

Evidence

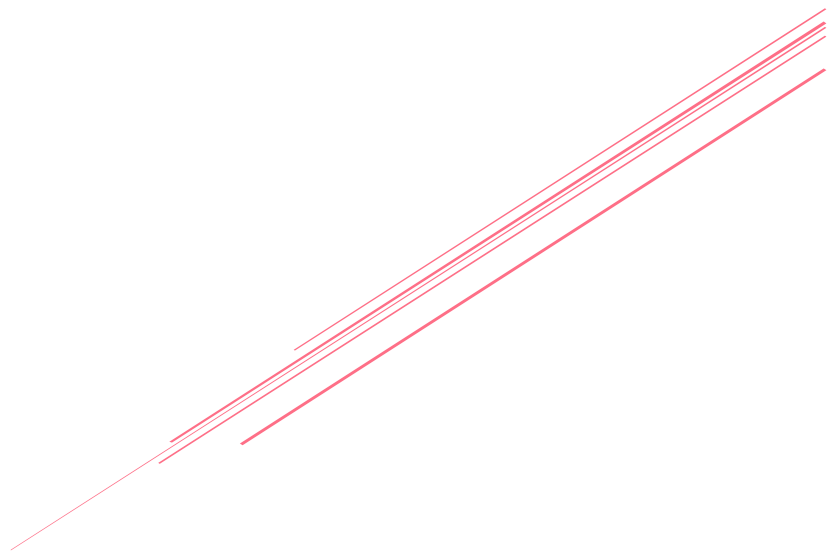
Action



Deworm the  
World Initiative

School-based  
deworming, June 2017  
Cross River State,  
Nigeria

Process monitoring report



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# Glossary

**LGA.** Local government area

**MDA.** Mass drug administration

**NTD.** Neglected tropical disease

**PC.** Preventive chemotherapy

**STH.** Soil-transmitted helminths

**WHO.** World Health Organization

# 1.0 Executive Summary

In June 2017, school-based deworming of enrolled and non-enrolled children aged 5-14 years took place in 12 LGAs endemic for STH and schistosomiasis in Cross River state. Deworming activities were implemented in both public and private primary and junior secondary schools. School teachers were trained to properly administer safe and effective deworming drugs—specifically, Mebendazole (for STH) and/or Praziquantel (for schistosomiasis).

To ensure effective implementation and to identify areas for improvement, Evidence Action designed data collection tools and a sampling method to observe, review and measure the quality and success of teacher trainings and deworming day activities in the state, and to assess the accuracy of treatment data reported by schools.

The monitoring team attended a sample of 43 teacher trainings and found that the majority of trainings observed provided adequate program materials and covered all the required topics. However, only 58% of trainings were found to completely cover the adverse event management protocol and only 24% of trainings provided adverse event management protocols to teachers.

Observation of the deworming day at 70 randomly selected schools found that deworming teams had good knowledge of and adhered to the recommended MDA procedures. Despite community sensitization efforts, non-enrolled children attended Deworming Day in only 16% of monitored schools. The majority of the 216 community members and 38 parents interviewed learnt about deworming day through their children. Very few had seen the visual materials (banners and posters) provided by the campaigns. Data suggests a need to further focus on including non-enrolled children in deworming day, coupled with a potential opportunity to strengthen community sensitization through utilizing a broader set of communication tools.

Evidence Action will continue to collaborate with state and LGA teams to focus on community mobilization strategies closer to the community such as church and town announcements. These strategies are cost-effective for mobilizing both enrolled and non-enrolled school-age children as well as sensitizing parents on benefits of deworming. Evidence Action will also work with state and LGA teams to ensure that all materials for training, community mobilization and drugs distribution are available in sufficient quantities and distributed along the training cascade.

## 2.0 Introduction

Worm infections interfere with nutrient uptake causing anemia, malnourishment and impaired mental and physical development. These all pose a serious threat to children's health, education, and productivity later in life. Infected children are often too sick or tired to concentrate at school, or to attend at all. Parasitic worms exact an enormous toll on human capital, hindering schooling and economic development in parts of the world that can least afford it. The WHO recommends large-scale school-based deworming programs in school-age children, as studies have shown that all children have a similar potential for healthy growth and development, provided that appropriate nutrition and health interventions are given in the critical window of opportunity.

In June 2017, the second round of state-wide school based deworming took place in 12 endemic Local Government Areas (LGAs). Endemic LGAs are those with a history of STH and/or schistosomiasis prevalence. Enrolled and non-enrolled children aged 5-14 years were dewormed in both public and private primary and junior secondary schools.

School teachers were trained to properly administer safe and effective deworming drugs—specifically, Mebendazole (for STH) and/or Praziquantel (for schistosomiasis). Treatment took place in 1,651 targeted schools with a 'mop-up' day implemented later to treat children who were absent or sick on the deworming day.

