 teacher training sessions and 30 schools on Deworming Day, and interviewed 76 parents and 1,843 children post-deworming. Evidence Action designed data collection tools and sampling methods, and cleaned and analyzed the data from the above activities. The findings are presented in this report.

3.0 Methodology

3.1 Process Monitoring

Process monitoring was conducted in the 11 LGAs that conducted deworming. A random sample of 24 teacher training sessions (out of 117) and 30 schools implementing deworming (out of 2,138) were targeted. The sample sizes were calculated to meet a 90% confidence level and a margin of error of 15%, distributed across all LGAs based on the number of activities happening in each LGA.

At every teacher training session sampled, one master trainer was to be interviewed, four participants (teachers) were targeted for interviews before the training, and four participants after the training. The participants interviewed were systematically sampled so that every third participant to arrive at the venue was interviewed pre-training and every third participant to receive training materials was selected for a post-training interview.

On Deworming Day, the monitors conducted interviews at the sampled schools with the following individuals:

1. Head teachers, to assess their knowledge of deworming, frontline health facility (FLHF) staff engagement, deworming preparedness, mobilization, and availability of deworming materials.

2. A member of the deworming team (usually a teacher), to ascertain their knowledge of deworming and the activities they conducted in preparation for deworming.
3. One parent who brought their children for deworming, to understand their experience with deworming.
4. Three children (two enrolled children from the class register and one non-enrolled child). This was conducted in one randomly selected class.
5. To assess the effectiveness of the community mobilization and sensitization methods, two systematically selected households with enrolled children and one household with non-enrolled children within the school catchment area were interviewed.
6. Finally, monitors observed one class as deworming occurred to assess adherence to guidelines, such as the recording of treatment, administration of the right dosage to the correct age-group, and deworming steps. Monitors also made observations to assess school infrastructure, including WASH facilities, presence and location of sensitization materials, and where deworming took place.

3.2 Coverage Validation

Coverage evaluation surveys were conducted within two weeks of the MDA in two randomly selected LGAs – Ogoja for STH treatment and Yakurr for schistosomiasis with the purpose of validating coverage within the LGAs, confirming reported treatment data, and identifying reasons for non-compliance. Based on WHO coverage evaluation guidelines, a hybrid approach of both community and school-based surveys were administered. A total of 1,843 children were interviewed from the two LGAs using a two-stage probability proportional to estimated size (PPES) sampling design. **Table 2** below shows the targeted and achieved sample sizes for the monitoring activities.

Table 2: Process monitoring targeted and actual sample sizes

Monitoring activity	Population	Target sample size	Actual sample size
Teacher training			
Total number of teacher training sessions	117	24	22[2]
Pre-training interviews		96	95
Post-training interviews		96	94
Deworming Day			

[2] A communal crisis led to the premature ending of a teacher training session, while another monitor made blank submission to the server after the teacher training session.

Schools monitored	2,138	30[3]	30
Head teachers interviewed		30	30
Parents interviewed		30	20[4]
Enrolled children interviewed		60	60
Non-enrolled children interviewed		30	3[5]
Community Mobilization			
Households surveyed - Parents of enrolled children		60	57
Households surveyed - Parents of non-enrolled children		30	19
Coverage Validation			
Number of interviews		2,712	1,843[6]

4.0 Results

4.1 Review of teacher training

Of the 22 teacher training sessions that were observed, only 78% of trainers reported that they had been trained at LGA training prior to conducting teacher training. Official memos (48%), phone calls (43%), SMS (35%), and in-person invites (30%) were the most common means of inviting participants for the training sessions. An attendance sheet was available in 95% of training sessions.

To share information and keep participants engaged, trainers are encouraged to use a combination of training methods. All (100%) training sessions employed discussions, while many also employed lecture based approaches (95%), group work (50%), role playing (18%), and demonstrations (9%).

