

Evidence

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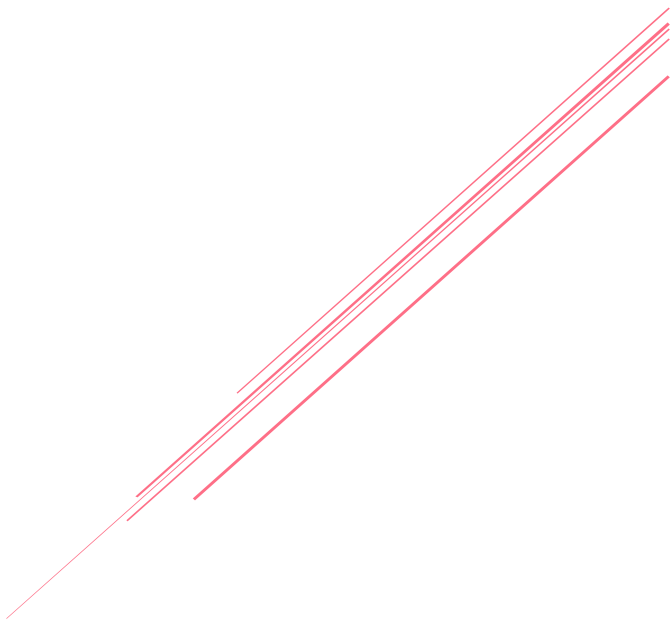


Deworm the  
World Initiative

# School-based Deworming in Rivers State, Nigeria

Process Monitoring and Coverage Validation  
Report

November 2019 Round



# Contents

Contents	2
Glossary	3
1.0 Executive Summary	4
2.0 Background	5
3.0 Methodology	6
3.1 Process Monitoring	6
4.0 Results	8
4.1 Review of teacher training	8
4.1.1. Attendance during the teacher training sessions	8
4.2 Topic coverage at teacher training	8
4.2.1 Information on worms and target population	8
4.2.2 Drugs and Drug Administration	9
4.2.3 Side effects	10
4.2.4 Recording and reporting forms	12
4.2.5 Roles and Responsibilities	12
4.3 Distribution of drugs and materials	13
4.3.1 Community sensitization materials	13
4.4 Community Sensitization	14
4.4.1 Implementation of community sensitization	14
4.4.2 Community knowledge	14
4.5 Deworming Day	15
4.5.1 Preparedness for Deworming Day	15
4.5.2 Deworming Day Delivery	15
4.5.2.1 Adherence to MDA procedures	15
4.5.2.2 Management of side effects and referrals	16
4.5.3 Attendance Rate	16
5.0 Recommendations	16
5.1 What worked well	16
5.2 What can improve	17

# 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, Rivers state carried out its second round of school-based deworming for the year, the third year of deworming in Rivers, targeting both enrolled and non-enrolled children, ages 5-14 years. Treatment was given in 6 local government areas (LGAs) endemic for soil-transmitted helminths (STH) out of the 21 LGAs in Rivers. The state targeted 920 public and private primary and junior secondary schools for deworming, and approximately 504,415 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 18 teacher training sessions, 30 schools on Deworming Day, and 80 parents in the communities.

On average, 78% of expected schools were in attendance for teacher training, which was 3 percentage points lower when compared to the last round of deworming in Rivers state. The majority of the schools that did not attend indicated that teachers could not make it (43%), the school or teacher was not aware (28%), and/or they received communication late (7%). The best covered topics during training were worms and target population, drugs, and drug administration. In post-training interviews, 99% of participants correctly responded to questions about each of these content areas. Read more on training on [page 8](#).

All schools (100%) had received drugs prior to Deworming Day with all having sufficient drugs to deworm all children on Deworming Day. However, only 83% of participating schools had all the key materials, including drugs, on Deworming Day. Read more on distribution on [page 13](#).