Evidence Action designed data collection tools and a sampling method to observe, review and measure the quality and success of teacher trainings and deworming day activities in the state. A competitive recruitment process identified a qualified firm, Infotrak Research and Consulting, to collect the data. Evidence Action then cleaned, entered and analyzed this data. The findings of the analysis are presented in this report.

## 3.0 Methodology

A total of 70 monitors were recruited by Infotrak, using pre-defined criteria, to collect monitoring data in 43 teacher training sessions and 70 schools where deworming was taking place. These monitors were rigorously trained by Evidence Action in two batches of 35 monitors each for three days in Calabar, Cross River. The curriculum covered an overview of the Neglected Tropical Disease (NTD) program with emphasis on school-based deworming; the basics of conducting a survey/ administering a questionnaire; paper based and electronic survey tools; field logistics and data collection protocols.

All monitors took a pre-and post-training test to ensure that monitors had a clear understanding of their roles and to ascertain the level of knowledge acquired during training. There was an average of 86% increase in knowledge about the data collection process across all tested monitors. A team of supervisors was trained to oversee the field work.

Prior to deworming day, teachers from all targeted schools received a one day training on the MDA process. The deworming day was targeted at 1,651 schools across the 12 LGAs. To assess both the quality of teacher training sessions as well as implementation of the deworming process in schools, Evidence Action used stratified sampling to randomly select 43 out of a total 91 teacher training sessions and 70 of the 1,651 targeted schools for observation by independent monitors. The sample size was determined to ensure a 90% confidence level and a 10% margin of error.<sup>1</sup>

Communities surrounding selected schools were visited one day prior to the deworming day to ascertain the level of sensitization and awareness about the upcoming deworming exercise. Three community members were interviewed at each site and were randomly chosen from around government offices, churches/mosques and market places. The monitors asked if community members were aware of deworming, how they heard about it, whether they planned to allow their children or ward to participate, and the benefits of deworming. A total of 216 community members were interviewed.

Of the 70 schools targeted for monitoring, data was collected from 68 schools. Monitors were unable to observe deworming in 2 schools due to the last minute cancellation of treatment due to a labor strike. Drugs were administered to a total of 2,324 males and 2,244 females in the monitored schools.

On deworming day, the monitors visited each school and interviewed the head teacher before the deworming exercise and asked questions regarding their plans for deworming, their treatment knowledge and any sensitization activities that had been carried out in schools and local communities. Monitors then observed the drug administration process to verify whether the required procedures for deworming were implemented.

The monitors randomly select a parent, a teacher, two enrolled and one non-enrolled student, and interviewed each selected person after the deworming exercise. In total

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<sup>1</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.

the monitoring teams interviewed 38 parents (present during deworming), 140 teachers, and 156 students (22 non-enrolled and 134 enrolled) on deworming day.

Finally, five days after the last deworming exercise, data collectors visited the schools again to carry out a data audit to collect data from the class treatment register and school summary forms. After treatment data was submitted to the state, the data collected during the data audit was compared to the data submitted to the state.

**Table 1. Methodology: Process Monitoring Review**

Monitoring activity	Total Population	Target sample size	Actual sample size
Total number of teacher training sessions	91	43	43
Total number of schools treated	1,651	70	68
Total number of schools treated with Mebendazole only	338	-	15
Total number of schools treated with Praziquantel only	1052	-	34
Total number of schools treated with both Mebendazole and Praziquantel	273	-	19
Community members interviewed	-	210	216 <sup>2</sup>
Parents interviewed	-	70	38
Enrolled and non-enrolled children interviewed	-	210	156
Head teachers interviewed	-	70	68
Teachers interviewed	-	70	68
Data audit	1,651	70	68

## 4.0 Results

### 4.1 Review of teacher training

#### 4.1.1. Access to training materials

School summary and treatment registers were more frequently available at trainings compared to the adverse management protocol and adverse event recording forms (**figure 1**). One teacher training out of the 39 monitored which covered schistosomiasis

