

# Deworm the World Initiative - Pakistan

*A comprehensive report from the first year of School Based  
Deworming implementation in Islamabad Capital Territory (ICT),  
Pakistan*

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## Partners

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# Table of contents

Table of contents .....	1
Glossary.....	2
1.0 Executive Summary.....	3
2.0 Background .....	4
3.0 Methodology.....	5
4.0 Results.....	7
4.1 Review of teacher training .....	7
4.1.1. Attendance during trainings .....	7
4.1.2 Access to training materials.....	8
4.1.3 Topic coverage .....	9
4.1.4 Training Feedback .....	17
4.2 Community Sensitization .....	17
4.2.1 Parent Demographics .....	17
4.2.2 Parents knowledge on deworming.....	18
4.2.3 Sources of Deworming Day information .....	19
4.3.4 Parents’ reasons for not sending children for deworming.....	20
4.3 Deworming Day assessment .....	20
4.3.1 Knowledge of deworming information.....	20
4.3.2 Adherence to MDA procedures .....	21
4.3.3 Management of side effects .....	22
4.3.4 Material and Drug sufficiency.....	22

4.3.5 Water, Sanitation and Hygiene.....	23
4.4 Coverage Validation .....	23
5.0 Conclusion.....	28
What worked well .....	28
What needs to improve .....	28

## Glossary

<b>AEO</b>	Area Education Officer
<b>BECS</b>	Basic Education Community Schools
<b>NCHD</b>	National Commission for Human Development
<b>FDE</b>	Federal Directorate of Education
<b>ICT</b>	Islamabad Capital Territory
<b>IHN</b>	Indus Health Network
<b>IRD</b>	Interactive Research & Development
<b>MDA</b>	Mass Drug Administration
<b>SBDP</b>	School-Based Deworming Program
<b>STH</b>	Soil-Transmitted Helminths

# 1.0 Executive Summary

In February 2018, Pakistan's Islamabad Capital Territory conducted its first ever round of school-based deworming targeting 212,023 children aged 5-15 years old (enrolled at school, and not enrolled) at 700 public and private schools.

To assess effectiveness of implementation, adherence to implementation protocol, and supply chain effectiveness in order to inform quality of implementation and areas of improvement, the technical assistance partnership of Evidence Action and Interactive Research and Development contracted an independent survey firm (Gallup Pakistan) to conduct independent monitoring of activities during implementation.

In general it was observed that 86% of trainings had all key training materials (reporting forms, posters, drugs and banners). All seven topics to be covered received coverage in at least 86% of trainings, with topics on drug administration and recording and reporting of forms covered in all monitored trainings.

An attendance rate of 77% was noted, with majority of participants (79%) on time for the trainings. The average training session had 50 participants, with all of the trainings exceeding the recommended maximum attendance of 40 participants per training. Post-training interviews with participants indicated high proportions of attendees knowledgeable as regards to the key messages shared in trainings. However, the proportion of teachers that highlighted non-enrolled children as being non-eligible for deworming increased by 7% to 44% in post-training interviews. This together with the fact that non-enrolled children were dewormed in only 38% of schools monitored and that 40% of parents of non-enrolled children indicated that they would not be sending any of their children for deworming implies that all-round aspects regarding non-enrolled children need to be improved upon in future deworming rounds.

On Deworming Day, monitors visited schools and found that teachers adhered to the majority of the key mass drug administration (MDA) procedures; 98% of teachers were seen administering the correct dosage of mebendazole, and use of the treatment forms (Form 1A, Form 1B) were noted in 97% of schools. However, interviews conducted with teachers prior to drug administration revealed that 30%

were not aware of the drug to be administered. At the end of the exercise, a third of head teachers did not know who to submit the summary forms to post-deworming.

Overall awareness of Deworming Day was generally low (72%); albeit higher among the parents of enrolled children (79%) than those of non-enrolled children (53%). This, combined with the fact that only 68% of parents indicated that they would send at least one of their children for deworming, indicates a need to revamp sensitization efforts with emphasis on maximizing the reach of children, parents and posters.

From coverage evaluation surveys, the overall program reach (proportion of children interviewed and offered the drug – excluding the private and religious schools) of 80% was achieved, while the proportion of those that swallowed the drug was 79%. Adjusting for the fact that the Program targeted 40% of the overall at-risk SAC population in ICT, the 79% surveyed coverage therefore indicates that 32% of the at-risk SAC population was reached. The huge difference between the reported coverage in the two IUs (55%) and the survey coverage indicate the need to review reporting systems put in place to collect treatment numbers or the denominator used to calculate reported coverage.

## 2.0 Background

Parasitic worm infections, such as soil-transmitted helminthiasis (STH), interfere with children’s nutrient uptake, causing anemia, malnourishment, and impaired mental and physical development<sup>1</sup>. These conditions pose a serious threat to a child’s health, education, and economic potential. Infected children are often too sick or tired to concentrate in school, or to attend school at all. The World Health Organization (WHO) estimates that over 1.5 billion people are infected globally with STH, with over 860 million children worldwide in need of treatment<sup>2</sup>. A national STH prevalence survey conducted in 2016 found that over 16 million school-age children (5-15 years) in Pakistan are at risk of STH and require regular treatment, with an estimated 570,000 at-risk school-age children in Islamabad Capital Territory (ICT).

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<sup>1</sup> <https://www.who.int/news-room/fact-sheets/detail/soil-transmitted-helminth-infections>

<sup>2</sup> [http://apps.who.int/neglected\\_diseases/ntddata/sth/sth.html](http://apps.who.int/neglected_diseases/ntddata/sth/sth.html)

Following a series of consultative meetings, a technical assistance partnership of Interactive Research & Development (IRD), Indus Health Network (IHN) and Evidence Action was established with the aim of providing comprehensive technical assistance to the ICT administration and federal government to plan, implement and monitor a school-based deworming program.

The goal of school-based deworming is to eliminate worms as a public health problem, and therefore, control the morbidity of STH within school-age children (SAC) living in identified at-risk areas necessitating treatment.

The primary measure of success of a round of MDA is therapeutic coverage which is defined as the proportion of SAC that received treatment for STH during the school-based MDA out of the total number of SAC targeted for deworming. For the first round of deworming in ICT in January 2019, the target is to achieve at least 75% therapeutic coverage of SAC enrolled at public schools (FDE, BECS and NCHD schools) and SAC not enrolled at schools.

## 3.0 Methodology

Process Monitoring was conducted by an independent firm, Gallup Pakistan, selected through a competitive bidding process. Monitors trained by the firm, with technical support from Evidence Action and IRD, were dispatched to observe a sample of randomly selected training sessions, schools and communities at various periods of deworming implementation.

Prior to Deworming Day, approximately 1,050 teachers selected from the 700 targeted schools received a one-day training on MDA, conducted by master trainers, previously trained by the Evidence action and IRD. To assess the quality of teacher training, as well as the implementation of deworming, Evidence Action randomly selected 14 of the 19 teacher training sessions, and 62 of the 700 targeted schools for observation by independent monitors. The samples were distributed across the different education sectors for representation and were calculated to ensure to ensure a 90% confidence in the data and allowing up to 10% chances of error.<sup>3</sup>

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<sup>3</sup> A confidence interval of 90% calculates such that if the same population is sampled on several occasions and interval estimates are made on each occasion the resulting intervals would cover the true population parameter in approximately 90% of cases.

Parents residing in areas around the selected schools were interviewed on Deworming Day to gauge their level of awareness of the program. Monitors interviewed 171 parents: 114 parents of enrolled children and 57 parents of non-enrolled children.