Overall awareness of Deworming Day was higher among parents of enrolled children (82%) as compared to the parents of non-enrolled children (55%). Eighty-seven percent of parents that were aware of deworming indicated that they would be sending their children for deworming. Of the 9 (13%) parents that said they would not send their children for deworming, the main reason was they were not aware of the deworming activity (56%). The main source of Deworming Day information cited by parents of the children was the child (68%) and teacher (50%). Read more on awareness on [page 14](#).

The rate at which schools conducted deworming was high, as 94% of visited schools were distributing tablets on Deworming Day, up from 79% in round 1. All teachers provided the correct mebendazole dose, and children were not forced to swallow medicines against their will in 97% of schools. However, washing hands prior to

receiving treatment was noted in only 30% of schools. Read more on drug administration on [page 15](#).

**Table 1: Key Performance Indicators**

	Percent
Target schools represented at teacher training	78%
Target schools with adequate drugs during deworming	100%
Target schools utilizing at least one awareness activity or material	93%
Parents who report seeing or hearing about deworming through IEC deworming materials or word of mouth this round	75%
Target schools distributing tablets on Deworming Day - STH	94%
Enrolled children present in school on Deworming Day	89%
Targeted children who report receiving unprogrammed deworming in the last six months	NA <sup>1</sup>
Target population validated as swallowing mebendazole tablets on Deworming Day based on coverage validation	NA

**Conclusions:** Overall, the round two, deworming implementation was successful, highlighted by high post-training knowledge of teachers on worms and target population, drugs and drug administration, and a good supply chain with all key materials available in all (100%) of schools on Deworming Day. However, there were also challenges that should be addressed ahead of the next round of MDA, including more comprehensive coverage of topics by trainers in teacher training, and increasing the reach of non-enrolled children. The full summary of successes, challenges, and recommendations can be found on [page 16](#).

## 2.0 Background

Evidence Action provides technical support to Rivers 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 second round of its third year of state-wide school-based deworming took place in 6<sup>2</sup> out of 9 LGAs in Rivers state with high endemicity for STH requiring twice a year treatment.

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<sup>1</sup> This is collected during coverage validation, which was not conducted during round 2 in 2019.

<sup>2</sup> At the time of initial planning, a number of LGAs required and planned to have treatment for Lymphatic filariasis and were thus excluded in the NSBDP planning. However, while the program was later informed that one of the LF drugs (Mectizan) was not available for LF treatment to be conducted, it was not possible for the program to scale to these LGAs as schools were closing in a short time. This explains why the program treated in 6 out of 9 LGAs.

A total of **504,415** 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 (**1,520 in total**) were trained to properly administer the safe and effective deworming drug, mebendazole.

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 18 teacher training sessions, 30 schools on Deworming Day, and interviewed 80 parents. 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 6 LGAs that conducted deworming. A random sample of 18 teacher training sessions (out of 38) and 30 schools implementing deworming (out of 920) were monitored. 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 trainer was targeted for interviews, 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 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.

Coverage evaluation surveys were not implemented for this round of deworming as they are only conducted during one of the two rounds per year. **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
<b>Teacher training</b>			
Total number of teacher training sessions	38	18	18
Pre-training interviews		72	71
Post-training interviews		72	72
<b>Deworming Day</b>			
Schools monitored	920	30	30 <sup>3</sup>
Head teachers interviewed		30	30
Parents interviewed		30	8 <sup>4</sup>
Enrolled children interviewed		60	60
Non-enrolled children interviewed		30	3 <sup>5</sup>
<b>Community Mobilization</b>			
Households surveyed - Parents of enrolled children		60	60
Households surveyed - Parents of non-enrolled children		30	20 <sup>6</sup>

<sup>3</sup> A total of 10 schools replaced: 6 could not be located, 2 were not deworming and 2 could not be accessed.