4.1.1. Attendance during the teacher trainings

On average, 38 teachers were expected to attend each training, but only an average of 28 (74%) attended, representing 67% of the expected schools. The majority of the schools that did not attend indicated that they or the teachers received information regarding the training late (50%), teachers were not aware of training for deworming (44%), the school was not aware (38%), and teachers were not invited (25%). During this round, only 18% of participants arrived after training had started, slightly down from the last round of deworming. From post-training interviews, teachers that arrived

[3] Of the 30 schools sampled, 14 were replaced. The reasons for replacement: 5 were not deworming, 4 were deworming at a later date, 3 could not be accessed, 2 could not be located.

[4] Not a single parent was identified in some of the sampled schools monitored

[5] There were difficulties in locating households where all children aged 5-14 do not attend school.

[6] Based on the WHO CES protocol, if a monitor visits a household and finds no target children, there should be no replacements made.

late indicated that they received late invitations (47%), had to get to school first (38%), traveled a long distance to the venue (19%), and got wrong information regarding the venue (4%).

4.2 Topic coverage at teacher training

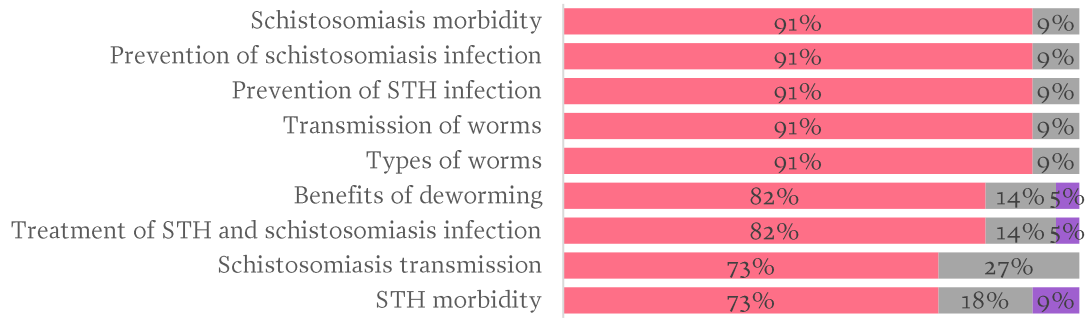
Seven topics are required to be covered in the training sessions, which are discussed in detail below. For the purposes of this report, the seven topics are compacted into five thematic areas. Monitors assessed the coverage of individual messages as well as participants' pre- and post-training knowledge levels.

During training observations, the monitors had a checklist with which to indicate if a topic was either covered completely, partially covered, not covered, or if wrong information was delivered. "Completely covered" means **all** the information and messages in a given topic were relayed. The sections below discuss coverage of key content that trainers should have delivered during training.

4.2.1 Information on worms and target population

The six messages regarding worms, include type of worm, transmission, prevention, morbidity, treatment, and benefits of deworming. None of the messages were completely covered in all training sessions. Prevention was completely covered at the highest rate (91%) compared to messages focused on other areas. On the other hand, STH morbidity received the lowest complete coverage, with 27% training sessions failing to cover this message completely (**Figure 1**).

Figure 1: Messages covered under worms (n=22)



Post-training, all (100%) participants could cite at least one way a child gets infected with worms, 14 percentage points up from 86% in pre-training interviews. Post-training interviews also showed that 98% of the participants could cite the type of worms being treated, a 4 percentage point increase from that noted during pre-training.

All (100%) of the trainers covered the target group, which consists of all enrolled and non-enrolled children aged 5-14 years. All (100%) sessions also emphasized the importance of not deworming sick children, while under-age children and those with a history of certain health conditions also were mentioned in 68% of sessions. These messages are key to minimize the incidence of SAEs.

After training, 98% and 100% of participants cited the correct target age-group for treatment of both STH and schistosomiasis, up from 67% and 77%, respectively, in pre-training interviews. However, 13% of participants incorrectly said that they would deworm sick children present during the MDA. On Deworming Day, 20% of schools did not ask if children were sick prior to drug administration. Additionally, a monitor observed drug administration to a child despite the child indicating they were sick ,when asked.

4.2.2 Drugs and Drug Administration

Coverage of messages under this topic was high (at least 82%). The correct drug for STH and schistosomiasis, and STH drug dosage were covered in all (100%) training sessions. (**Table 3**). There was one wrong message relating to hand washing, where a trainer informed participants that teachers would put medicines in children's mouth, hence children did not need to wash their hands.