On Deworming Day, monitors interviewed head teachers and teachers regarding their plans for deworming, their treatment knowledge, and any sensitization activities they had carried out in schools and local communities. Monitors then observed the drug administration process to verify that the required deworming procedures were followed. After treatment, monitors randomly selected and interviewed one teacher and three enrolled children. In total, the monitors interviewed 174 children, 58 teachers, and 58 head teachers on Deworming Day.

A few weeks after the MDA, monitors conducted coverage validation with the aim of determining the program reach and surveyed coverage and followed WHO guidelines while conducting the survey in schools and communities.

**Table 1: Targeted and actual sample sizes**

<b>Monitoring activity</b>	<b>Total population/ number</b>	<b>Target sample size</b>	<b>Actual sample size</b>
Teacher training sessions	32	19	14 <sup>4</sup>
Schools targeted for monitoring on Deworming Day	700	62	58 <sup>5</sup>
Parents to non-enrolled children interviewed on Deworming Day	-	62	57
Parents to enrolled children interviewed on Deworming Day	-	124	114
<b>Deworming Day Interviews</b>			
Enrolled children interviewed	-	186	174
Head teachers interviewed	700	62	58
Teachers interviewed	-	62	58
<b>Coverage Validation</b>			
Number of children interviewed	-	3,382	4,219

<sup>4</sup> Due to training sessions for private schools being added at a very late stage, effectively increasing the sample size, Gallup had insufficient time to deploy monitors to cover the additional training sessions; therefore, the target sample size for training session was not met.

<sup>5</sup> Four schools intended for monitoring could not be located.

# 4.0 Results

## 4.1 Review of teacher training

Monitors were dispatched to observe a sample of teachers' training to measure the delivery and effectiveness of teacher training sessions. These trainings were facilitated by master trainer, who had received a prior training facilitated by Evidence Action and IRD. Prior to the start of the teacher training sessions, the monitors held interviews with the trainers to gauge their preparedness to conduct the training sessions.

The findings indicate that 93% of trainers had attended a training prior to conducting their teacher training sessions, with 85% of those that had attended the trainings indicating that the training made them sufficiently prepared to conduct the day's sessions. On average, each training had 3 trainers. Education officials were present in all the training while health officials were present in only one training. To invite participants for the trainings, the trainers reported using a mix of methods including the sending of official letters and memos (50%), Short Message Service (50%) as well as a phone call (36%). Further findings also revealed that 13 (93%) of the 14 trainers had enough materials to provide to all participants.

Following the interviews with trainers, the independent monitors made observations aimed at assessing the teacher training sessions. These form the content of the following sections.

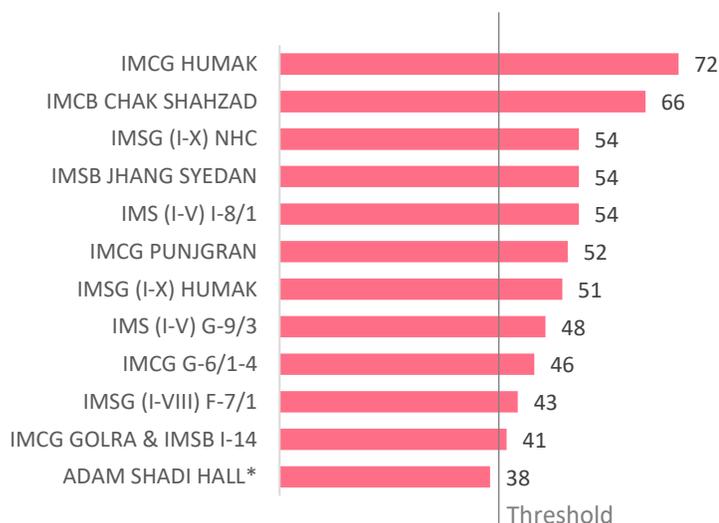
### 4.1.1. Attendance during trainings

From the 14 randomly selected and monitored teacher trainings, the use of an attendance register was noted across all (100%) trainings visited. In terms of school representation in trainings, the Deworming Day interviews with head teachers indicated that 95% of interviewed head teachers either attended or sent a teacher to the trainings, potentially implying that 95% of schools were represented in the trainings.

The average teacher training session had 50 participants, with an average of 39 (78%) of attendees arriving on time for the training. While the proportion of attendees on time for the trainings is relatively high, trainers should be encouraged to make more concerted mobilization and follow-up efforts in

future rounds to ensure timely attendance of the training sessions. Also noteworthy is the finding that 11 out of 14 training sessions monitored exceeded the target threshold of 40 participants per training session<sup>6</sup> (**Figure 1**). For effective content delivery, organizers should work towards ensuring the target number of participants is not exceeded in future trainings.

**Figure 1: Attendance by training venue<sup>7</sup>**



#### 4.1.2 Access to training materials

From the master trainer sessions, trainers were provided with necessary key materials to aid in conducting teachers’ training and to be passed onto teachers as they conduct the teacher training sessions. While all trainers had at least one of the key materials available at the training venue; only 86% of trainers were observed to have all of the key materials – reporting forms (100%), posters (100%), drugs (93%) and banners (93%) and training handouts (86%). The teacher training booklet, a critical resource while conducting the Mass Drug Administration (MDA) was not available in 14% of trainings. Ninety-three percent (93%) of trainers also reported receiving sufficient stationery to provide teachers during the trainings. These materials were expected to be cascaded to the teachers during the teacher training sessions.

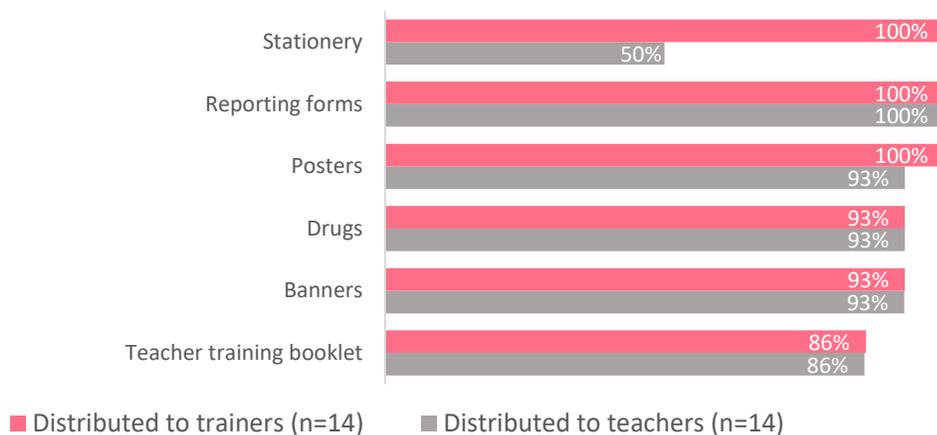
<sup>6</sup> The number of participants per training session ranged from 41 to 72

<sup>7</sup> Three trainings were combined and conducted in the same venue (Adam Shadi Hall)

Observations made during teacher training indicated that reporting forms were distributed in all trainings with posters, banners and drugs<sup>8</sup> in 93% of trainings. During Deworming Day, it was observed that majority (97%) of the teachers had the required reporting forms (both Form 1A and Form 1B) while conducting deworming exercise. Distribution of stationery to either all or some of the participants was only noted in half of the trainings monitored, though all trainers were availed these in the master training sessions.

Overall distribution of materials is deductively commendable as shown in **Figure 2**.