<sup>4</sup> Not a single parent was identified in some of the sampled schools monitored

<sup>5</sup> Non-enrolled children were not present in most of the observed schools. Only 10% of schools dewormed non-enrolled children

<sup>6</sup> There were difficulties in locating households where all children aged 5-14 do not attend school.

# 4.0 Results

## 4.1 Review of teacher training

Of the 18 observed teacher training sessions, 94% of trainers reported that they had been trained prior to conducting the teacher training. SMS (61%) and phone calls (56%) were the most common means of inviting participants for training. An attendance sheet was present in all (100%) of training sessions.

To share information and keep participants engaged, trainers are encouraged to use a combination of methods. All (100%) training sessions employed lecture based presentations, while many others employed other methods such as group discussions (94%), demonstrations (72%), role play (28%), and group work (22%).

### 4.1.1. Attendance during the teacher training sessions

On average, 35 teachers were expected to attend each training, but only an average of 25 (73%) attended, representing 78% of expected schools. The teacher attendance rate (73%) increased by 10 percentage points when compared to that noted in the first round of 2019. The school representativeness is marginally lower (3 percentage points) than that in the previous round. The majority of the schools that did not attend indicated that teachers could not make it (43%), the school or teacher was not aware (28%), and/or they received communication late (7%).

Thirty percent of participants arrived after training had started. The reasons cited for late arrival included going to school first (70%), traveling a long distance (26%) and late invitation (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.

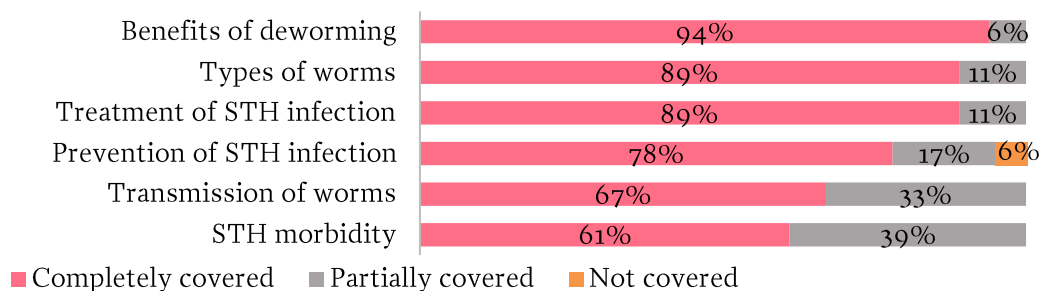
### 4.2.1 Information on worms and target population

The six messages regarding worms include type of worm, transmission, prevention, morbidity, treatment, and benefits of deworming. Among these, only information on



benefits of deworming received complete coverage in at least 90% of training sessions, with other messages receiving complete coverage in at least 60% of training sessions (Figure 1). Notably, the message on prevention of STH infection was not covered at all in 6% of training sessions.

**Figure 1: Messages covered under worms (n=18)**



Post-training interviews revealed that 99% of the participants could cite the type of worms being treated as STH. Additionally, in post-training, 99% of respondents could cite how STH could be treated, 38 percentage points up from 61% in pre-training interviews.

In all (100%) training sessions, trainers explained the target group of all enrolled and non-enrolled children aged 5-14 years. Additionally, 94% of training sessions monitored emphasized the importance of not deworming sick children. Under-age children and those with a history of certain health conditions<sup>7</sup> were also mentioned in 89% and 72% of the training sessions respectively. These messages are key to minimize the incidence of SAEs.

Post-training, 99% of teachers cited the correct target age-group, up from only 62% pre-training. However, 4% of participants incorrectly said that they would deworm sick children present during the MDA.

#### 4.2.2 Drugs and Drug Administration

The coverage of key messages under the drug administration topic was high (covered in at least 83% of training sessions). Only 17% of training sessions did not cover messages on hand washing and drug storage. Additionally, messages on what to do with a drug surplus were not provided in 17% of training sessions. Coverage of other messages on preparatory activities and drug administration are shown in Table 3.