Table 3: Messages on drug administration covered during the teacher trainings (n=22)

MDA practice	Percent (completely and partially covered)
Schistosomiasis drug is praziquantel	100%
Under the program, all drugs are free, safe and effective	100%
STH drug is mebendazole	100%
One mebendazole tablet to be given to each child	100%
One to five tablets to be given to each child for schistosomiasis depending on height	91%
Ensure that child has eaten prior to administration of praziquantel	91%
Drugs must be stored in a clean, safe, dry and cool location	91%
Under no circumstances should a child be forced to swallow the medicine	82%
Facilitate hand washing prior to treatment	82%

From post-training interviews, 98% participants were knowledgeable about the correct drugs and dosage used for STH treatment, with increases of 27 and 29 percentage points respectively, compared to pre-training. Knowledge of the correct schistosomiasis drugs (100%) and dosage (98%) was equally high, with increases of 37 and 29 percentage points, respectively.

Apart from knowing the right drug type and dosage, it is important to carefully follow certain drug administration steps. Each individual step was described in at least 56% of training sessions, with 93% covering them in the right order. **Table 4** below lists steps, in the correct order, as completely or partially covered during the training sessions.

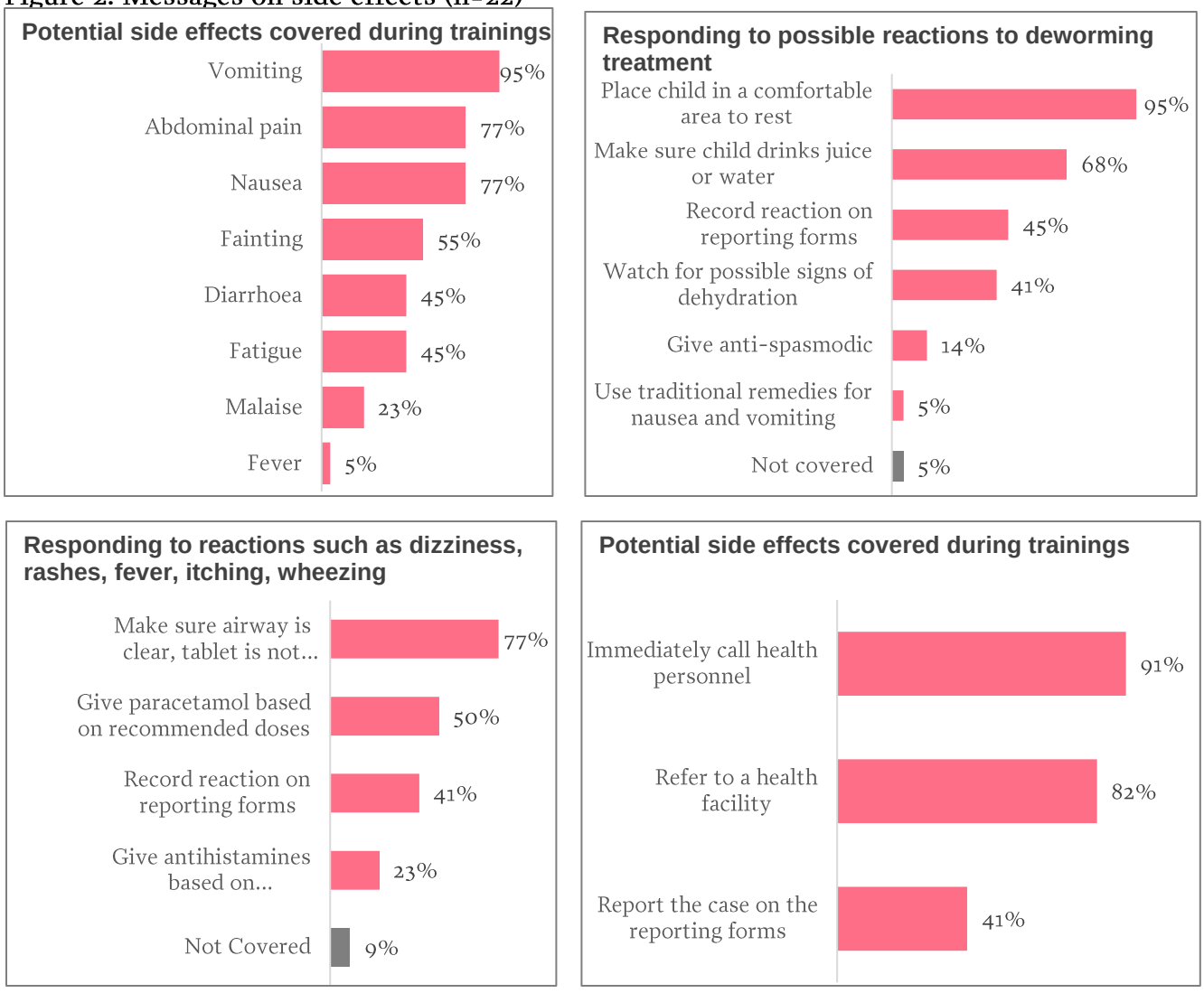
Table 4: Drug administration steps covered during training (n=22)