**Figure 2: Materials provided to teachers during the teacher training sessions (n=14)**



### 4.1.3 Topic coverage

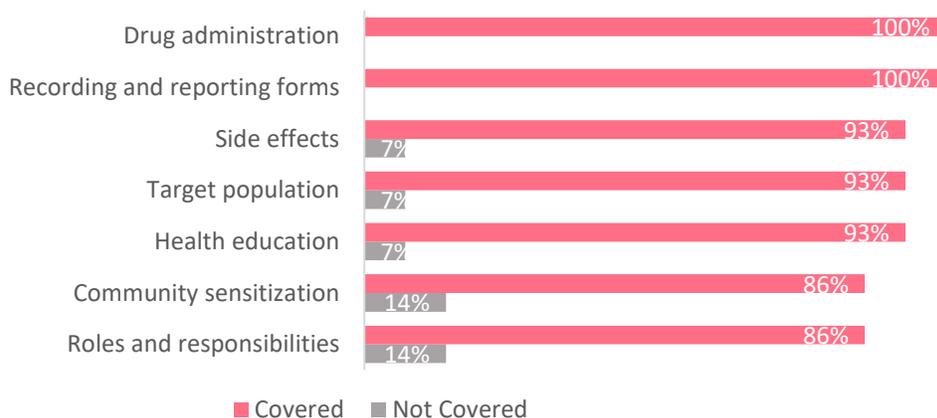
Trainings sessions were also monitored for the coverage of topics, with trainers required to cover a total of seven topics. These included the target population, health education, drug administration, side effects, recording and reporting forms, the roles and responsibilities of the various actors on Deworming Day and community sensitization.

All seven topics were covered in at least 86% of the trainings monitored with topics on drug administration as well as recording and reporting forms being covered in all (100%) trainings (**Figure 3**).

<sup>8</sup> Drugs were availed to teachers in various medium. Ninety-three percent (93%) of trainers used sealed original tins, 43% used loose bags, while 14% of trainers used unsealed original tins. Its worth mentioning that a number of trainings employed at least one of the aforementioned media to package drugs for distribution.

However while 14% of trainers talked about topics on drug administration and reporting, they did not point out to teachers that it was their role to conduct these.

**Figure 3: Coverage of topics during trainings (n=14)**



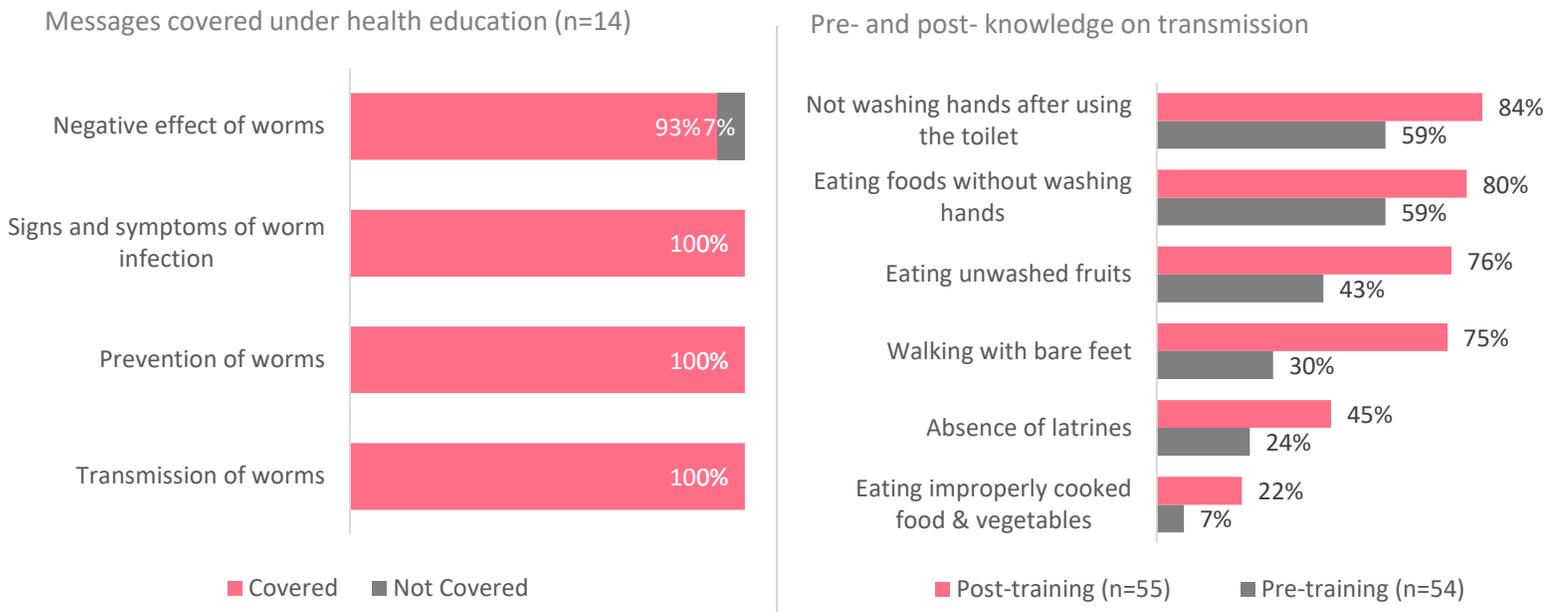
To gauge the effectiveness of the training sessions in terms of knowledge transfer, 54 participants across all sessions were interviewed prior to the start and at the end of the training sessions. For majority of the aforementioned topics, monitors assessed coverage of individual messages as well as gauged participants' pre- and post-training knowledge levels as a proxy for determining effectiveness of sessions.

The findings are presented below: -

#### 4.1.3.1 Health Education

Four messages were covered under the topic of health education. Messages on the signs and symptoms of worm infection, transmission and prevention of worms were covered in all trainings monitored (Figure 4).

**Figure 4: Health education topic coverage and participants' pre- and post-knowledge on transmission**



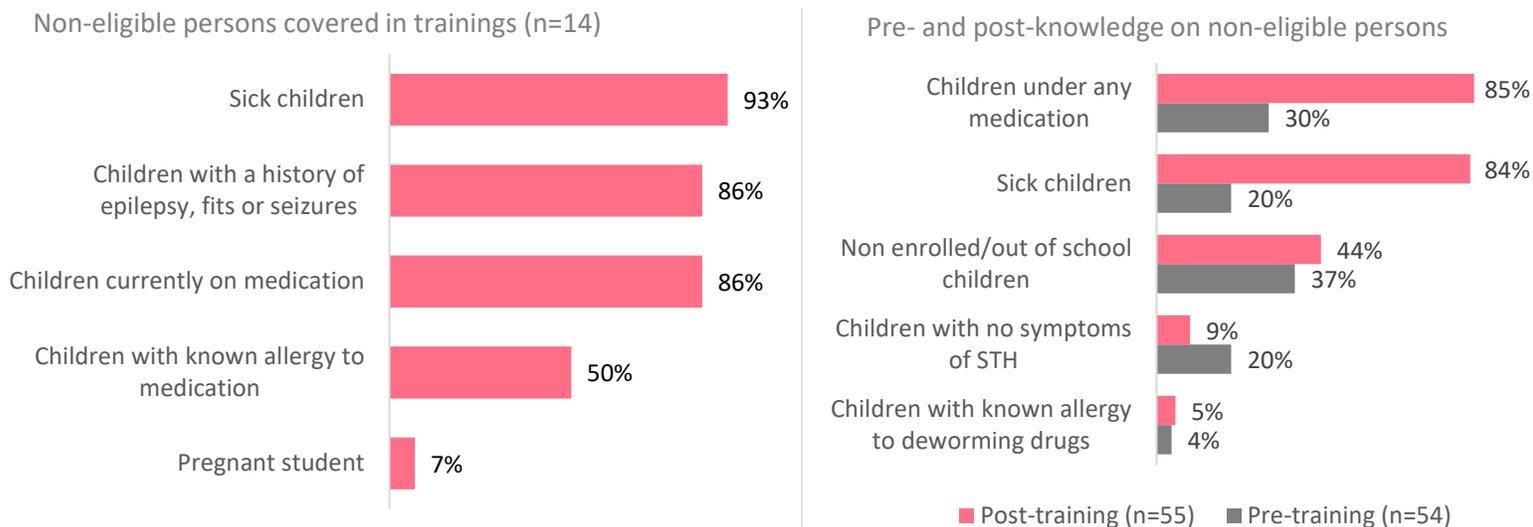
Post-training interviews with participants revealed that all those interviewed could cite at least one way a person gets infected with worms. Not washing hands after using the toilet, eating food with unwashed hands and walking barefoot were the most cited means of worm infection in the interviews conducted.