**Table 3: Messages on drug administration covered during the teacher training sessions (n=18)**

MDA practice	Percent (Completely and partially covered)
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<sup>7</sup> These include epilepsy, sickle cell and central nervous disorders.

STH drug is mebendazole	100%
One mebendazole tablet to be given to each child	100%
Under the program, all drugs are free, safe and effective	100%
Under no circumstances should a child be forced to swallow the medicine	94%
Register enrolled children prior to Deworming Day and non-enrolled children on Deworming Day, prior to treatment.	94%
Facilitate hand washing prior to treatment	83%
Drugs must be stored in a clean, safe, dry and cool location	83%

From post-training interviews, 99% of participants knew the correct drugs and dosage used for STH treatment, with an increase of 38 and 31 percentage points, respectively, suggesting high knowledge retention among participants.

Apart from knowing the right drug type and dosage, it is important to follow certain drug administration steps. While each step was covered in at least 84% of the training sessions, they were not covered in the right order in 28% of training sessions. Table 4 lists steps, in the correct order, as completely or partially covered during the training sessions.

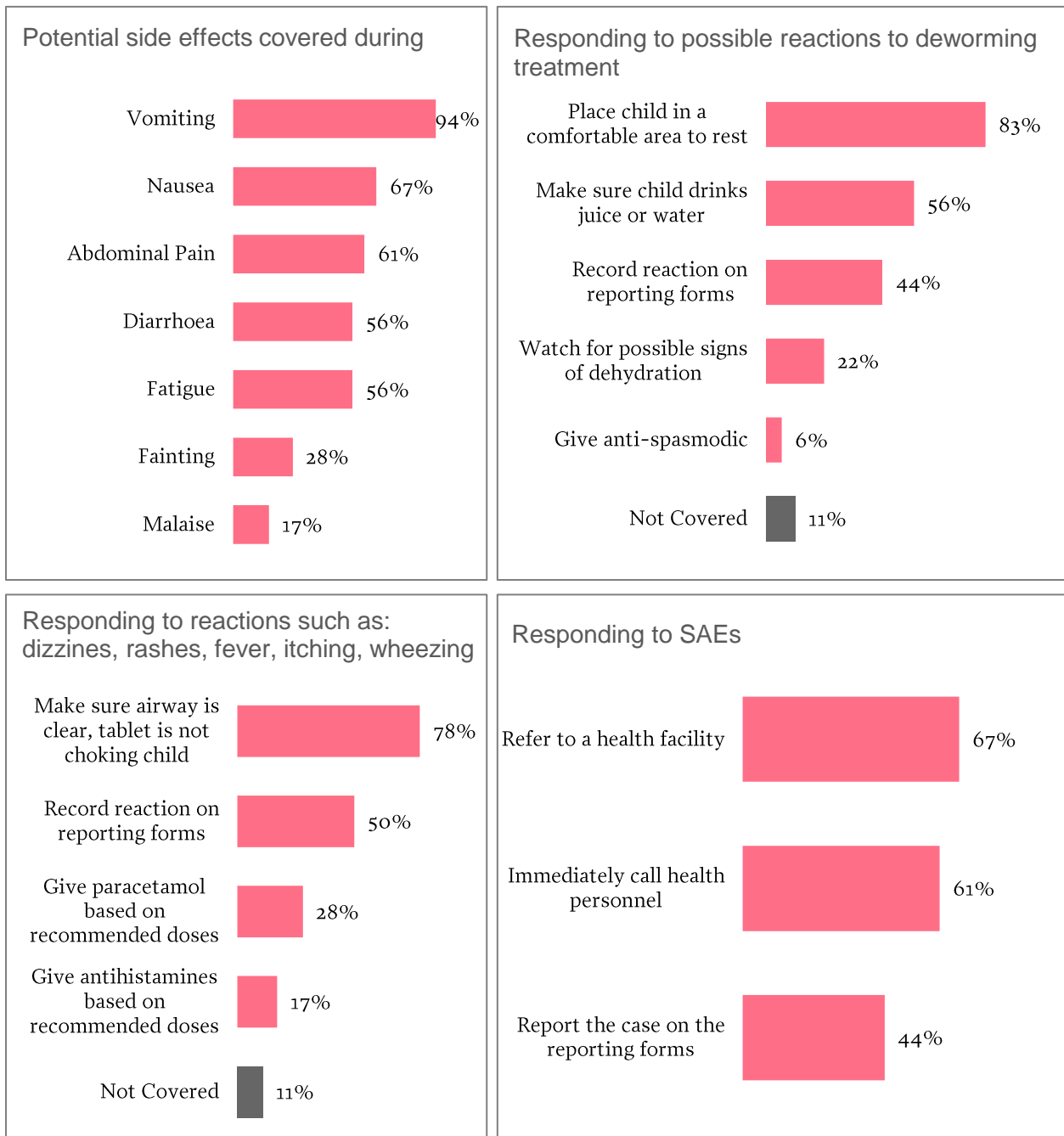
**Table 4: Drug administration steps covered during training (n=18)**