Drug administration step	Completely covered	Partially covered	Not covered
Step 1: Arrange the drug distribution site	73%	14%	13%
Step 2: Ensure necessary materials are available and are in place	77%	23%	-
Step 3: Provide orientation to the children	86%	9%	5%
Step 4: Organize children accordingly	55%	23%	22%
Step 5: Let the child wash his/her hands	73%	9%	18%
Step 6: Register the child if non-enrolled	77%	18%	5%
Step 7: Use of tablet pole to measure children's height	91%	9%	-
Step 8: Administer the mebendazole drug	77%	5%	18%
Step 9: Administer the praziquantel drug	91%	9%	-
Step 10: Complete registration in the treatment register	86%	9%	5%
Step 11: Observe the child for any side effects	82%	14%	4%

4.2.3 Side effects

Trainers provided information on potential side effects and SAEs to prepare teachers for the management of such situations. Vomiting received the highest coverage (95%), while abdominal pain and nausea were covered in 77% of training sessions, the second highest. Further information on knowledge of side effects and SAEs is reflected in the **Figure 2** below.

Figure 2: Messages on side effects (n=22)

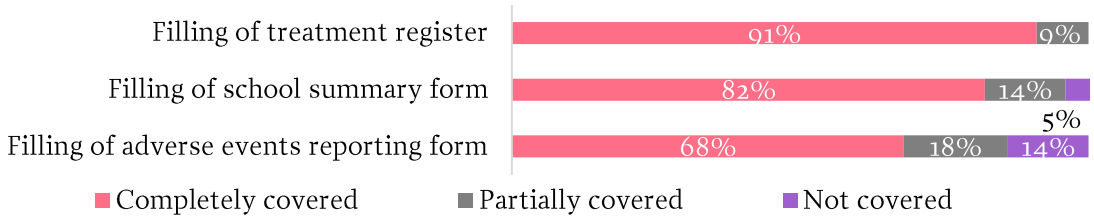


From post-training interviews, vomiting was most mentioned by 88%, probably owing to the high training session coverage. Headache (60%), dizziness (58%), and abdominal discomfort (58%) also received moderate mentions.

4.2.4 Recording and reporting forms

Trainers completely covered information on the treatment register and school summary forms in 91% and 82% of sessions, respectively (**Figure 3**). Practical sessions to fill both the treatment register and school summary form were held in 82% and 77% of training sessions monitored. The five training sessions that did not hold any practical sessions cited limited time, lack of forms for the practical sessions, the trainer did not deem it necessary, participants already knew how to fill out forms or the trainers asked participants with experience in form filling to teach first timers.

Figure 3: Messages covered under recording and reporting forms (n=22)



From post-training interviews, 93% of teachers/head teachers correctly identified either the treatment register or schools summary form as the primary form they would use to record treatments. However, 43% of the participants were not able to cite the treatment register as the source document for the school summary form.