#### 4.1.3.2 Target Population

Proper identification of the target group is critical in meeting the program target of treating all eligible at-risk persons. To this end, monitors noted that 93% of trainers correctly highlighted all enrolled and non-enrolled children as target for the MDA. Further findings revealed that all trainers also accurately informed participants of the target age-group as all children 5-15 years of age.

Equally critical to program success is the identification of the non-eligible individuals. Sick children during Deworming Day, children currently on medication and children with a history of epilepsy or seizures received the highest mentions in the trainings monitored (**Figure 5**).

**Figure 5: Non-eligible persons covered in trainings and participants' pre- and post-training knowledge**



Ninety-six percent (96%) of participants in the post-training interview could correctly cite the target age-group for the MDA, a 31% increase from the proportion noted in pre-training interviews. The proportion of teachers correctly identifying sick children as well as those under medication as non-eligible for MDA also went up by 20% and 30% to high proportions of 84% and 85% respectively.

However, up to 44% of teachers cited the non-enrolled children as non-eligible for treatment, a 7% increase from that noted in the pre-training interviews. The post-training findings also indicate that 95% of teachers are likely to provide deworming tablets to children with known allergy to deworming table. These needs to be addressed in future trainings.

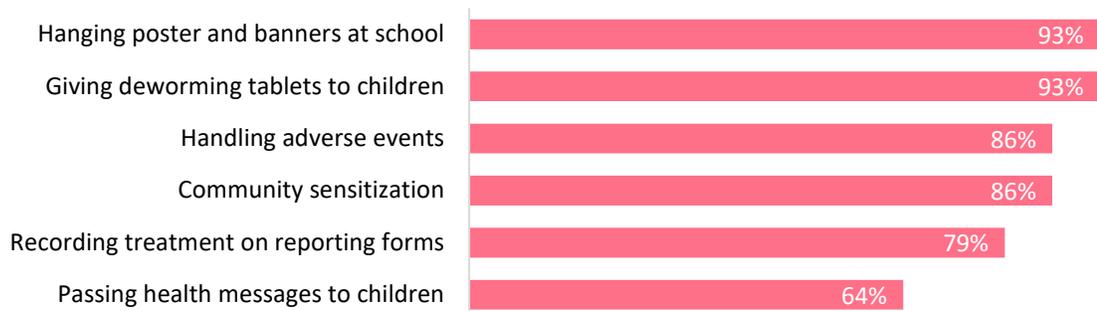
#### 4.1.3.3 Roles and Responsibilities

The success of the MDA hinges on proper identification of the contribution of various actors in the exercise. The roles of teachers and health officers (Medical Officers/Union Council Medical Officers) were covered in trainers in 86% of trainings monitored. There was however slightly lower coverage (79% of trainings) of the role played by the health officials in supporting teachers in managing Severe Adverse Effects (SAEs).

Compared to other roles such as passing health message (cited by 64%), or recording treatment on reporting forms (cited by 79%), more trainers (93%) cited displaying of posters and banners as well as

administration of tablets to children as the roles teachers will be playing during the deworming period (**Figure 6**). The determination of population treated and coverage is strongly anchored in correctly recording all treatment in treatment recording forms in all schools. This is an aspect that should be emphasized in future trainings since about 21% of teachers did not outrightly mention this as one of their responsibility.

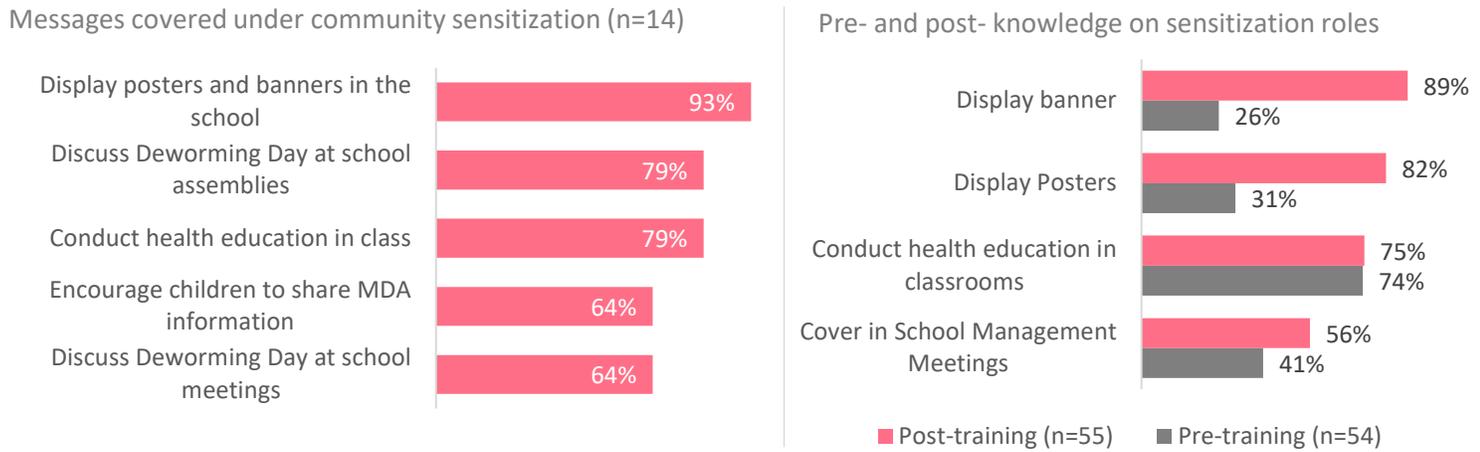
**Figure 6: Teacher roles and responsibilities covered by trainers in teacher trainings (n=14)**



#### 4.1.3.4 Community Sensitization

Community awareness of the MDA is pivotal to the achievement of the target therapeutic coverage of at least 75% of the at-risk population. Monitors noted that 86% of trainings covered the teacher role in community sensitization. The most cited teacher roles by trainers included the display of posters and banners at schools (93%), discussion of Deworming Day at school assemblies (79%) and conducting health education in class (79%) - **Figure 7**.

**Figure 7: Teacher sensitization roles and participants' pre- and post-knowledge**



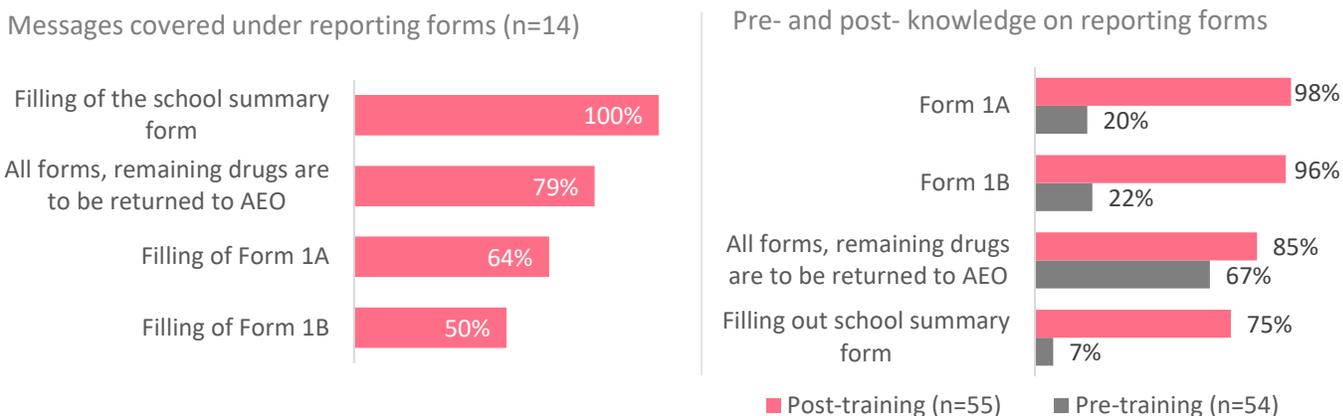
During post-training interviews, monitors noted increases in the proportions of participants knowledgeable in all messages covered in the community sensitization topic, with up-to 63% more teachers identifying the display of posters as one of their roles (**Figure 7**). The most cited key messages that teachers indicated they would share with the community as revealed from post-training interviews were that drugs are free (80%), date of deworming (75%) and the target age-group (71%).