Drug administration step	Completely covered	Partially covered	Not Covered
Step 1: Arrange the drug distribution site	56%	39%	5%
Step 2: Ensure necessary materials are available and are in place	72%	28%	-
Step 3: Provide orientation to the children	67%	22%	11%
Step 4: Organize children accordingly	61%	28%	11%
Step 5: Let the child wash his/her hands	67%	17%	16%
Step 6: Register the child if non-enrolled	78%	17%	5%
Step 7: Administer the mebendazole drug	94%	6%	-
Step 8: Complete registration in the treatment register	83%	6%	11%
Step 9: Observe the child for any side effects	78%	17%	5%

### 4.2.3 Side effects

Trainers provided information on potential side effects and SAEs to prepare teachers to manage such situations. Vomiting was mentioned as a side effect in 94% of training sessions while fainting and malaise were covered in only 28% and 17% training sessions, respectively, perhaps due to their lower likelihood during STH treatment. Further information on knowledge of side effects and SAEs is reflected in Figure 2 below

**Figure 2: Messages on side effects (n=18)**

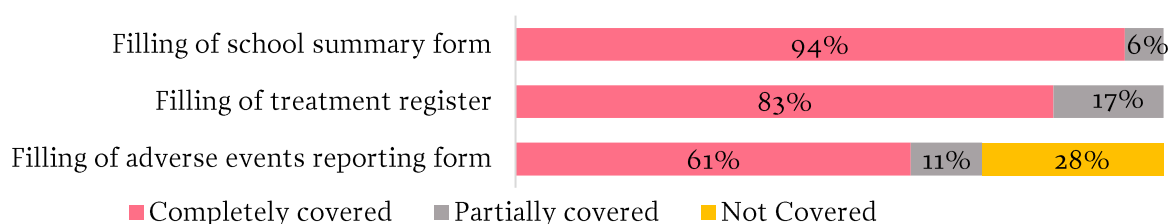


From post-training interviews, vomiting was the most mentioned side-effect by participants (75%), likely related to the fact that it was most mentioned by trainers. The rest of the side effects were recalled by less than 60% of interviewed participants.

#### 4.2.4 Recording and reporting forms

Teachers are required to record the number of children treated at class and school levels on the given reporting forms to ensure accurate treatment coverage rates. Trainers completely covered information on the school summary and treatment register forms in 94% and 83% of sessions, respectively (Figure 3). Additionally, 94% of the training sessions held practical sessions to fill the register and school summary form. However, a wrong message was communicated at one of the training sessions pertaining to the treatment register, where participants were informed that they would be given updated registers as the current ones were not up to date.

