

Evidence

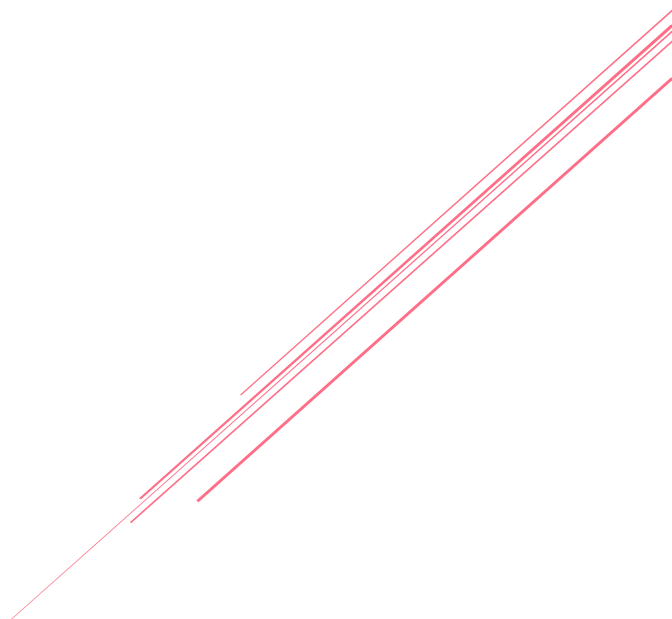
Action



Deworm the  
World Initiative

# School-based Deworming in Oyo State, Nigeria

Process Monitoring and Coverage Validation  
Report



2020 Round

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## Glossary

FLHF. Frontline health facility
FMOH. Federal Ministry of Health
IEC. Information education communication
LGA. Local government area
MDA. Mass drug administration
NTD. Neglected tropical disease
PPE. Personal protective equipment
PPES. Probability Proportionate to Estimated Size
SAC. School aged children
SAE. Severe adverse event
STH. Soil-transmitted helminths
WHO. World Health Organization

# 1.0 Executive Summary

In November 2020, Oyo state carried out its only round of school-based deworming for the year, the third year of deworming in Oyo, targeting both enrolled and non-enrolled school-aged children (SAC), ages 5-14 years. Due to the COVID-19 pandemic, only one round of deworming took place in 2020, rather than the two that were initially planned as per WHO treatment guidelines based on disease prevalence of soil-transmitted helminths (STH) and schistosomiasis (SCH) within the Local Government Areas (LGAs) in Oyo. For this round, approximately **7,171** schools and **1,462,773** enrolled and non-enrolled SAC were targeted to receive deworming treatment in both public and private, primary and junior secondary schools, and **1,190,250** children were treated resulting in 81% coverage for STH and schistosomiasis.<sup>1</sup>

Evidence Action supported the Ministry of Health (MoH) to safely conduct deworming activities and limit the spread of COVID-19 through the provision of sensitization materials, sensitization messaging to 9,450 beneficiaries, hand sanitizers, and program specific COVID-19 protocols. Unfortunately, during the course of implementation, the state also experienced violence, severe vandalism and loss of lives and properties caused by a nationwide End Police Brutality (#EndSARS) protest which culminated in major setbacks and delays within program implementation and activity timelines. A total of twenty-three LGAs were targeted and treated, of which 19 LGAs are endemic for STH only, 1 LGA endemic for schistosomiasis only, and 3 LGAs co-endemic for both STH and schistosomiasis.

Evidence Action monitors the key implementation processes before, during, and after each mass drug administration (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 12 LGA training sessions, 27 teacher training sessions, 30 schools on deworming day, and conduct interviews at sampled schools and communities for coverage validation.

On average, 78% of expected teachers were in attendance for teacher training, which was 8 percentage points higher when compared to the last round of deworming (70%). The trainers reported that the majority of teachers did not attend cited late invitations (43%), their inability to make it to school (24%), school/teacher unawareness (24%), and late communications on change of date/venue (10%). The best covered topic during LGA and teacher training was drugs and drug administration, with coverage of key topics noted in at least 80% of training sessions<sup>2</sup>. In post-training interviews, more than 90% of participants correctly responded to questions about this content area. Read more on training on [page 9](#).

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<sup>1</sup> This rate has not yet been finalized by the national review meeting in Nigeria.

<sup>2</sup> Highest coverage of all key messages under the topic

Directly following teacher training, 93% of training sessions distributed all key materials (drugs, reporting forms, tablet poles in schistosomiasis focused trainings) to participants. All (27 out of 27) of the monitored teacher trainings distributed drugs to teachers to take to their respective schools for deworming day. As for materials, 93% of training distributed summary forms, 93% distributed treatment registers, and 100% distributed tablet poles. However, direct observation at schools on deworming day and follow-up interviews with the head teachers/teachers after the process of drug administration at schools revealed that all schools (100%) had received drugs by the start of deworming day, and 93% of participating schools had sufficient drugs to deworm all children on deworming day.<sup>3</sup> Ninety-three percent (93%) of participating schools had all the key materials (drugs, reporting forms, tablet poles in schistosomiasis focused trainings) on deworming day. Read more on distribution on [page 16](#).

Seventy-four percent (n=76) of parents were aware of deworming day; with this proportion higher among parents of enrolled (83%) as compared to the parents of non-enrolled children (38%). This rate among parents to non-enrolled children has a declining trend when compared to previous monitoring periods (Y2R2 - 22%, Y2R1 - 47%, Y1R2 - 84%, Y1R1 - 68%). Seventy-six percent of the parents aware of deworming day indicated that they would be sending their children for deworming while twenty-four percent of parents said that they would not send the children for deworming. The reasons cited included a lack of awareness (44%), children absenteeism (28%), refusal by parents (11%), late communication (6%), fear of side effects (6%), and that the children had recently been dewormed (6%). The main sources of deworming day information cited by parents were children (80%) and radio (48%). Read more on awareness on [page 17](#).

The rate at which schools conducted deworming was high, with 93% of expected schools distributing tablets on deworming day. All (100%) teachers provided the correct mebendazole dose and also used the tablet pole for praziquantel dosing. However, in 30% of schools, teachers did not ask whether children were sick before administering deworming tablets. Deworming day observations also indicated that non-enrolled children were dewormed in only 7% of monitored schools. Read more on drug administration on [page 18](#).

Coverage validation was conducted within two weeks of MDA treatment in two LGAs (Saki West and Ibadan North). Overall, 85% of the children in Saki West and 63% of the children in Ibadan West were offered the chance to swallow the drug for STH treatment (program reach), and 83% and 61% of the surveyed individuals ingested the drug, respectively (surveyed coverage). Coverage validation for schistosomiasis treatment indicated that 89% of targeted children in Saki West were offered the chance to swallow the drug and 84% of the targeted children ingested the drug. When comparing surveyed coverage for STH and schistosomiasis to government reported

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<sup>3</sup> All the schools that did not have sufficient drugs on deworming day were able to contact the LGA Coordinator or LGA Educational Secretary to procure sufficient medicine to treat all children.

coverage, reported coverage was outside the 95% confidence interval of surveyed coverage in both LGAs (below in Saki West and above in Ibadan North West) for STH and in Saki West for schistosomiasis, which suggests underreporting in Saki West and overreporting in Ibadan North West. The surveyed coverage in Saki West of 83% for STH and 84% for schistosomiasis, which both exceeded the WHO therapeutic coverage threshold of 75%, suggests that the deworming exercise for both treatments in this LGA was successful. On the other hand, the surveyed coverage for Ibadan North West of 61% did not meet the WHO therapeutic coverage threshold. Read more on coverage validation on [page 20](#).