#### 4.1.3.5 Recording and reporting forms

During MDA, teachers are required to fill out three forms including Form 1A (to record treatment of the enrolled children), Form 1B (to record treatment of the non-enrolled) and the school summary form. Adequate preparation in this area is essential to MDA success. Trainers are also required to inform teachers that all forms as well as any remaining drugs post-MDA are to be returned to the Area Education Officer (AEO) and Directorate of BECS.

Based on monitor observations, all trainings covered the filling of the school summary form, while the filling of Form 1B was not covered in half (50%) of the trainings monitored (**Figure 8**).

**Figure 8: Messages covered under reporting forms and participants' pre- and post-training interview**



From post-training interviews, the proportion of teachers knowledgeable as regards the correct target group for use of forms 1A and 1B was notably high at 98% and 96%, increases of 78% and 74% respectively, from those noted in the pre-training interviews.

During post-deworming interviews with head teachers, monitors noted that 29% of respondents were not knowledgeable as regards which forms (Form 1A and 1B) would feed into the school summary form. Further findings also indicated that a third of head teachers (33%) did not know who they would give the summary forms post-deworming (Area Education Officer).

#### 4.1.3.6 Drug Administration

Based on monitors' observations, messages on drug administration generally received excellent coverage (**Table 2**). Aside from the message on drug storage that was only covered in only 43% of trainings monitored, all other messages were covered in all trainings monitored.

**Table 2: Messages on drug administration covered in teacher trainings (n=14)**

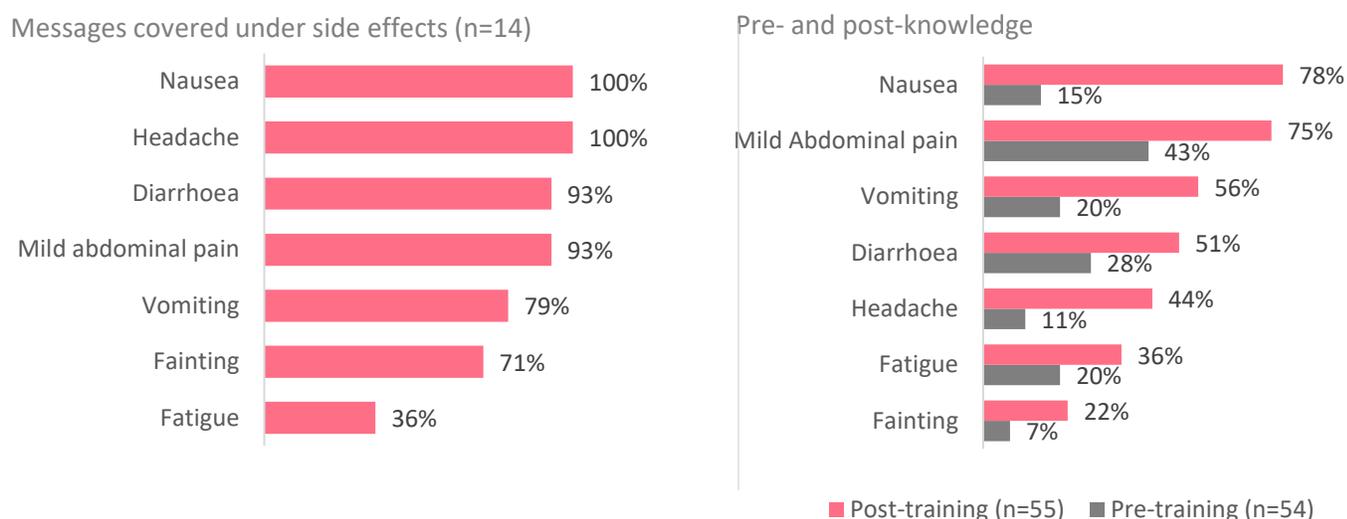
	Percent
STH drug is Mebendazole	100%
Under the program, all drugs are free, safe and effective	100%
One Mebendazole Tablet to be given to each child	100%
Names of all enrolled children need to be copied from the class register on to class level summary.	100%
Check child's mouth to make sure that each child chews and swallows the tablet	100%
Complete class level summary form as the child is treated	100%
For non-enrolled children use Form 1B to record treatment	100%

#### 4.1.3.7 Side Effects

Side effects are potential outcomes of any treatment that may or may not be directly related to the treatment being provided. To ensure that teachers were effectively equipped to handle any such cases, trainers were required to provide information on possible side effects and how to handle them.

Nausea and headache were covered in all (100%) trainings monitored, while fatigue was only covered in only 5 (36%) of trainings monitored, a proportion consistent with those that mentioned this in post-training interviews (**Figure 9**).

**Figure 9: Messages on side effects and participants' pre- and post-knowledge on side effects considered normal**



The proportion of participants that could cite at least one side effect rose from 78% in pre-training interviews to 98% in the post-training interviews, with nausea (78%) and mild abdominal pain (75%) the most cited side effects in post-training interviews.

In terms of managing any children with any SAEs, majority of teachers in post-training interviews cited separation of any affected children (78%) as well as taking the child to an open and shaded area to allow the children lie down (75%). The proportion of teachers citing the aforementioned precautionary measures increased by 60% and 56% from the proportions noted in pre-training interviews respectively. In the event of any serious or persistent adverse effect lasting more than 2 hours, 62% of participants

indicated that they would take the children to the nearest health facility (a 14% increase in proportion of respondents), a finding in line with the recommended practice in the event of any such cases.

#### 4.1.4 Training Feedback

In a bid to improve future trainings, monitors sought feedback from participants as regards the overall training rating as well as potential areas for improvement.

On a 1-5 scale (1 implying so bad, 5 implying very good), the overall training was given a 4.5 rating, while the trainers got a 4.4 rating. Conclusively, it can be said that the trainings were very good. General recommendations as regards improving the training sessions included the provision of refreshments during trainings (27%), making the training venues more comfortable during extreme weather (9%) and the distribution of drugs by health workers (9%).

During Q&A sessions during/after presentation of training topics by trainers, majority of participants asked questions as regards SAEs (57%), health education (43%) and drug administration (36%).