Figure 3: Messages covered under recording and reporting forms (n=18)



From post-training interviews, 86% of teachers correctly identified the treatment register as the primary form they would use to record treatments. However, 59% of participants did not name it as the source document for the school summary form, possibly indicating a gap in knowledge of the forms cascade.

#### 4.2.5 Roles and Responsibilities

The roles and responsibilities that received the highest coverage included drug administration, and form recording and reporting at 89% and 78% respectively. Sensitization and mobilization related aspects generally received a lower coverage. Coverage of the roles of teachers, FLHF staff, and NTD coordinators are shown in Table 4 below.

Table 4: Key MDA roles and responsibilities of various actors covered at the training sessions (n=18)

Roles and responsibilities	Percent
<b>Key teacher roles</b>	
Organizing drug administration in school	89%
Form recording and reporting	78%
Disseminating health education messages to children and parents	61%
Mobilization of non-enrolled children	39%
<b>Key FLHF staff roles</b>	
Managing, referring and reporting any children with SAEs	67%
Participate in community awareness creation	61%
Managing side-effects	56%
To communicate the rationale of the intervention to community leaders	50%

NTD coordinator and educational secretary roles	
Distributing appropriate quantities of drugs to teachers	56%
Compiling the treatment coverage report	56%
Receiving any unused drugs from the schools post-treatment	44%

In post-training interviews, 83% 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 (drugs, reporting forms and posters) from LGA training sessions to aid in teacher training sessions, and to pass on to teachers.

In most training sessions (89%), drugs were available before the session began. Post-training, the distribution of drugs was noted in all (100%) training sessions. Distribution of treatment registers and school summary forms were also observed in all (100%) training sessions. A teacher training handout was present and distributed in 94% of training sessions.

On Deworming Day all (100%) schools had the required drugs, summary forms, and treatment registers, which points to an effective supply chain for key materials (Figure 4). However, 7% of schools on Deworming Day did not use the reporting forms to record treatment.

Figure 4: Availability of all key materials across the implementation cascade<sup>8</sup>



In post-deworming interviews with head teachers, all (100%) indicated sufficiency of the drugs available. Of the 87% of schools that reported drug surplus, 81% planned for a mop-up before making any eventual returns to the LGA, while immediate drug returns to the LGA were planned in 15% of schools, while 4% planned to share with a nearby school or distribute among teachers.

#### 4.3.1 Community sensitization materials

Prior to training start, all (100%) of training sessions had posters available, but only 83% of training sessions distributed them post-training. On Deworming Day, 97% of schools were found to have posters available, with head teachers reporting an average

<sup>8</sup> All key materials include: drugs, and reporting forms (treatment registers and school summary form).

of three posters. The majority of head teachers had the posters pinned (93%) on Deworming Day.

## 4.4 Community Sensitization

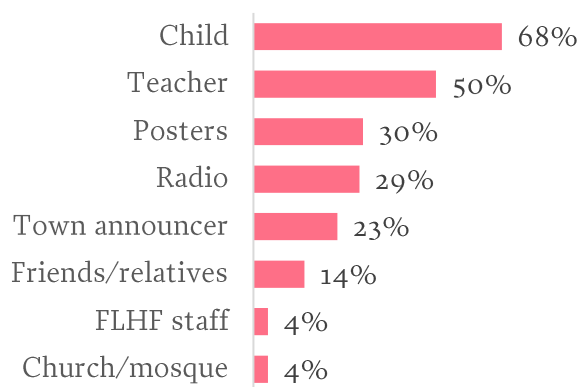
Community sensitization prior to Deworming Day is an evidence-supported factor critical for MDA success. On Deworming Day, monitors held interviews with 80 parents (60 of enrolled children, 20 of non-enrolled children) to gauge awareness of the MDA, as well as sources of MDA information.