**Table 1: Key Performance Indicators**

	Percent
Target schools represented at teacher training	72%
Target schools with adequate drugs during deworming	93%
Target schools utilizing at least one awareness activity or material <sup>4</sup>	67%
Parents who report seeing or hearing about deworming through IEC deworming materials or word of mouth this round	45%
Target schools distributing tablets on deworming day	93%
Enrolled children present in school on deworming day <sup>5</sup>	69%
Targeted children who report receiving unprogrammed deworming in the last six months	6%
Target population validated as swallowing albendazole tablets on deworming day based on coverage validation	73%
Target population validated as swallowing praziquantel tablets on deworming day based on coverage validation	84%

Overall, implementation of the 2020 deworming round was successful especially in the context of the COVID-19 pandemic, highlighted by high post-training knowledge of topics on worms, target population, drug and drug administration (at least 94%), and a good supply chain with 93% of schools noted to have all key materials on deworming day. However, there were also challenges that should be addressed ahead of the next round of MDA, including sending out invitations for training on time, ensuring the trainers cover all the training materials encouraging, and timely attendance at both teacher and LGA training, increasing awareness of deworming day among parents, and improving practices during MDA, such as screening every child before treatment, utilization of the reporting forms, and handwashing. The full summary of successes, challenges, and recommendations can be found on [page 23](#).

<sup>4</sup> IEC deworming materials include posters

<sup>5</sup> It is possible that a larger proportion of children was dewormed later. Monitors reported that 88% of schools took steps towards planning for absentees for treatment when they returned by recording their names on the treatment register.

## 2.0 Background

Evidence Action provides technical support to the Oyo state government to plan, implement, and monitor school-based deworming in a bid to control parasitic worm infections. In November 2020, the only round of its third year of statewide school-based deworming took place in 23 LGAs in Oyo state which are endemic for STH and/or schistosomiasis (19 for STH, 1 for schistosomiasis, and 3 for both).

Prior to activity start, Evidence Action supported the Ministry of Health with the provision of sanitizers, facemasks, and COVID-19 information education and communications (IEC) materials and program specific COVID-19 protocols (adapted from WHO and national guidelines) to safely conduct deworming activities and limit the spread of COVID-19 during the training cascade and deworming campaign. Additionally, training materials were updated and training time allotted to discuss COVID-19 protocols, emphasizing prevention and adherence to safety measures before, during, and after school-based deworming, at all levels of the training cascade.

A total of **1,462,773** 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, with **1,168,143** receiving treatment for STH and **171,576** for schistosomiasis by the end of the MDA (81% STH coverage and 78% schistosomiasis coverage).<sup>6</sup> It is to be noted that **five out of the 23 LGAs targeted did not reach the therapeutic coverage threshold of 75%**. Approximately **6,499** teachers were trained to properly administer the safe and effective deworming drugs.

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 12 LGA trainings, 27 teacher trainings, 30 schools on deworming day, and interviewed 77 parents in the community. 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 23 LGAs that conducted deworming. A random sample of 12 LGA training sessions (out of 23 LGAs), 27 teacher training sessions (out of 256 sessions), and 30 schools implementing deworming (out of 6,899 schools) 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.

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<sup>6</sup> This rate has not yet been finalized by the national review meeting in Nigeria.

At each randomly sampled teacher training session, trainers were interviewed and training sessions observed. Prior to the start of these sessions, four participants were targeted for pre-training interviews and four participants for post-training interviews. 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 (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) to gather information on their MDA experience. 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 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 treatment recording, 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.
7. At various stages of cascade implementation, monitors observed for the adherence to COVID-19 guidelines. These related to the wearing of face masks, and sanitization practices.

### 3.2 Coverage Validation

Coverage evaluation surveys were conducted within two weeks of the MDA in two randomly selected LGAs – Saki West (both STH and schistosomiasis treatment) and Ibadan North West (only STH treatment), with the purpose of validating coverage within the LGAs, confirming reported treatment data, and identifying reasons for non-compliance. A total of 2,756 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
<b>LGA training</b>			
Total number of LGA training sessions	23	12	12
Pre-training interviews		48	48
Post-training interviews		48	48
<b>Teacher training</b>			
Total number of teacher training sessions	256	27	27
Pre-training interviews		108	113 <sup>7</sup>
Post-training interviews		108	112
<b>Deworming Day</b>			
Head teachers interviewed		30	30 <sup>8</sup>
Total number of schools monitored	4,953	30	30
Parents interviewed		30	12 <sup>9</sup>
Enrolled children interviewed		60	59
Non-enrolled children interviewed		30	2 <sup>10</sup>
<b>Community Mobilization</b>			
Households surveyed - Parents of enrolled children		60	60
Households surveyed - Parents of non-enrolled children		30	16 <sup>11</sup>
<b>Coverage Validation</b>			
Number of children (in-person)		3,332	2,756 <sup>12</sup>

## 4.0 Results

### 4.1 Review of LGA and teacher training

Prior to deworming implementation, a training cascade is initiated at the LGA level, training of health and education officials, who then conduct teacher trainings.

To share information and keep participants engaged, trainers are encouraged to use a combination of methods. The most common methods during the teacher training were lecture based presentations (96%), discussion/participatory approach (93%), and group work (78%). These were followed by demonstrations (56%) and role plays (15%).

<sup>7</sup> Survey design required monitors to interview at least four participants, thus some monitors exceeded this minimum. This has been rectified in the 2021 surveys

<sup>8</sup> Three schools were replaced, two were not deworming, and one did not exist. All replaced schools were monitored.

<sup>9</sup> On DD, monitors found parents in school during deworming in only 12 of 30 schools monitored.

<sup>10</sup> Non-enrolled children were not available on deworming day in some of the monitored schools.

<sup>11</sup> There were difficulties in locating households where all children aged 5-14 do not attend school.

<sup>12</sup> Based on the WHO CES protocol, if a monitor visits a household and finds no target children, there should be no replacements made.

### 4.1.1 COVID-19 safety protocols

To limit the spread of COVID-19 infections and ensure safety of all trainers and participants, adherence to public health measures, including hand washing/sanitizing and mandatory wearing of masks in public places was recommended during trainings. However, only thirty-percent (30%) of the teacher training sessions correctly implemented both COVID-19 prevention/safety measures of handwashing/use of hand sanitizer and proper wearing of masks by all participants. Individually, participants in 59% of training centres were provided facilities for sanitizing/washing hands and all attendees and trainers in 37% of training centres wore masks.

### 4.1.2 Attendance during trainings

Phone calls (70%), SMS (52%), official letters (33%), in-person communications (19%), and WhatsApp (11%) were the most common means teachers reported being invited to the training. On average, 29 schools were expected to have an attendee at each teacher training, but only an average of 21 attended, representing 72% of expected schools.<sup>13</sup> However, the teacher attendance rate is eight percentage points higher than in the last round of 2019. According to trainers, the key reasons why teachers did not attend the training included late invitations (43%), they could not make it to school (24%), school/teacher unawareness (24%), and late communications on change of date/venue (10%). All (100%) of the observed teacher training sessions had an attendance sheet.