## 4.2 Community Sensitization

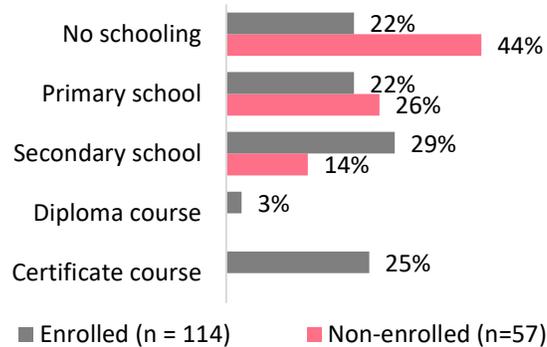
Community sensitization prior to conducting the Deworming Day is an evidenced key ingredient for MDA success. On Deworming Day, monitors held interviews with 114 and 57 parents of enrolled and non-enrolled children. Key to this interview was to gauge awareness of the upcoming MDA, as well as their sources of information for the MDA. At the end of the interviews, monitors also sought to determine what proportion of parents would be sending their children for deworming as a proxy for the effectiveness of the sensitization efforts.

### 4.2.1 Parent Demographics

Majority of parents interviewed were those of enrolled children (67%) while those of the non-enrolled children constituted 33% of the sample. Further, most of the respondents were female (52%). In terms of primary occupation, majority of parents indicated that they were stay home parents (44%) distantly followed by those with small businesses (15%). The average number of children in the target age-group (5-15 years) was 2.

There were differences in the education levels attained by both sets of parents, with majority of the parents of non-enrolled children indicating that they had attained no education (44%), which is twice the proportion noted among the parents of enrolled children (22%) – **Figure 10**. Majority of parents of enrolled children (29%) indicated that they had achieved a secondary school level of education.

**Figure 10: Highest level of education attained by parents (disaggregated by parent type)**



#### 4.2.2 Parents knowledge on deworming

Only 72% of parents interviewed on Deworming Day were aware of deworming happening within their communities, with this proportion higher among parents of the enrolled children (79%) as compared to their non-enrolled counterparts (53%).

Monitors posed further questions to parents that were aware of the upcoming MDA as regards their knowledge of the date of deworming, target age group and what the treatment was for. This information is embedded in the various sensitization sources.

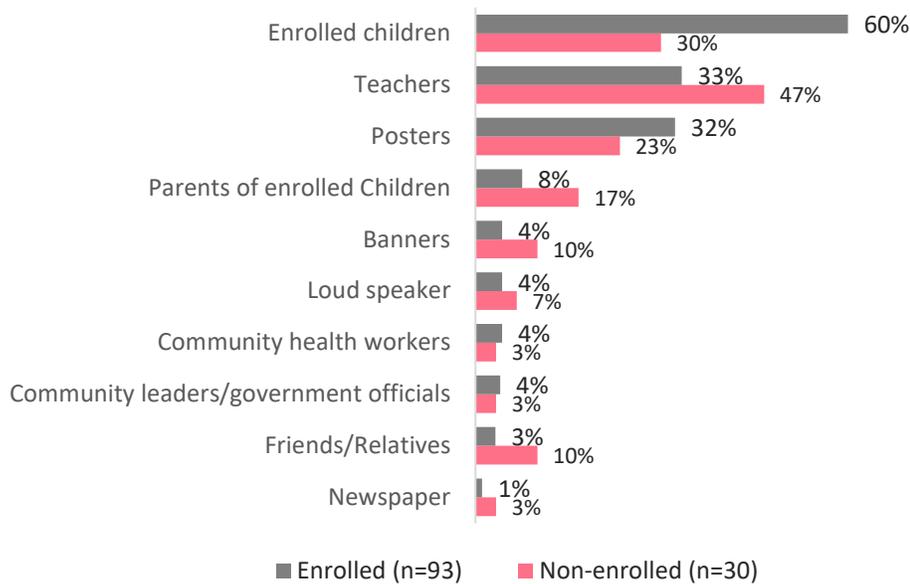
Of parents who were aware of deworming day (72% of parents), 96% knew the correct deworming date, albeit slightly higher among the parents of the enrolled children (97%) compared to those for non-enrolled children (93%). Both sets of parents were aware that children were being treated against worms, while the proportion of parents that knew the correct age-group was 74%, a figure skewed down by the 72% of parents of enrolled children as compared to the 80% noted for the non-enrolled parent type.

### 4.2.3 Sources of Deworming Day information

The analysis subset to only parents that had heard about the deworming revealed that majority of the parents of enrolled children indicated getting this receiving this information from their children (60%), while most parents of non-enrolled children that got Deworming Day information received their information from the teachers (47%) - **Figure 11**.

Further analysis across both sets of parents further underlined the fact that majority of parents received deworming information from the child<sup>9</sup> (53%) and teacher (37%), with posters (30%) ranking third. These findings are consistent with parents preferred means of receiving information on future deworming activities<sup>10</sup>. Subsequent sensitization plans should follow these findings, as they are in line with the parents' preferred means of receiving future deworming information.

**Figure 11: Medium of sensitization as cited by both sets of parents**



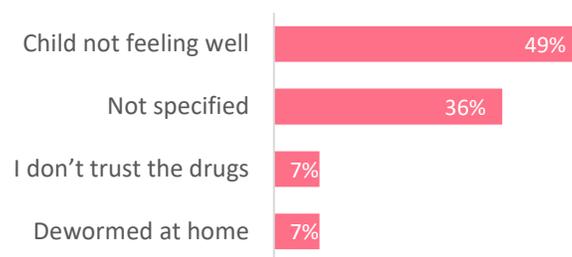
<sup>9</sup> This is comparable with the fact that 47% of teachers reported that they encouraged children to share Deworming Day information with parents

<sup>10</sup> Monitors asked parents how they preferred to receive future Deworming Day information. The top 3 preferred means were children (40%), teachers (30%) and the poster (24%)

### 4.3.4 Parents' reasons for not sending children for deworming

Sixty-eight percent of parents (68%) interviewed by monitors indicated that they would send at least one of their children for deworming. This low proportion is further consistent with the low proportion (64%) of children that were present on Deworming Day, as reported by teachers during interviews on Deworming Day. Further analysis by parent type indicated that a larger proportion of parents of non-enrolled children (40%) would not be sending any of their children for deworming as compared to those of the enrolled children (28%). Majority (49%) of the parents that indicated that they would not be sending any of their children for deworming indicated that the children were unwell (**Figure 12**).

**Figure 12: Reasons cited by parents for not sending children for deworming (n=41)**



## 4.3 Deworming Day assessment

Monitors visited a total of 62 randomly sampled schools on Deworming Day, of which 58 indicated that they had plans to deworm, while the other 4 could not be located. 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. During training sessions, monitors noted that only 43% of trainers informed teachers as regards the possibility of being visited by monitors; a rather low proportion given the possible bearing this step has towards ensuring that Monitors gain a smooth entry into the schools.

Seven in ten (71%) of the head teachers also indicated that they had reached out to the parents of the non-enrolled children encouraging them to bring their children for deworming.

### 4.3.1 Knowledge of deworming information

Ninety-five percent (95%) of head teachers indicated that either they (64%) or another teacher (29%) had attended a training session in preparation for Deworming Day within the past 15 days of the MDA.

A follow-up interview with the teachers also revealed that 93% of them had either been attended the training or been sensitized within the school on how to administer deworming drugs.

Ninety-three percent (93%) of head teachers interviewed knew that the correct age group for STH treatment to be between 5-15 years as was an equally high proportion of teachers (86%) also found knowledgeable. Knowledge of the correct drug for treatment being Mebendazole was low (71% of head teachers, 69% of class teachers) while knowledge of the correct drug dosage was 93% for teachers and 84% of head teachers. Given that the administration of drugs is done by teachers, the fact that 30% of teachers interviewed on Deworming Day were not knowledgeable as regards the correct drug to be used, is particularly worrying. This should be addressed in future trainings, by encouraging trained teachers to share key messages like the correct drug to be administered and the correct drug dosage to those that did not attend.