### 4.4.1 Implementation of community sensitization

Ninety-three percent (93%) of head teachers reported sending someone from their school to mobilize children in the community for the MDA. The majority of head teachers indicated that this was a teacher (75%) or student (71%).

Teachers and children also remained the dominant sources of Deworming Day information cited by parents (Figure 5).

Figure 5: Sources of Deworming Day information cited by parents



### 4.4.2 Community knowledge

Prior to Deworming Day, 75% of parents – 82% of parents of enrolled children and 55% of parents of non-enrolled children - were aware of Deworming Day. More parents of enrolled children had taken their child for deworming in the past, compared to those of non-enrolled children (74% vs. 58%).

Parent’s knowledge of the target age-group was higher when compared to knowledge of the worms being treated. Only 41 (72%) of parents of enrolled and 9 (75%) of parents of non-enrolled children were aware of the target age-group. Parents’ knowledge of the correct worm type was at 54%, 60% for parents of enrolled children and 25% for parents of non-enrolled.

At the end of these interviews, 87% of parents indicated that they would send their children for deworming, including a higher proportion of enrolled parents (96%) than parents of non-enrolled children (42%). Of the 9 (13%) parents that wouldn’t send their children for deworming, the reasons included that they were not aware of the deworming activity (5), their children had already been dewormed at home (2), their children were absent from school (1), or their children will be dewormed the next day (1).

As part of the survey, parents were asked for their preferred methods of receiving future communication on deworming. Radio (58%), town announcers (54%) and teachers (43%) emerged as top preferences. Town announcers (75%) and radio (50%)

were preferred sources of information among parents of non-enrolled children. While these methods were used during this round, they each reached not more than a third of the parents of the non-enrolled children (Figure 5).

## 4.5 Deworming Day

Thirty schools were visited on Deworming Day, of which 83% were primary level, 3% were junior secondary, and 13% included both levels. By school type, 47% were public while 53% were private. The purpose of the visit was to assess MDA procedures and the deworming team's knowledge and capability to deliver the MDA.

### 4.5.1 Preparedness for Deworming Day

All (100%) head teachers had made plans to deworm. Additionally, all (100%) reported that either they or a teacher from the school had attended training within a month of the MDA, which contrasts the 78% school representation during the teacher training.

Monitor observations of school infrastructure revealed that 60% of schools lacked hand washing facilities, while all schools had at least one toilet facility, up from 78% in the second 2018 round.

### 4.5.2 Deworming Day Delivery

Of the 30 schools that were originally sampled for Deworming Day monitoring, 10 schools were replaced due to various challenges. Two schools did not deworm as planned, two schools could not be accessed for monitoring, and six schools could not be found.

All 20 of the non-replaced schools and all ten of the replacements conducted deworming on the designated day. Of the 32 schools that were found or could be assessed, 30 schools conducted deworming on the designated date, for a rate of 94% that conducted deworming.

#### 4.5.2.1 Adherence to MDA procedures

Adherence was generally high (at least 87%) for aspects related to drug administration. All schools gave the correct dosage of mebendazole to children (100%), while 97% of the teachers requested children to chew the tablet at their own wish (Table 5). However, low adherence was noted for some aspects related to pre-deworming preparations; teachers at only 58% of schools with hand washing facilities ensured that children washed their hands prior to receiving treatment. Additionally, monitors found children being treated without asking if they were under medication in 13% of schools, a drop from the 37% in the previous round.

Table 5: MDA procedures observed by monitors during drug administration (n=30)

MDA practice	Percent
Pre-deworming preparations	
Deworming team comprised of two teachers	93%

Health education messages were given to children prior to treatment	70%
Teachers ensured children washed their hands prior to treatment	58%
<b>Drug Administration</b>	
Teachers gave the correct dosage for mebendazole (1 tablet)	100%
Children were not forced to swallow drugs against their wishes	97%
Teacher asked child to chew the mebendazole tablet	97%
Spoilt tablets were properly disposed (n=9)	89%
Teacher asked if child was sick or under medication before administering medicine	87%
<b>Recording treatment</b>	
All sections of the treatment register were filled out	93%
The treatment register was used to record treatment	93%
The teacher had transferred the names from the class register to treatment register prior to the deworming exercise	87%

#### 4.5.2.2 Management of side effects and referrals

Three occurrences of side effects were observed, related to headache, vomiting and abdominal discomfort. All were effectively handled, with no referral made and no indication of SAE incidence.