Sixty-eight percent (68%) of attendees from the LGA level training were on time for the sessions while 61% of teachers were on time for teacher training.<sup>14</sup> From post-training interviews, teachers that self-reported arriving late cited going to school/class first (43%), late invitations (37%), traveling long distance (13%), security concerns at the venue (4%), difficulty in getting transport (4%), misinformation about the training plans (4%), and the assumption that the training would not start on time (2%).

## 4.2 Topic coverage

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 (information on worms and target population, drugs and drug administration, side effects, recording and reporting forms, and roles and responsibilities). Monitors assessed the coverage of key messages within these five thematic areas 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.

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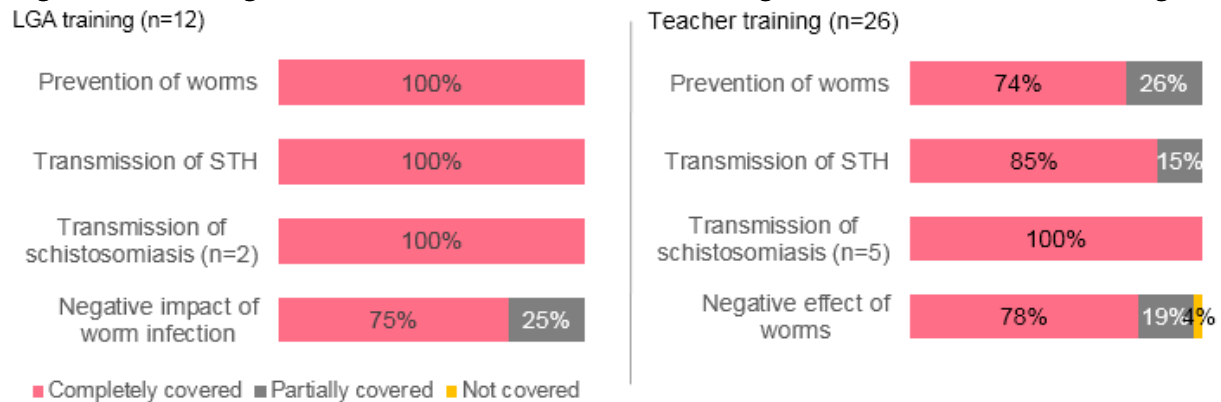
<sup>13</sup> The current LGA teacher training surveys do not capture information on the number of expected attendees. These will be included in the next round of surveys.

<sup>14</sup> This is 14 percentage points below the program target of 75% for timely attendance

### 4.2.1 Information on worms and target population

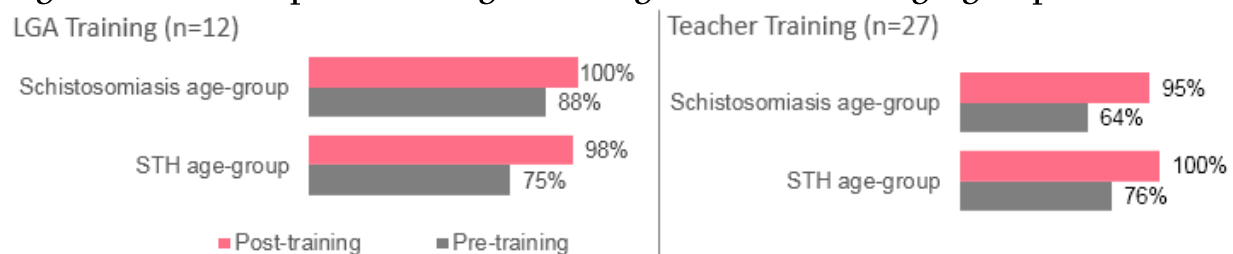
The three messages regarding worms include prevention of worms, transmission of worms (STH and schistosomiasis), and the negative impact of worms. Among these, information on the negative impact of worms was not covered completely in all LGA training sessions, however it was covered completely in 75% of the sessions and partially in the remaining 25%. During teacher training, this message was not covered in 4% of the sessions (Figure 1).

**Figure 1: Messages covered under “worms” during LGA and teacher trainings**



Post-training interviews revealed that 94% of participants at the teacher training could cite the type of worms being treated. Additionally, all (100%) respondents at teacher training could cite at least one way a child can get infected with worms, up 7 percentage points from pre-training interviews. All (100%) trainers at the LGA and 96% at the teacher training covered the target group, which consists of all enrolled and non-enrolled children aged 5-14 years. Pre- and post-training knowledge levels of attendees at both trainings are shown in Figure 2 below.

**Figure 2: Pre- and post-training knowledge of the correct age-group**



Trainers are also obligated to provide information on the exclusion criteria for treatment. This includes any sick children, children with a history of certain health conditions<sup>15</sup>, under-age children and those shorter than the tablet pole for schistosomiasis treatment. These messages are key to minimizing the incidence of SAEs. Coverage of this criteria in both the LGA and teacher training is provided in Table 3 below.

<sup>15</sup> These include epilepsy, sickle cell and central nervous disorders

**Table 3: Training coverage of other non-eligibility criteria for treatment**

	LGA Training (n=12)	Teacher Training (n=27) <sup>16</sup>
Sick children during deworming day	100%	89%
Children with a history of other health conditions	100%	74%
A child shorter than 94cm (schistosomiasis)	100%	-
Any child under 5 years (schistosomiasis)	100%	93%
Not covered	-	4%

Post-training, while only 2% of LGA participants said that they would deworm sick children present during the MDA, 6% of teachers said they would deworm sick children, which is a potential concern.

#### 4.2.2 Drugs and Drug Administration

Coverage of key messages about drug administration was considerably higher at LGA training. Individual messages under this topic were covered in at least 91% of LGA training and at least 81% of teacher training (Table 4). This follows a generally increasing trend, as this topic coverage was at 73% for LGA training and 78% for teacher training in Y2R2, 78% for teacher training in Y2R1, 61% for teacher training in Y1R2, and 91% for teacher training in Y1R1.

**Table 4: Messages on drug administration covered during the trainings**

MDA practice	Percent (Completely and partially covered)	
	LGA training (n=12)	Teacher training (n=27)
STH drug is mebendazole	100% (n=11)	100% (n=26)
One mebendazole tablet to be given to each child	100% (n=11)	100% (n=26)
Schistosomiasis drug is praziquantel	91% (n=11)	100% (n=5)
Dosage for schistosomiasis depends on height	100% (n=2)	100% (n=5)
Ensure that the child has eaten prior to administration of praziquantel	100% (n=2)	100% (n=5)
Register enrolled children prior to deworming day and non-enrolled children on deworming day, prior to treatment	100%	100%
Under the program, all drugs are free, safe and effective	100%	100%
Drugs must be stored in a clean, safe, dry, and cool place	92%	89%

<sup>16</sup> These statistics are comparable with those from the last round: sick children (93%), history of certain health conditions (81%), children under 5 years (85%). No comparable statistics are available for LGA training as 2020 was the first year of monitoring.

Under no circumstances should a child be forced to swallow the medicine	- <sup>17</sup>	85%
Facilitate hand washing prior to treatment	-	81%

From post-training interviews, all (100%) participants in the LGA training knew the correct drugs for STH and schistosomiasis. Post-training knowledge of drugs used to treat STH and schistosomiasis was also high among teachers, with 99% and 100%, respectively. Similarly, all (100%) participants from the LGA training knew the correct dosages for STH and schistosomiasis. Post-teacher training knowledge on correct dosage for STH and schistosomiasis was also high, with 99% and 100%, respectively. Apart from knowing the drug type and dosage, it is important to carefully follow certain drug administration steps. Each individual drug administration step was described in at least 67% of teacher training sessions. **Table 5** lists steps, in the correct order, as completely or partially covered during training.