### 4.3.2 Adherence to MDA procedures

To provide quality assurance of the MDA administration, monitors observed whether deworming teams adhered to key drug administration steps, and found high levels of compliance with the recommended practices as passed on during the trainings (**Table 3**). Monitors noted that majority of teachers dewormed children in their classrooms (66%) or set up a central deworming station (28%). In terms of manning the deworming stations, schools adopted various approaches, with a single teacher conducting the activity in 29% of the schools, a few teachers rounding the whole school (28%), every class teacher deworming their class (26%) and one or more teacher manning a centralized area (16%). One school dewormed during assembly. On the whole, the teacher knew the correct mebendazole dosage (98%), as well as used the correct forms to record treatments (97%).

The small proportion of schools that had a designated teacher to treat non-enrolled children probably owes from the fact that only 53% of schools had plans to treat non-enrolled children, which could further explain the low proportion of non-enrolled children dewormed (38%).

**Table 3: MDA procedures observed by monitors during drug administration (n=58)**

MDA practice	Percent
The child was given one mebendazole tablet	98%
The teacher used Forms 1A and 1B to record treatments	97%

The teacher marked Form 1A and Form 1B as treatment was being administered	81%
The teacher had transferred names from the class register to Form 1A	72%
Spoilt drugs (those that fell on the floor, were spat out as well as had water spills) were thrown away (n =14)	71%
There was a designated teacher to treat the non-enrolled children	41%

### 4.3.3 Management of side effects

Monitors conducted interviews with medical officers and/or Union Council Medical Officers (UCMO) to determine if they encountered any calls for assistance as regards helping teachers with management of severe adverse effects.

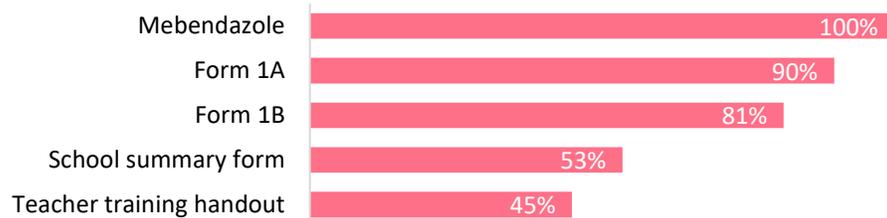
Of the 23 randomly selected medical officers, only 3 reported receiving calls for assistance with the management of severe adverse effects. In all cases, the officers reported that a child had fainted after receiving treatment. In one of the cases reported, it was discovered that the child had not had breakfast. The program should encourage trainers to lay more emphasis on equal coverage of all side effects, as the observed side effect (fainting) was not covered in 29% of monitored trainings and 78% of participants unable to mention it in post-training interviews. The program should also encourage trainers to share contacts of the medical officers professionally able to help out in the event of any noted SAEs. However, all cases were duly resolved by the officers.

### 4.3.4 Material and Drug sufficiency

The availability of key materials for deworming is one of the backbones for a successful MDA. Observations made at the 58 schools visited by monitors, indicated that only one had neither a banner nor poster displayed. Interviews with head teachers at these schools indicated that all schools reported having the required deworming drug (**Figure 13**). Equally high was the proportion of schools with the required reporting forms (Form 1A – 90%, Form 1B – 81%).

However, only 53% of schools had the essential school summary forms while the teacher training handout was only available to 45% of teachers, in spite the fact that it was distributed in 86% of teacher trainings.

**Figure 13: Materials available for MDA as reported by head teachers (n=58)**



Ninety three percent (93%) of head teacher interviewed at the end of the deworming exercise indicated that they had sufficient drugs as well as forms for reporting. Of the 4 schools that had insufficient drugs, two reached out to the AEO while the other two reportedly did nothing to address the deficiency.

Of the schools reporting to have excess drugs at the end of the exercise (93%), 62% indicated that they would return these excesses to the designated officials, while 35% planned to keep them for a planned mop-up day, while 3% planned to keep them for next year’s deworming round.

### 4.3.5 Water, Sanitation and Hygiene

During school visits, monitors also took note of school structures, presence of and functionality of latrines and handwashing facilities within the schools. In terms of school structures, majority of schools had their roofs made of concrete (98%), which was also the main material used on the school building walls (98%). Most of school floors were made of concrete (91%) while 9% of floors had tiles based on observations made by monitors. A hand washing facility was however absent in 6 (10%) of the schools monitored. Ninety-five percent (95%) of the schools visited had latrines. Schools were found to have on average 4 latrines for boys and 3 for girls. Among these, pit latrine with slab was most common (84%), distantly followed by that without a slab (15%) and latrines with drainage to a creek (2%).

## 4.4 Coverage Validation

Coverage evaluation surveys were administered six (6) weeks after the MDA. Two survey areas within the ICT that included rural and urban, formed the survey areas for this implementation. From these two survey areas, subunits were randomly-selected. For the rural survey area, all subunits were in a single education sector (Sihala). For the urban survey area, one charge (Charge NO 06) was randomly selected

where coverage Validation was administered. Coverage validation intended to achieve three main objectives that included the following:

1. To measure coverage for the Mass Drug Administration (MDA) within the ICT
2. To validate the reported coverage numbers as provided by head teachers
3. To identify reasons for non-compliance

Both enrolled and non-enrolled children were included in the sample for the coverage validation exercise; responses were gathered using a combination of school and household surveys. The sample size was determined per WHO guidelines using a probability proportionate to estimated size (PPES) approach. In this approach, subunits were first selected. In ICT, blocks were taken to represent subunits. The blocks that had more than 400 households were further equally sub-divided into sub units of not more than 400 households per sub unit. Subunits were further divided into “segments,” or groups of approximately 50 households. A sample of 30 subunits were selected from each survey area and in each, a segment was randomly selected. In the 30 segments, monitors administered a household survey to all at-risk persons within the visited households, with the aim of gathering a representative perspective from the non-enrolled population.

At the end of the household survey administration, the field officer with the guidance of a parent of an enrolled child or community elder would request for information of the school that most children in the selected segment attend and then go to that school to administer a school survey. The proportion of household to school surveys was determined using enrollment rates. In each school, the sample was then further distributed equally per class/grade level to select the pupils that would participate in the survey. Please note that when selecting schools only specific types of schools, which had been targeted during implementation, were targeted for interviews during CES. This means that the survey coverage obtained especially for the enrolled population will not reflect the entire at risk population but only the population in the types of school that were targeted during implementation.

**Table 4: Coverage Validation Survey Results**

	Program Reach			Surveyed Coverage			Denominator <sup>11</sup>
	Mean (%)	% Lower bound CI	% Upper bound CI	Mean (%)	% Lower bound CI	% Upper bound CI	
<b>Survey area</b>							
<b>Overall</b>	80%	79%	81%	79%	74%	83%	4,219
<b>Charge NO 06</b>	81%	79%	83%	80%	73%	85%	1,772
<b>Sihala</b>	79%	78%	81%	78%	72%	84%	2,447
<b>Disaggregation by enrolment status</b>							
<b>Non Enrolled</b>	20%	9%	31%	20%	9%	31%	51
<b>Enrolled</b>	81%	80%	82%	81%	78%	81%	4,168
<b>Disaggregation by gender</b>							
<b>Male</b>	80%	78%	82%	79%	77%	80%	2,271
<b>Female</b>	81%	79%	82%	79%	77%	81%	1,948

The findings indicate an overall program reach<sup>12</sup> of 80% of the targeted SAC in the two surveyed areas for the coverage evaluation, with almost similar proportions in both survey areas as indicated in the table above. The overall surveyed therapeutic coverage (the proportion of interviewed individuals who actually ingested the drugs) was 79% of the targeted at-risk SAC in ICT<sup>13</sup> wave 1 deworming.