4.2.5 Roles and Responsibilities

Drug administration was the most covered teacher role (95%), followed by form recording and reporting (82%). The mobilization of non-enrolled children was limited to 59% of sessions. Coverage of roles of all key stakeholders, including frontline health facility staff and NTD coordinators are shown in **Table 5** below.

Table 5: Key MDA roles and responsibilities of various actors covered at the trainings (n=22)

Roles and responsibilities	Percent
Key teacher roles	
Organizing drug administration	95%
Form recording and reporting	82%
Disseminating health education messages to children and parents	73%
Mobilization of non-enrolled children	59%
Key FLHF staff roles	
Participate in community awareness creation	73%
Managing side-effects	64%
Managing, referring and reporting any children with SAEs	64%
To communicate the rationale of the intervention to community leaders	36%
NTD coordinator and educational secretary roles	
Distributing appropriate quantities of drugs to teachers	64%
Compiling the treatment coverage report	64%
Receiving any unused drugs from the schools post-treatment	50%

From post-training interviews, 80% of teachers correctly identified the role of FLHF staff in the management of SAEs.

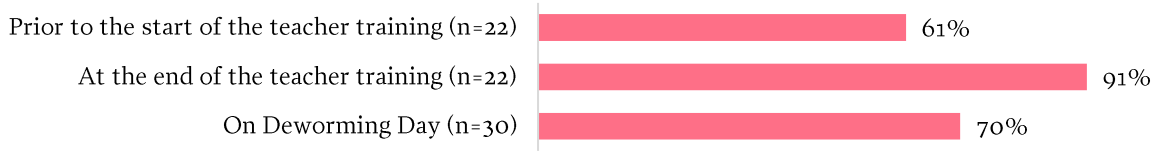
4.3 Distribution of drugs and materials

Trainers should receive key materials before training (drugs, reporting forms, tablet poles, and posters) to aid teacher training sessions, as well as to pass on to teachers.

In 83% of training sessions, drugs for both STH and schistosomiasis treatment were available before the sessions began, but were distributed in all (100%) training sessions. On the other hand, only 43% of sessions had tablet poles before training started with distribution to all (100%) sessions monitored. The distribution of treatment registers and schools summary forms was high (91%). In terms of distribution to schools, only 73% of sessions distributed forms to all schools present. A teacher training handout was present and distributed in 95% of the training sessions.

On Deworming Day, only 70% of schools had all the required drugs, reporting forms, and tablet poles, which indicates that the supply chain did not perform as efficiently as expected (**Figure 4**). This low rate may be particularly down to the low availability of summary forms, available in only 70% of sessions. On the other hand, drugs were available in all (100%) schools monitored.

Figure 4: Availability of all key materials across the implementation cascade[7]



From post-deworming interviews with head teachers, all (100%) indicated sufficiency of the initial drugs availed. Of the 93% of schools with a drug surplus, 71% planned for a mop-up before returning drugs to the LGA, 25% of schools returned their surpluses immediately, and 4% planned to make distributions to children in the village.

4.3.1 Community sensitization materials

Before training began, 91% of training sessions had posters available, but only 77% distributed them at the end of the sessions. On Deworming Day, 92% of schools had posters available and pinned, with head teachers reporting an average of 2 posters per school.

4.4 Community Sensitization

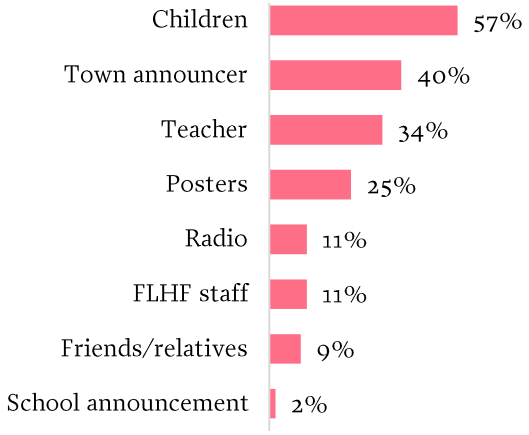
Community sensitization prior to Deworming Day is an evidence-supported factor critical for MDA success. On Deworming Day, monitors held interviews with 76 parents (57 of enrolled children and 19 of non-enrolled children) to gauge their awareness of MDA, as well as their sources of MDA information.