**Table 5: Drug administration steps covered during teacher trainings (n=27)<sup>18</sup>**

Drug administration step	Completely covered	Partially covered	Not Covered
Step 1: Arrange the drug distribution site	70%	15%	15%
Step 2: Ensure necessary materials are available and are in place	81%	15%	4%
Step 3: Provide orientation to the children	93%	4%	4%
Step 4: Organize children accordingly	74%	7%	19%
Step 5: Let the child wash his/her hands	67%	15%	19%
Step 6: Register the child if non-enrolled	100%	-	-
Step 7: Use of tablet pole to measure children's height (n=5)	100%	-	-
Step 8: Administer the mebendazole drug	96%	4%	-
Step 9: Administer the praziquantel drug (n=5)	100%	-	-
Step 10: Complete registration in the treatment register	93%	7%	-
Step 11: Observe the child for any side effects	81%	11%	7%

Apart from a lecture-based approach (85%), and discussions (74%) for this content, we also noted the use of demonstrations (63%), group work (15%) and role plays (4%).

### 4.2.3 Side effects

Trainers provided information on potential side effects and SAEs to prepare teachers to manage such situations. In both training types, abdominal pain and vomiting were most covered while malaise, diarrhea, and fatigue were least covered. Ninety-two

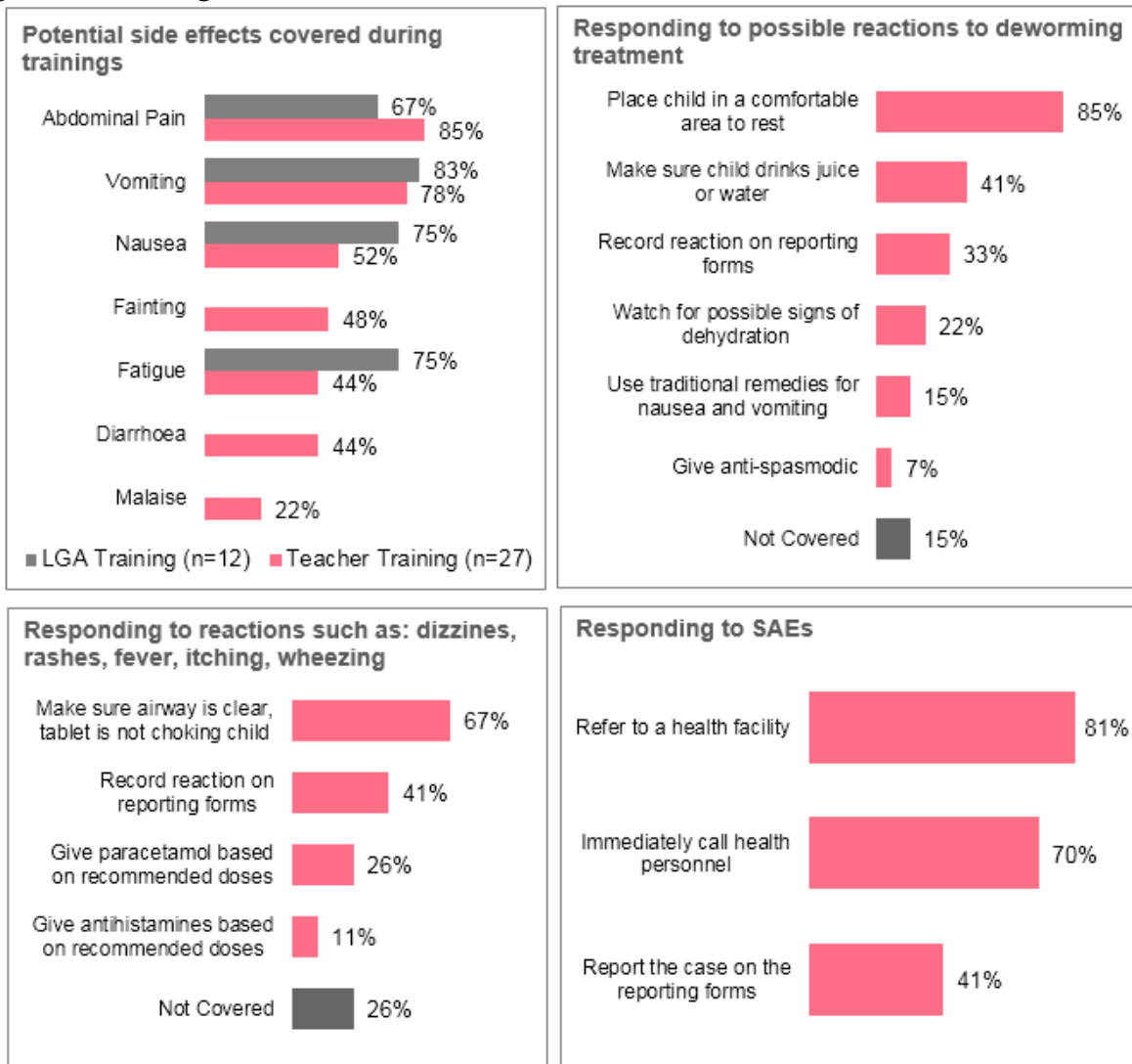
<sup>17</sup> Information on these topics is part of LGA training, but observations were not collected during monitoring of LGA training in 2020 due the volume of information that is covered at the training. These will be collected during the next round of deworming training.

<sup>18</sup> Compared to 2019, six of the eleven steps in 2020 registered increases (complete), with a range of increases of 3-23 percentage points.

percent of the LGA trainings provided participants with steps to take in the event of SAEs, and this information was cascaded in 93% of teacher trainings (Figure 3).

Post-training, all (100%) of LGA attendees and 95% of teachers indicated that they would ensure children have eaten prior to administering praziquantel so as to minimize potential side effects. Additionally, all (100%) participants in teacher training could mention at least one side effect of schistosomiasis up from 71% in pre-training. Further information on knowledge of the potential side effects and SAEs covered in both LGA and teacher trainings, as well as the responses covered in teacher trainings is reflected in the Figure 3 below.

Figure 3: Messages on side effects<sup>19</sup>

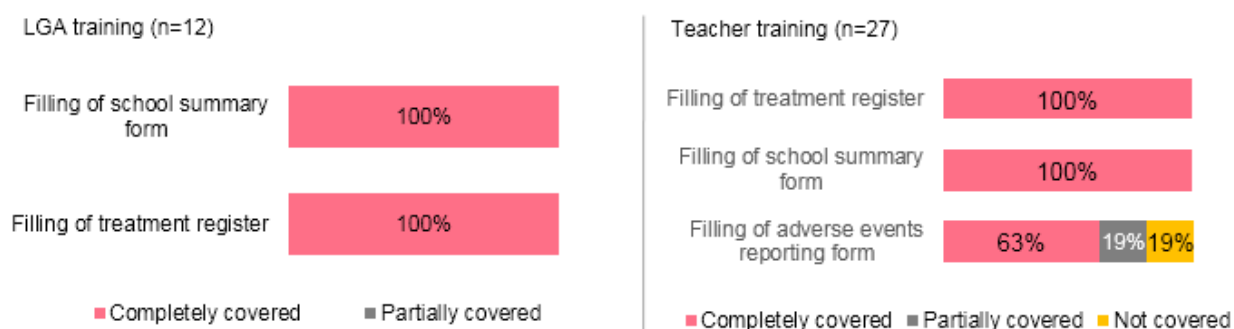


<sup>19</sup> All messages were covered in both LGA and teacher trainings, although the observational tool for the LGA training omitted some of the highlighted messages

#### 4.2.4 Recording and reporting forms

Teachers record the number of children treated at class and school levels, which emphasizes the need for the trainer to comprehensively cover this aspect. Trainers completely covered information on the school summary and treatment register forms in all (100%) teacher and LGA training sessions. Practical sessions to fill both the treatment register and school summary form was held in all (100%) teacher training sessions monitored (Figure 4).