However, given that only 40% of the entire at-risk SAC population in ICT were targeted during this wave of Mass Drug Administration (MDA), this would mean that the actual survey coverage is way lower than 79%. In fact, if we subject this survey coverage (79%) to the fraction of the at-risk population targeted (40%), it means that the survey coverage is only 32% of the entire at-risk SAC that were validated to have ingested the drug during deworming. Hence indicating that only 32% of the entire at-risk SAC population were dewormed in the 2 surveyed areas. Since the two surveyed areas covered during CES

<sup>11</sup> Number of children interviewed

<sup>12</sup> The “program reach” refers to the proportion of children interviewed who were offered the drug, regardless of whether it was ingested.

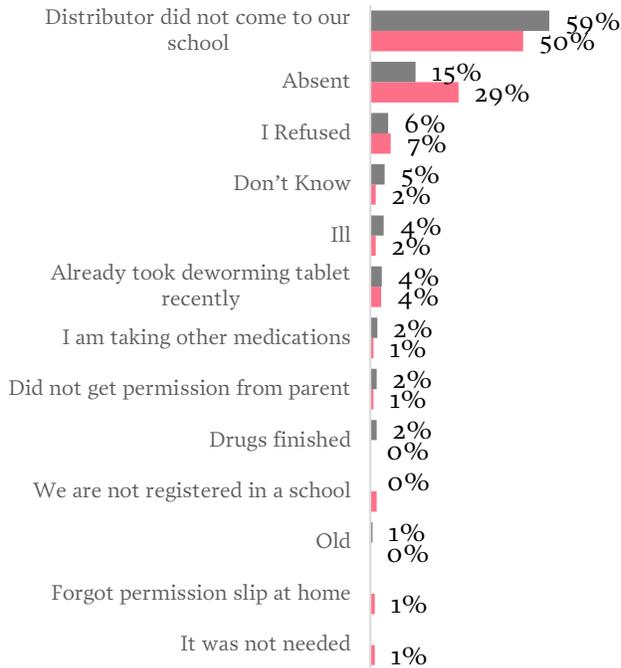
<sup>13</sup> In the first round of treatment in ICT, not all at risk population was targeted. The percentage displayed here is of the at-risk population that the program targeted

are not representative of the entire ICT, we cannot infer the validated therapeutic coverage for the entire ICT. Additionally, please note that, after this first wave of treatment, private schools were later targeted in the second wave of treatment and therefore, these results may not be representative of the entire ICT for the 2 waves of treatment.

A disaggregation by gender revealed no considerable disparity between both gender categories for both the program reach and surveyed coverage. However, the disaggregation by enrolment status indicated a much higher program reach and surveyed coverage for the enrolled than for the non-enrolled population. The small sample size (n=51) for the non-enrolled population however means no meaningful comparisons can be made from looking at this population group.

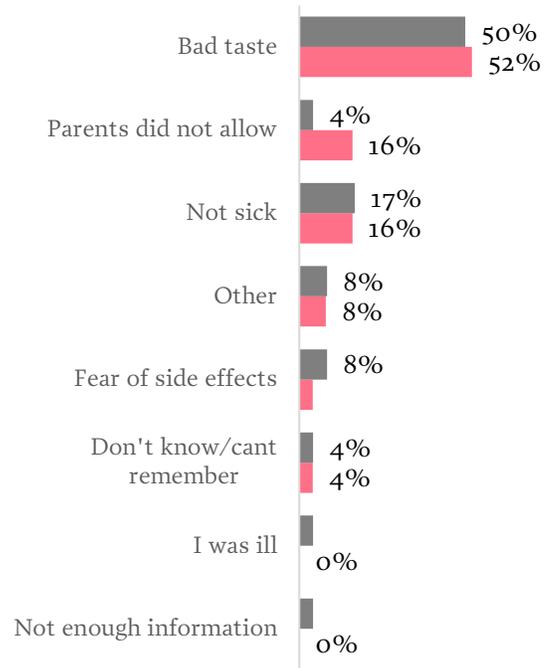
**Figure 14: Reasons drug was not given and not swallowed**

Reasons drug was not given (% based on children who were not offered)



■ Sihala (n=463) ■ Charge NO 06 (n=323)

Reasons drug was not swallowed (% based on children who did not swallow)



■ Sihala (n=24) ■ Charge NO 06 (n=25)

The distributor did not come and the bad taste of the drug were the major reasons provided by those who did not receive the drug and those who did not swallow the offered drug (**Figure 14**).

Aside from the present deworming, monitors also sought to determine if respondents had received any deworming tablets within the last six months of the Deworming Day. The findings indicate that only 4% of respondents had received the tablet prior, with majority being enrolled children (93%) compared to 7% non-enrolled children. Among the 4% children that received a deworming tablets within the 6 months of Deworming day, majority indicated that the drug was taken from their homes (55%). The other proportion either took the tablet from a health center (36%) or didn't specify (9%). This low self-reported proportion further underlines the importance of having the MDA. Among those that took the drug from home, 91% of the children were enrolled, while among those that took the drug from the Health facility, 94% were enrolled children.

# 5.0 Conclusion

## What worked well

1. The overall execution of the trainings was commendable. The fact that majority of participants were on time (86%), key materials were available in majority (at least 86%) of the trainings underlines the commitment of the different stakeholders towards achieving a successful MDA. The overall coverage of topics was also praiseworthy, a finding reinforced by the high proportion of participants able to re-echo the messages shared in post-training interviews.
2. Aside from the fact that only 4 in 10 of schools assigned a teacher to specifically handle the non-enrolled children, adherence to all other key MDA practices especially the provision of the correct dosage as well as use of the correct recording forms.
3. All cases of side effects observed for the duration of the IM exercise were well managed by the health officials with no long lasting effects reported during the monitoring time frame. The same practice should be encouraged in next year's edition.
4. Coverage evaluation surveys conducted in target areas (excluding many private schools and all religious schools) indicated that at least 79% of the children in both survey areas under consideration was reached indicating a successful MDA in the target areas. It should be noted that the results from the coverage Validation from the 2 implementation units cannot be generalized to the entire ICT.

## What needs to improve

1. All trainings exceeded the threshold of 40 participants per training session. The effective delivery of content hinges on meeting a proper trainer/trainees balance set prior to activity start. It is hoped that future trainings can address this.
2. Equal coverage of all topics needs to be implemented in future trainings. The findings indicate that 78% of participants could not cite fainting as a side effect, yet it was the only registered side effect in all deworming schools monitored. Trainers also concentrated more on the activities to

be conducted (say drug administration and reporting forms), without outrightly pointing these out to teachers as key roles.

3. Sensitization efforts reached only 72% of the parents. Given that majority of parents indicated receiving deworming information via children (53%) and teachers (47%), these methods (passing words by mouth) should be reinforced in future rounds as they are consistent with findings on parents' preferred means of receiving Deworming Day information.
4. The preparations taken towards including non-enrolled children were generally poor. Right from the trainings where up to 44% of teachers classified non-enrolled children as being non-eligible for the MDA to the fact that only 41% of schools monitored on Deworming Day assigned a teacher to handle the non-enrolled children, the low turn up of non-enrolled children is unsurprising. Ramping up steps to have higher numbers in future rounds is critical to achieving the therapeutic coverage of 75%.
5. Deworming Day interviews with teachers revealed that 30% were not aware of the deworming tablet to be used, in spite the fact that 93% of teachers interviewed reported that they had either attended the training or been sensitized by those who had attended the training. To this end, trained teachers should be encouraged to share key messages with their colleagues.
6. Submission of forms needs to be improved as aggregated treatment figures form the core in determining the therapeutic reach of the MDA. The findings indicated that a third of head teachers (33%) did not know who they would give the summary forms post-deworming (Area Education Officer) while 29% were not knowledgeable as regards which forms (Form 1A and 1B) would feed into the school summary form.