[7] All key materials include: drugs, tablet poles, and reporting forms (treatment registers and school summary form).

4.4.1 Implementation of community sensitization

Seventy-nine percent of head teachers reported sending someone from the school to mobilize children in the community for the MDA. The majority of head teachers indicated that this was either a teacher (91%) or a student (64%). While children (57%) were commonly cited by parents as the source of Deworming Day information, a teacher was cited by only 34% of parents, with the town announcer (40%), a distant second (**Figure 5**).

Figure 5: Sources of Deworming Day information cited by parents



4.4.2 Community knowledge

Prior to Deworming Day, only 76% of parents (47 (82%) of enrolled children and 11 (58%) of the non-enrolled children), were aware of Deworming Day. More parents of non-enrolled children had taken their children for deworming in the past, compared to those of enrolled children (75% vs 73%).

Knowledge of the target age-group was moderately high (74%) and higher among parents of enrolled (78%) when compared to those of non-enrolled children (50%). However overall knowledge of the worms was low with approximately 50% of both parents to enrolled and non-enrolled children able to cite either of STH or schistosomiasis worms respectively. Only 57% of the parents of enrolled and none (0%) of non-enrolled children were aware of the worms being treated for STH. Respectively, 59% of enrolled and 17% of non-enrolled were aware of the worms under treatment for schistosomiasis. However, 86% of parents aware of Deworming Day indicated receiving messages encouraging them to feed their children before deworming, with 98% of these parents reporting that they complied.

At the end of these interviews, 92% of all of the parents that were aware of Deworming Day indicated that they would be sending their children for deworming (96% of parents of enrolled and 75% of parents of non-enrolled). Of the 4 parents that would not send any of their children for deworming, 2 indicated that they were not aware, one that their child was sick while the other indicated that they would send their child on another day.

4.5 Deworming Day

Thirty schools were monitored on Deworming Day, of which 77% were primary level, 17% were junior level, and 7% included both levels. By school type, 60% were public while 40% were private. The purpose of the visit was to assess MDA procedures and

interview the deworming team to assess their knowledge and capability to deliver the MDA.

4.5.1 Preparedness for Deworming Day

All (100%) head teachers interviewed had made plans to deworm, and all (100%) head teachers reported that either they or a teacher from the school had attended training within a month of the MDA, which contrasts the 67% school representation during the teacher training.[8]

Monitor observations of school infrastructure revealed that 50% of schools lacked hand washing facilities and 33% of schools didn't have a toilet facility. The proportion of schools with toilets represents a 9 percentage point improvement to that noted in the second round of 2018 deworming. The proportion of schools without hand washing facilities is consistent with that in 2018 of 54%.

4.5.2 Deworming Day Delivery

Of the 30 schools that were originally sampled for Deworming Day monitoring, 14 schools were replaced due to various challenges. Five schools did not deworm as planned, four were deworming at a later date, three could not be accessed, and two could not be located.

All sixteen of the non-replaced schools and all fourteen of the replacements conducted deworming on the designated day. Of the 39 schools that were found or could be assessed, only 30 schools conducted deworming on the designated date, for a rate of only 77% that conducted deworming.

4.5.2.1 Adherence to MDA procedures

Adherence to drug administration protocol was generally high (at least 70% of correct administration steps). All schools used the tablet pole to determine the correct praziquantel dosage, while 94% gave the correct STH dosage to children (**Table 6**). Adherence to aspects related to recording treatment were also high (at least 90%). However, only 33% of children washed hands prior to receiving treatment.

Table 6: MDA procedures observed by monitors during drug administration (n=30)

MDA practice	Percent
Pre-deworming preparations	
Health education messages were given to children prior to treatment	73%
Teachers ensured children washed their hands prior to treatment	33%
Drug Administration	
Tablet pole was used to determine praziquantel dosage	100%
Teachers who gave the correct dosage for mebendazole (1 tablet)	94%

[8] The inconsistency is likely due to some schools sending teachers to mop-up trainings, which are not monitored, and also due to self-reporting.