Figure 4: Messages covered under recording and reporting forms



From post-training interviews, 95% of teachers correctly identified the treatment register as the primary form they would use to record treatments. However, 45% of participants did not name it as the source document for the school summary form.

#### 4.2.5 Roles and Responsibilities

Overall, individual teacher roles and responsibilities during deworming were covered in at least 93% of teacher training sessions, apart from mobilization of non-enrolled children (70%). The coverage of the roles of frontline health facility staff (48%-85%) and NTD coordinators (52%-74%) were not well covered. However, these increased, on average, from the last round of 2019.<sup>20</sup> Table 6 below provides details.

Table 6: Key MDA roles and responsibilities of various actors covered at the trainings (n=27)

Roles and responsibilities	Percent
Key teacher roles	

<sup>20</sup> Range in last round in 2019: FLHF (52% - 70%) and NTD coordinator and educational secretary (33% - 52%)



Organizing drug administration	96%
Disseminating health education messages to children and parents	96%
Form recording and reporting	93%
Mobilization of non-enrolled children	70%
<b>Key FLHF staff roles</b>	
Managing side-effects	85%
Managing, referring and reporting any children with SAEs	67%
Participate in community awareness creation	56%
To communicate the rationale of the intervention to community leaders	48%
<b>NTD coordinator and educational secretary roles</b>	
Distributing appropriate quantities of drugs to teachers	74%
Receiving any unused drugs from the schools post-treatment	56%
Compiling the treatment coverage report	52%

From post-training interviews, 82% of teachers correctly identified the role of FLHF staff in the management of SAEs.

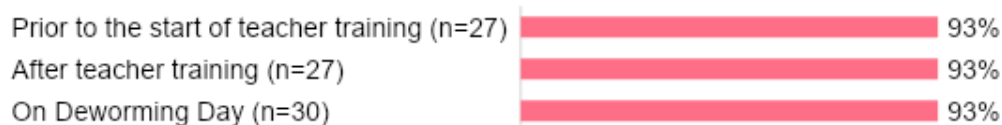
### 4.3 Distribution of drugs and materials

Trainers should receive key materials before training (drugs, reporting forms, tablet poles in schistosomiasis focused trainings) to aid in teacher training sessions, as well as to distribute to teachers.

In most teacher training sessions (93%), drugs for both STH and schistosomiasis treatment were available before the sessions began, and were distributed during all (100%) training sessions. Tablet poles were distributed to all (100%) of the teachers from schools treating for schistosomiasis in attendance. Distribution of reporting forms was also high, with both the treatment registers and school summary forms distributed in 93% of training sessions. A teacher training handout was present and distributed in all (100%) of the training sessions.

On deworming day, 93% of schools had all the required drugs, reporting forms, and tablet poles, which points to a good supply chain for these key materials (**Figure 5**). Unfortunately, 23% of schools did not use the reporting forms to record treatment (though this is a retrogression from 17% in the last round).

**Figure 5: Availability of all key materials across the implementation cascade<sup>21</sup>**



From post-deworming interviews with head teachers, 93% indicated sufficiency of the initial drugs available. All the schools that did not have sufficient drugs on deworming

<sup>21</sup> All key materials include: drugs, reporting forms (treatment registers and school summary form) and tablet poles in schistosomiasis treating schools.



day were able to contact the LGA Coordinator or LGA Educational Secretary to procure sufficient medicine to treat all children. Eighty percent (n=30) of schools reported having a drug surplus post-deworming. Of these, 71% planned for a mop-up before returning drugs to the LGA, and 29% of schools returned their surplus immediately.

### 4.3.1 Community sensitization materials

Before the teacher training began, 93% of training sessions had posters available, and 97% of those had received and distributed them at the end of the session. On deworming day, 97% of schools had posters available, while 83% had the posters pinned, with head teachers reporting an average of 2 posters per school.

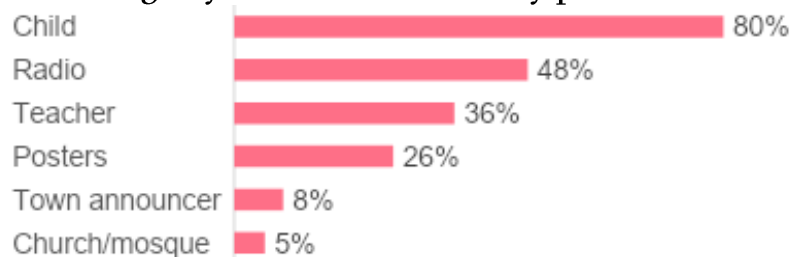
## 4.4 Community Sensitization

Community sensitization prior to deworming day is an evidence-supported factor critical for MDA success. On deworming day, monitors held interviews with 76 parents (60 of enrolled children and 16 of non-enrolled children) to gauge their awareness of MDA, as well as their sources of MDA information.

### 4.4.1 Implementation of community sensitization

Children (80%) and radio (48%) were the most common sources of deworming day information cited by parents (Figure 6).

Figure 6: Sources of deworming day information cited by parents



### 4.4.2 Community knowledge

Prior to deworming day, 74% of all parents (equal to the last round of deworming), 83% of enrolled children and 38% of the non-enrolled children, were aware of deworming day. While this is an increase from the last round, generally, awareness among parents of non-enrolled children has had a declining trend (Y2R2 - 22%, Y2R1 - 47%, Y1R2 - 84%, Y1R1 - 68%). More parents of enrolled children had taken their children for deworming in the past, compared to those of non-enrolled children (78% vs 19%).

Knowledge of other key deworming aspects was generally low among parents aware of deworming day. Only 60% (same as the last round of deworming) of the parents of enrolled children were aware of the target age-group for schistosomiasis, similar to the 61% of parents aware of the STH target age-group (down from 67% in the previous round). Only 51% of parents were aware of the types of worms being treated, which is 10 percentage points lower than the previous round of deworming. Additionally, all

(100%) parents aware of deworming day indicated receiving messages encouraging them to feed their children before deworming, with all (100%) of these parents reporting that they complied.

At the end of these interviews, 76%<sup>22</sup> (18 percentage points lower than last round of deworming) of all of the parents that were aware of deworming day indicated that they would be sending their children for deworming (88% of parents of enrolled and 31% of parents of non-enrolled). The 24% of parents that would not be sending their children cited lack of awareness (44%), child absenteeism (28%), refusal by parents (11%), late communication (6%), fear of side effects (6%), and that the children had recently been dewormed (6%).