#### 4.5.3 Attendance Rate

All eligible children were treated in 60% of schools. Refusal either by children (42%), or their parents (17%) or children being unwell (17%) were the major reasons why some eligible children were not dewormed. There was one school where children were reportedly forced to swallow drugs. Ninety percent (90%) of schools also took steps to plan for treating absentees when they returned to school, by recording their names on the treatment register.

However, while 93% of head teachers had made plans to deworm non-enrolled children, on Deworming Day only 10% of observed schools were treating non-enrolled children, a similar statistic from the last round of deworming.

## 5.0 Recommendations

### 5.1 What worked well

1. High post-training knowledge (at least 90%) was noted for the topics on worms and target population, and drugs and drug administration. The efforts of the trainers should be commended, with encouragements to ensure the same in the next round emphasized.
2. Key steps during drug administration and recording of treatment were well performed, with majority (99%) observed teachers providing the correct dosage,



and only one instance of children being forced to swallow drugs. All sections were filled out on 93% of reporting forms.

3. All instances of side effects noted on Deworming Day were well handled.
4. The supply chain was well executed; key materials (drugs, reporting forms and posters) were distributed at the end of all training sessions, and were available in all schools on Deworming Day. Posters were also pinned in most schools (93%).
5. Overall willingness of parents to send their children for deworming was high (87%) indicating that the penetration of the major proponents of sensitization messages (children and teachers) was high.

## 5.2 What can improve

1. Overall attendance of the teacher training sessions was moderate (73% for teachers, 78% for schools), with 30% of participants arriving late. While the program should be commended for improving teacher attendance rate (by 10 percentage points) relative to last year, concerted efforts aimed at encouraging head teachers to promptly request teachers to make necessary preparations to attend the training can further improve this statistic.
2. Several practices observed during MDA need to be addressed during future teacher training sessions:
  - a. In spite of emphasis in 83% of training sessions, hand washing on Deworming Day was restricted to 58% of schools with hand washing facilities.
  - b. In spite of program efforts to avail reporting forms to all schools, 7% of schools did not use the treatment register to record treatments. Given how critical this is for measuring program coverage, emphasis should be made to ensure these are used.
  - c. In 13% of schools, teachers did not ask whether children were sick before administering mebendazole tablets. Additionally, in post-training interviews, 3 teachers (4%) reported that they would administer drugs to sick children if present on Deworming Day.
  - d. Similarly, there was one observed case in which a child was forced to swallow drugs, which should be clarified in training sessions.
3. While overall implementation was successful, findings regarding community sensitization indicate this as a potential area of further improvement. Community sensitization efforts should also be reviewed to consider emphasizing the following items:
  - a. In 59% of the schools that were observed to not deworm all children, the key reasons were refusal by either the child or their parent to receive deworming treatment. This could be addressed by the sensitization of the community to the benefits of the deworming exercise.
  - b. Town announcers (23%) and radio (29%) were some of the lesser cited means of receiving information about deworming by parents in the

community, however, these are the most preferred methods reported by parents of non-enrolled children. These methods should be explored in order to reach more non-enrolled children.

4. The replacement rate of schools for deworming day monitoring visits was 33% (10 of 30 schools were replaced). While the overall rate of schools that conducted deworming was high (94%), there were six schools that were either not located or not able to be accessed by monitors on arrival. The program should explore measures to extend sensitization to schools to ensure that they know that a monitor may visit on Deworming Day.