Teacher asked child to chew the mebendazole tablet	94%
Teacher correctly used tablet pole to determine praziquantel dosage	87%
Teacher asked if child was sick or under medication before administering medicine	80%
Spoilt tablets were properly disposed (n=10)	70%
Recording treatment	
The treatment register was used to record treatment	97%
The teacher had transferred the names from the class register to treatment register prior to the deworming exercise	90%
All sections of the treatment register were filled out	90%

Out of the 60% of schools that had handwashing facilities, only 45% ensured that children had washed their hands before deworming.

4.5.2.2 Management of side effects and referrals

Instances of side effects were noted in 23% of schools monitored. Majority of cases related to vomiting (86%), while headache and abdominal pain were reported in 2 (29%) of schools. In the other school, body weakness was reported. One referral to a health facility was made. In all cases, monitors reported that the team showed a high ability to handle the side effects.

4.5.3 Attendance Rate

All eligible children were treated in 87% of schools. Deworming at a later date (50%), and being sick (25%) were the main reasons as to why some children were not dewormed. Only one case of a child being forced to swallow drugs was noted, i.e. a child initially refused to take the drugs but the teacher insisted. Ninety-four percent (94%) of schools also took steps towards planning for absentees for treatment when they returned, by recording their names on the treatment register.

While 80% of head teachers indicated that they had made plans to deworm non-enrolled children, on Deworming Day, only 13% of the schools dewormed non-enrolled children, a statistic consistent with the 18% noted in the last round of deworming. Of the head teachers indicating that they did not have a plan to deworm non-enrolled children, 50% indicated that non-enrolled children would not accept to come, 17% that school management was against treating them, non-enrolled children were not informed (17%) or that only enrolled children were targeted (17%).

5.0 Coverage Validation

Coverage validation was conducted in two randomly selected LGAs within Cross River State – Yakurr for Mebendazole (STH) treatment and Ogoja for Praziquantel (schistosomiasis) treatment.

5.1 STH and Schistosomiasis Results

Table 7 shows coverage validation findings for both LGAs. The program reach is high in both LGAs, with Yakurr reaching 94% of the target population. The surveyed coverage findings in both LGAs are also above the WHO recommended coverage threshold of 75%, indicating a successful MDA. On the other hand, while the reported coverage[9] in Yakurr is outside the confidence intervals of the surveyed coverage[10], it is still within 10 percentage points of this interval, indicating that reporting systems are working moderately well, but there is still room for improvement to guard against over-reporting. The 29 percentage point difference between reported coverage and surveyed coverage in Ogoja indicates that there are likely problems with the reporting system and incomplete target data for coverage calculations.

Table 7: Coverage validation results for Ogoja and Yakurr

Category		Program reach			Survey Coverage			Reported coverage	Number of children interviewed
		Mean (%)	95% CI Lower Bound	95% CI Upper Bound	Mean (%)	95% CI Lower Bound	95% CI Upper Bound		
Overall									
Ogoja (STH)		87%	85%	89%	81%	78%	83%	112%[11]	1048
Yakurr (schistosomiasis)		94%	92%	95%	85%	82%	87%	96%	795
Disaggregation by gender									
Ogoja	Male	88%	85%	91%	83%	79%	86%		541
	Female	86%	83%	89%	79%	75%	82%		507
Yakurr	Male	94%	91%	96%	85%	81%	88%		401
	Female	94%	91%	96%	85%	81%	88%		394
Disaggregation by enrolment status									
Ogoja	Enrolled	88%	86%	90%	82%	80%	85%		993
	Non-enrolled	78%	65%	88%	53%	39%	66%		55
Yakurr	Enrolled	94%	92%	96%	86%	83%	88%		761
	Non-enrolled	85%	69%	95%	65%	46%	80%		34
Disgaggregation by school type									
Ogoja	Public	90%	87%	92%	85%	82%	87%		797
	Private	80%	74%	85%	72%	65%	78%		196
Yakurr	Public	95%	93%	97%	87%	84%	90%		529
	Private	92%	88%	95%	84%	79%	89%		232

[9] Reported coverage - proportion of children within the program area whom head teachers reported as having taken the drug.