As part of the survey, parents were asked for their preferred methods of receiving future communication on deworming. Radio (98%), teachers (52%), and children (42%) emerged as top preferences, which correlates with the top sources of deworming day information cited by parents (see **Figure 6**). It should also be noted that while the reach by other sources like religious and town announcers was low, their continual usage strengthens the confidence and trust of parents to allow their children participate in the deworming exercise. The experience from the program team is that parents place a lot of trust in their religious and traditional leaders and are more likely to participate in an intervention sanctioned by either parties.

All (100%) household interviews were conducted with strict adherence to [COVID-19 protocols](#) as there were no household interviews that were stopped or replaced due to safety concerns of the pandemic.

## 4.5 Deworming day

Thirty schools were monitored on deworming day, of which 81% were primary level, 16% were junior level, and 3% included both levels. By school type, 46% were public while 54% were private.<sup>23</sup> 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

Ninety-seven percent (97%) of head teachers interviewed at school on deworming day had made plans to deworm, and all head teachers at schools that had made plans to deworm reported that either they or a teacher from the school had attended a training within a month of the MDA. Observations of school infrastructure revealed that 13% of schools lacked hand-washing facilities and 20% of schools did not have a toilet facility.

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<sup>22</sup> Program target is 90%

<sup>23</sup> The random sample of schools for DD monitoring was not stratified by public/private school types, and the list of schools participating in the deworming activity was majority private.

## 4.5.2 Deworming day delivery

Of the 30 schools that were originally sampled for deworming day monitoring, three schools were replaced due to various challenges. One could not be located and two did not conduct deworming.

Of the originally sampled schools that could be located, 27 out of 29 were conducting deworming on the designated day, for a rate of 93%, a slight decrease from 94% in the previous round of deworming. The three schools that were not found or were not conducting deworming were replaced to bring the total number of schools monitored on deworming day to 30.

### 4.5.2.1 Adherence to MDA procedures

Adherence to treatment reporting procedure was generally high (for example 80% were using the correct treatment form). All schools gave the correct dosage of the mebendazole tablets to children and 90% of teachers requested children to chew the tablet - **Table 7**. A relatively low adherence (at most 83%) was noted for pre-deworming preparations. Instances of children being given drugs without asking if they were under medication were noted in 30% of schools, which is up from 27% in the previous round of deworming.

**Table 7: MDA procedures observed during drug administration (n=30)**

MDA practice	Percent
<b>Pre-deworming preparations</b>	
Deworming team comprised of two teachers	83%
Teachers ensured children washed their hands prior to treatment	62%
Health education messages were given to children prior to treatment	47%
<b>Drug Administration</b>	
Teachers gave the correct dosage for mebendazole (1 tablet)	100%
Tablet pole was used to determine praziquantel dosage (n=2)	100%
Teacher asked child to chew the mebendazole tablet	90%
Teacher asked if child was sick or under medication before administering medicine	70%
Spoilt tablets were properly disposed (n=3)	60%
<b>Recording treatment</b>	
All sections of the treatment register were filled out	80%
The teacher had transferred the names from the class register to treatment register prior to the deworming exercise	80%
The treatment register was used to record treatment	80%

Out of the 87% of schools that had handwashing facilities, only 62% ensured that children had washed their hands before deworming. While this is a slight drop from the last round (57%), compared to the rates noted in previous years (Y2R1-19%, Y1R2-23%) this is an improvement which should be sustained in future rounds.

#### 4.5.2.2 Management of side effects and referrals

In the sample of schools where Evidence Action monitors observed and collected data on deworming day, no incidences of side effects or SAEs were reported in the monitored schools.

#### 4.5.3 School coverage of eligible and non-enrolled children

All eligible children present on deworming day were treated in 16 out of 30 (53%) schools.<sup>24</sup> Fourteen schools experienced various levels of refusals by parents or by children which resulted in a small number of children at each school not being dewormed (exact number of refusals unknown). There were no reports of children being forced to swallow medicine against their wishes (Survey question: *NOTE: a teacher should only be considered to have used coercion if a punitive measure is applied to an attempt to make a child swallow a tablet, whether the punitive measure is physical or verbal.*) Eighty-eight percent of schools also took steps towards planning for absentees for treatment when they returned by recording their names on the treatment register.

While 83% of head teachers indicated that they had made plans to deworm non-enrolled children on deworming day, only 7% of the schools dewormed non-enrolled children, a statistic lower than the (13%) noted in the last deworming, the second round of 2019. Of the head teachers indicating that they did not have a plan to deworm non-enrolled children, 40% indicated non-enrolled children would not go to school, drugs were only enough for enrolled children (40%) or non-enrolled children were not informed (20%).

## 5.0 Coverage Validation

Coverage validation was conducted in two randomly selected LGAs within Oyo state – Ibadan North West (treating for STH only) and Saki West (treating for both STH and schistosomiasis).

### 5.1 STH Results

**Table 8** shows coverage validation findings and government reported coverage for STH for both LGAs for comparison. Overall, 85% of the children in Saki West and 63% of the children in Ibadan West were offered the chance to swallow the drug for STH treatment (program reach), and 83% and 61% of the surveyed individuals ingested the drug, respectively (surveyed coverage). When comparing the surveyed coverage in Saki West (83%) to the government reported coverage (69%), the reported coverage is outside the surveyed coverage confidence intervals indicating possible under-reporting of SAC treated in this LGA. On the other hand, in Ibadan North West, a

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<sup>24</sup> This is the percent of schools at which every single eligible child present on deworming day was treated; if any child at a monitored school refused treatment, they are not included in this rate.

program reach of 63% was achieved, while 61% of SAC interviewed indicated that they had swallowed the drug. When comparing the surveyed coverage (61%) to the government reported coverage (83%), the reported coverage is outside the surveyed coverage confidence intervals indicating possible over-reporting of SAC treated in this LGA.

**Table 8: Coverage validation results for STH**

Category		Program Reach			Surveyed 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		
LGA	Ibadan North West	63%	60%	66%	61%	58%	64%	83%	1232
	Saki West	85%	83%	86%	83%	81%	85%	69%	1524
<b>Results by gender</b>									
Ibadan North West	Male	65%	62%	69%	64%	60%	67%		620
	Female	61%	57%	65%	58%	54%	62%		612
Saki West	Male	83%	80%	85%	81%	78%	84%		802
	Female	87%	84%	89%	86%	83%	88%		722
<b>Results by enrollment status</b>									
Ibadan North West	Enrolled	63%	60%	66%	61%	58%	63%		1228
	Non-enrolled	100%	40%	100%	100%	40%	100%		4
Saki West	Enrolled	86%	84%	88%	84%	83%	86%		1493
	Non-enrolled	32%	17%	51%	32%	17%	51%		31
<b>Results by school type</b>									
Ibadan North West	Public	56%	53%	60%	54%	51%	58%		788
	Private	75%	71%	79%	73%	68%	77%		440
Saki West	Public	88%	86%	90%	87%	84%	89%		793
	Private	83%	80%	86%	82%	79%	85%		700

Results disaggregated by gender and for the enrolled population in both LGAs were generally consistent with the overall findings. On the other hand, the program reached a smaller proportion of children in public schools compared to those in private schools in Ibadan North West. The major reason provided by those that did not receive drugs in public schools (n=345) was the lack of awareness (69%) or that the child refused the drugs (20%). Targeted messaging of the MDA dates and venues and the benefits of deworming could be one modality to increase program reach in this school type.

## 5.2 Schistosomiasis Results

Table 9 shows the coverage validation results for schistosomiasis. In Saki West, 89% of SAC were offered deworming tablets, while 84% of SAC interviewed indicated that

they had swallowed the drug. When comparing the surveyed coverage in Saki West (84%) to the government reported coverage (69%), the reported coverage is outside the surveyed coverage confidence intervals indicating possible under-reporting of SAC treated in this LGA.

**Table 9: Coverage validation results for schistosomiasis**

Category	Program Reach			Surveyed 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		
Saki West	89%	87%	90%	84%	82%	86%	69%	1445
<b>Results by gender</b>								
Male	87%	84%	89%	81%	79%	84%		762
Female	92%	89%	93%	86%	83%	89%		683
<b>Results by enrollment status</b>								
Enrolled	89%	87%	90%	84%	82%	86%		1434
Non-enrolled	91%	59%	100%	91%	59%	100%		11
<b>Results by school type</b>								
Public	88%	86%	90%	87%	84%	89%		787
Private	90%	87%	92%	80%	77%	83%		647

The disaggregation by gender, enrolment status and school type differed by no more than 3 percentage points from the overall findings, indicating that the program is equally reaching all sub-populations.

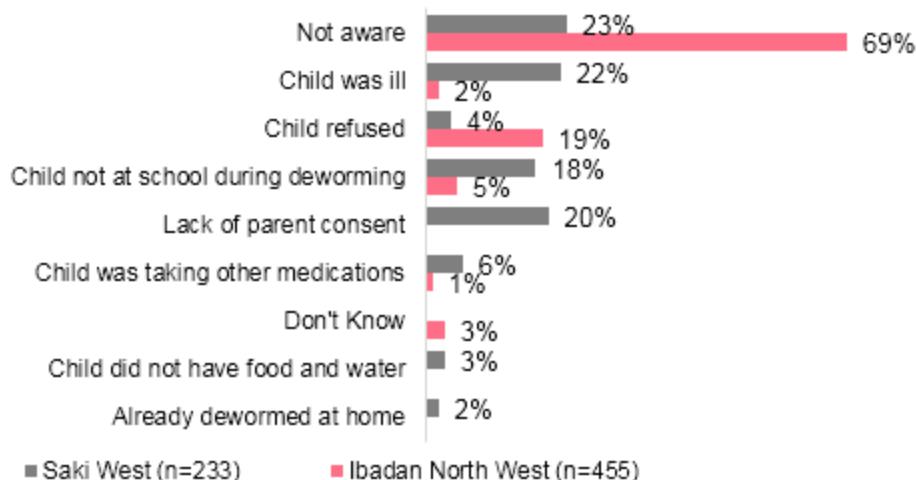
### 5.3 Reasons drugs were not given and non-compliance

Compliance rates (the proportion of children offered the drug that swallowed it) were high in both LGAs – 97% for STH in Ibadan North West and 98% for STH in Saki West, and 94% for schistosomiasis in Saki West. **Figure 6** presents the reasons drugs were not given. The top reasons across both drugs related to a lack of awareness regarding the MDA, illness of the child and parent refusal to provide consent for deworming.

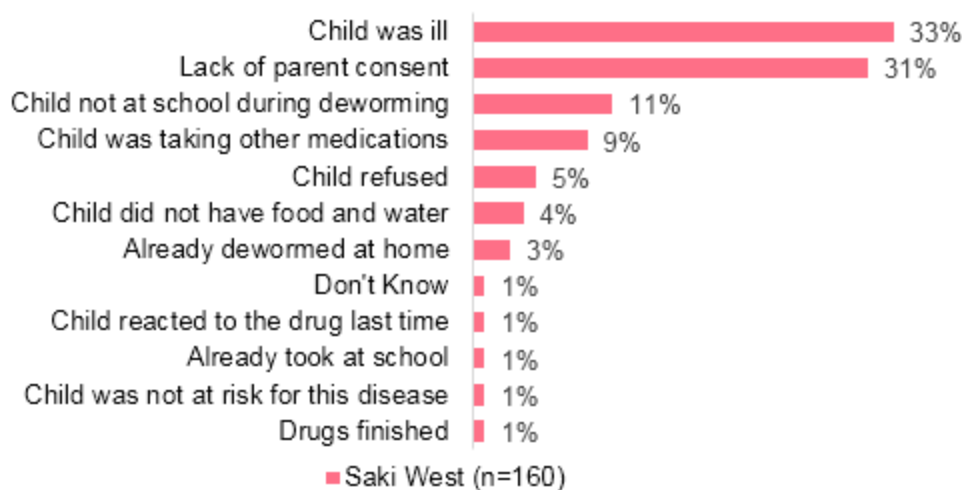
**Figure 6: Reasons drugs were NOT offered<sup>25</sup>**

<sup>25</sup> Denominator: Children who indicated that they were not offered drug(s)

## Mebendazole



## Praziquantel



## 5.4 Unprogrammed deworming

Six percent (6%) of respondents (9% in Ibadan North West, 4% in Saki West) reported having been dewormed outside the scope of this MDA, within six months of deworming day. The majority took these from home (90%), while 6% took from a chemist and another 4% from a health facility.

## 6.0 Recommendations

The year 2020 had unprecedented challenges with the COVID-19 pandemic casting uncertainty on the implementation of the MDA. Working with the Ministry of Health, Evidence Action supported the state with the provision of sensitization materials, sensitization messaging to 9,450 beneficiaries, hand sanitizers and program specific COVID-19 protocols. These efforts all contributed to making the MDA implementation and preceding activities a reality and should be celebrated.



## 6.1 What worked well

### Training:

- Attendance rates for teacher training continue to improve with 78% of expected teachers were in attendance for teacher training (70% the previous year), however it is still important for the program to plan for invitations to be sent out on time.
- The program has been successful in using phones to communicate about teacher trainings (date, time, location, and expected teachers from each school), through phone calls (70%), SMS (52%), and WhatsApp (19%). The program should continue to use mobile phone-based platforms for communication to reduce budget costs associated with paper communication.
- Teachers are retaining information from the teacher training well, as participants' post-training knowledge of information on worms, target population, drugs and drug administration, and side effects was high (at least 94%, compared to at least 91% in the last round of deworming), indicating effective training delivery by trainers.
- Teacher training sessions have seen improved coverage rates on roles and responsibilities, with this topic covered in at least 70% of the teacher training sessions (up from 67% in the previous round).
- Although there are still challenges with teachers filling out the forms completely on deworming day, all teacher and LGA training sessions (100%) covered information on the school summary and treatment register forms.

### Deworming Day:

- The program has seen a continuous improvement in the proportion of schools observed to have hand washing facilities and teachers ensuring that children wash their hands before deworming (62%). While this number is as high as we believe it could be, it is still an improvement from below 20% in year one and two of the program.
- It is great to see schools be proactive in planning for absentees, as eighty-eight percent of schools also took steps towards planning for absentees for treatment when they returned by recording their names on the treatment register.
- The supply chain was largely effective; required materials (reporting forms, tablet poles, and drugs) were available in 93% of observed schools on deworming day, a 10 percentage point increase from the last round of deworming.
- The program as done well in preparing the schools with all the materials needed, as direct observation at schools on deworming day and follow-up interviews with the head teachers/teachers after the process of drug administration at schools revealed that all schools (100%) had received drugs by the start of deworming day, and 93% of participating schools had sufficient drugs to deworm all children on deworming day. Ninety-three percent (93%) of



participating schools had all the key materials (drugs, reporting forms, tablet poles in schistosomiasis focused trainings) on deworming day.