[10] Surveyed coverage - proportion of children interviewed who indicated that they swallowed the drug.

[11] The program reported an influx of immigrants from Cameroon, hence a coverage exceeding 100%.

Results disaggregated by gender were generally consistent with the overall findings. On the other hand, the program reach for private schools was higher in Ogoja while comparable with that for public schools in Yakurr. It is also noted that while the program reach for non-enrolled children was generally high (78% in Ogoja, and 85% in Yakurr), the surveyed coverage was lower at rates of 53% and 65%, respectively..

5.2 Reasons for non-compliance

Compliance rates (proportion of children who were offered the drug that swallowed it) were high in both LGAs, each posting 92%. **Figure 6** presents the reasons drugs were not given. The major reasons related to distributors not coming to school, absence from school, or not being aware of Deworming Day.

Figure 6: Reasons drugs were NOT given

	Praziquantel (n=179)	Albendazole (n=109)
Distributor did not come to our school	55%	24%
Drugs finished	1%	-
I was sick	7%	9%
I am taking other medications	1%	1%
I was busy	1%	-
Already took at school	1%	-
Absent from school	17%	39%
I was not aware	4%	23%
Lack of parental consent	9%	1%
Fear of side effects	1%	1%
Not enrolled	1%	-
I had not eaten	-	2%

5.3 Unprogrammed deworming

Eight percent (8%) of respondents (12% in Ogoja, 3% in Yakurr) reported having been dewormed outside the scope of this MDA, at least six months prior to Deworming Day. These were taken from home (45%), a health facility (44%), a pharmacy (7%), school (3%) and church (1%).

6.0 Recommendations

6.1 What worked well

1. Post-training knowledge of key aspects for the topics on worms and the target population, drugs and drug administration was high (at least 90%). Additionally, the key topic on recording forms was highly covered, with the key reporting forms covered in at least 82% of trainings
2. Overall willingness to send children to school for deworming was high (92%), albeit much higher among parents to enrolled children (96% vs 75%). This justifies the continued use of the cost effective options, particularly children in future rounds.
3. Key steps during drug administration and recording of treatments were generally well performed, as exemplified in the scores for provision of the correct drug dosage (100% used the tablet pole to determine praziquantel dosage and 94% gave one tablet for mebendazole), with no instances of children being forced to swallow drugs. In spite of the high incidence of side effects, in all cases, teams were noted to be knowledgeable in the handling of all cases.
4. The program reach in both LGAs was remarkably high (94% in Yakurr, 87% in Ogoja) with efforts in reaching the non-enrolled population (85% in Yakurr, 78% in Ogoja) also noteworthy. The overall surveyed coverage for both LGAs also exceeded the 75% WHO threshold, indicating a successful MDA.

6.2 What can improve

1. Overall attendance of the teacher training can be improved, as only 67% of expected schools were represented. The major reasons cited by absent schools including late receipt of information (50%) and lack of awareness by either the schools (38%) or teachers (44%) can be addressed by improving communication to the schools. Early communication can also further allow schools to release teachers to ensure they are on time for sessions.
2. The supply chain for key program materials including drugs, summary forms, treatment register and tablet poles was poor. While post-training material distribution was generally high (91%), only 70% had all materials on Deworming Day, a statistic brought down by the low supply of summary forms (available in only 70% of schools). Prior to the next round, the supply chain of these materials needs to be assessed.
3. There is also room to improve in the handling of sick children. Trainers need to emphasize that children should be asked if they are sick and if so, shouldn't be dewormed. This will remedy the 11% percent of participants incorrectly indicating that they would deworm sick children present during the MDA and 20% of schools that did not ask if children were sick prior to drug administration.

4. Based on objective coverage validation findings, there is a need to check the reporting system in Ogoja for possible significant over-reporting. A suggested starting point is at the trainings, where practical form filling sessions should be encouraged and enforced. Some of the reasons given including participants' prior knowledge or limited time indicate little weight attached to this section.