- Key steps during drug administration and the recording of treatments on deworming day were generally well performed, with all (100%) teachers providing correct dosage for both mebendazole and praziquantel. Names were transferred from class registers to treatment registers in 80% of schools, which indicates to the program that it needs to continuously advocate for the teachers to fill out the forms correctly and completely.
- Seventy-four percent of parents were aware of deworming day, and 76% of them indicated that they would send their children for deworming. The proportion of awareness is higher among parents of enrolled (83%) as compared to the parents of non-enrolled children (38%), so the program should continue to mobilize in the communities to increase the awareness among parents and among parents of non-enrolled children.
- It should be noted that there were no observed incidences of side effects (20% of schools in the last round of deworming) from the monitored schools which indicates quality delivery of the MDA by all key stakeholders. There were also no cases of teachers forcing children to swallow the drugs on deworming day i.e. the child initially refused to take the drugs and the teacher insisted (down from instances at three schools in the last round).
- The use of radio is a value-add to the program, as it is a preferred source of information sharing and captures a wide audience. The program should continue to focus their advocacy efforts on the preferred methods of receiving communication by parents related to deworming, with radio (98%), teachers (52%), and children (42%) the most popular.
- The rate at which schools conducted deworming was high, with 93% of expected schools distributing tablets on deworming day. In addition, all (100%) teachers provided the correct mebendazole dose and used the tablet pole for praziquantel dosing. These results indicate school and teacher commitment to the deworming program.

## 6.2 What can improve

### Overall:

- The program should focus on increasing adherence to national and state specific COVID-19 protocols, as 70% of the teacher training sessions did not observe the COVID-19 guidance of providing hand washing/sanitation facilities and ensuring that all participants were wearing masks. Participants in 59% of training centres were provided facilities for sanitizing/washing hands and all attendees and trainers in only 37% of training centres wore masks.

### Training:

- Teacher training and LGA training attendance still needs to be monitored and improved, as on average only 21 of 29 expected schools were represented at each teacher training, representing 72% of expected schools. However, teacher attendance rate was 8 percentage points higher than that noted in the last round of 2019. The top reported reason for not attending was late invitations (43%) for teacher training and LGA training, indicating to the program that better planning needs to go into sending out the invitations early and without deadlines to ensure all teachers can plan accordingly.
- The following topics need to be emphasized, and correctly conveyed during training sessions:
  - Complete coverage of the messages on STH morbidity and prevention as well as negative impact of worm infection, as this was limited to less than 80% of the training sessions.
  - Complete filling of adverse events reporting form during training, as this was covered in only 63% of the teacher training sessions, which is a four percentage point decrease from 67% in the November 2019 round.
  - Steps to take in the event of SAEs, as 8% and 7% of the LGA and teacher training, respectively, did not provide participants with steps to take in the event of SAEs. These were decreases from the previous round of deworming (30% and 11%, respectively), but the program should strive to ensure that coverage of this important topic is universal in training.
- Several other practices observed during MDA need to be addressed during future teacher trainings:
  - Hand washing before treatment - in spite of hand washing facilities being present in 87% of schools, compliance was only noted in only 62% (4 percentage points lower than in the last round of deworming) of these schools.
  - The exclusion criteria for schistosomiasis treatment which includes key aspects such as height and age were not mentioned in 7% of teacher training sessions. This is down from 10% in the previous round of deworming, but could improve further to avoid potential side effects and SAEs.
  - In 30% of schools, teachers did not ask whether children were sick before administering deworming tablets. Additionally, in post-training interviews, 6% of teachers reported that they would administer drugs to sick children if present on deworming day. This rate is also down from 10% of teachers in the previous round, but could also improve further to avoid potential side effects and SAEs.

### **Deworming:**

- The program needs to work with the teachers to ensure they are asking children if they are sick or have health conditions, as children were asked if they were sick before administering mebendazole tablets in only 70% of observed schools.

- The program should work with the state on drug quantification to ensure there is not a surplus (80% of schools reported a drug surplus after deworming) to ensure drugs are not wasted, spoiled, or misplaced.
- Awareness of deworming day was 74% among all parents interviewed, however only 38% of parents of non-enrolled children were aware. While this is a large increase of 16 percentage points from only 22% in 2019, there has been a generally decreasing trend over the five rounds of deworming. The program should continue to consider ways to increase community awareness of deworming and identify cost-effective channels in which to reach parents of non-enrolled children.
  - Potential measures could include timing and content in radio announcements, leveraging SMS messaging, strategic and timely placement of posters, and encouraging elders to pass these messages during village meetings, among others. These methods align with their preferred means of receiving information and could help increase reach.
  - Addressing this knowledge gap will additionally eliminate certain perceptions among schools that did not deworm non-enrolled children that they will not come for deworming or that were not aware
- The program should continue to focus on reporting forms and their use on deworming day. The rate of monitored schools that were not observed to use reporting forms during treatment was concerning (23%, up from 17% in the previous round), in spite of the fact that 93% of schools had the reporting forms available. Filling these forms is crucial to accurate treatment coverage reporting, and if they are not filled out during the deworming activity, they are subject to inaccuracies such as recall bias if filled later, or at all.
  - Some of these instances related to issues arising from the End Police Brutality protests in which program staff noted that teachers were quickly summarizing forms in a bid to return home to avoid the potential violence.
  - From field reports, it was noted that many teachers responsible for filling the treatment forms were not the same teachers that attended the training and did not receive the capacity building that training provides. The program should consider emphasizing in training that the teacher who attends the training should be responsible for completing the treatment forms, or provide specific guidance to the teacher that is responsible.
  - Field reports also indicate that some teachers consider the MDA as just an additional activity that does not fit into their mainstream teaching responsibilities. The program should seek to emphasize the importance of the MDA, the proper use of reporting forms during teacher training, and share information with teachers about their importance as well as determine measures to promote teacher engagement.
  - These issues suggest that the program should seek to intensify advocacy efforts with the MoE stakeholders to see that schools prioritize the

deworming campaign including establishing a state-wide deworming day and also sending in the right staff for future training.

### Coverage Validation:

- The findings from coverage validation were mixed, and point to potential underreporting of coverage numbers in Saki West and overreporting in Ibadan North West.
  - One possible reason may be the skills of teachers in data aggregation. During the post-training interviews with teachers, 45% of them could not identify the treatment register as the source document for the school summary form and on deworming day, 20% of teachers did not use the treatment register during deworming to record treatment. Targeted trainings on form use is one avenue that can be utilized to ensure that teacher skills are boosted.
  - This may also relate to the SAC population denominator used for computing coverage, which is an estimate based on the 2006 census that is adjusted based on population change estimates. Coverage reporting would hugely benefit from updated estimates of the SAC population.
  - There were also challenges relating to the #EndSARS protest which might have affected the effective compilation of accurate treatment figures by teachers, as mentioned above.
- The CV findings also showed that program reach for STH in public schools was substantially lower than that of private schools in Ibadan North West LGA, which likely drove the low overall surveyed coverage in the LGA.
  - The majority of those who did not receive drugs in public schools cited the lack of awareness (69%) or that the child refused the drugs (19%). Targeted messaging of the MDA dates and venues and benefits of deworming could be one modality to increase program reach in this school type.

## 7.0 Appendix

- [Evidence Action COVID-19 IEC poster](#)