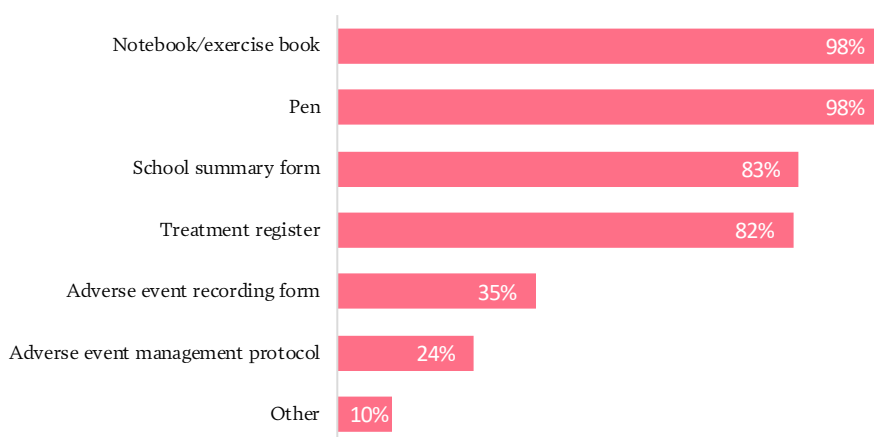
<sup>2</sup>A total of 216 community members were interviewed. This was a result of the strike that cause monitors to visit more than one community. Some monitors visited a community before deworming and conducted the survey only to have to go to a replacement school (and community) when the chosen school wasn't deworming as scheduled.

treatment provided teachers with treatment poles during the training session. Most schools had already received treatment poles in previous treatment rounds, which may explain the low levels of disbursement of tablet poles at the trainings.

Teachers were given the teacher training handout at the start of training in 77% of trainings monitored. Sixty one percent (61%) of teachers interviewed on deworming day said they used the teacher handout as a guide when organizing and conducting deworming, highlighting its value as both a training and implementation guide.

Ensuring that all teachers trained receive handouts will improve the overall training experience and encourage them to use these materials for reference on deworming day. It would be of value to have the protocols at training to ensure teachers know how to prepare for and manage adverse events should they happen during deworming.

**Figure 1. Materials given to teachers during training ( $n=43$ )**



#### 4.1.2 Training topics and methods used

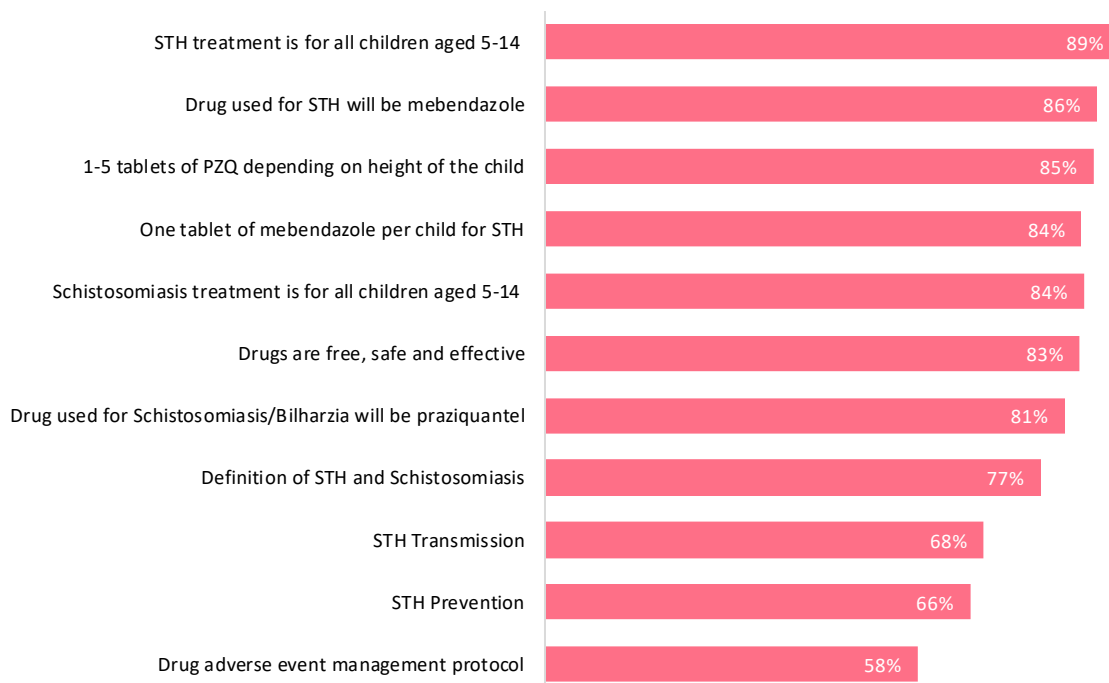
Training topics were divided broadly into seven main areas: information on the worms being treated; transmission of worms; target population for treatment; drugs and drug materials used for deworming; types of side effects and management of any severe adverse events of the deworming exercise; completing recording and reporting forms; roles and responsibilities of different actors in deworming day and community sensitization.

**Figures 2 and 3** show that most trainings ‘completely’ covered the major topic areas required to prepare teachers for their role on deworming day as well as the mass drug administration procedures required for proper administration of deworming drugs. The term “completely” means that the trainer covered the prescribed content of the topic according to the training manual and presentations. Topics less frequently covered in STH training included how STH is transmitted and prevented, and the

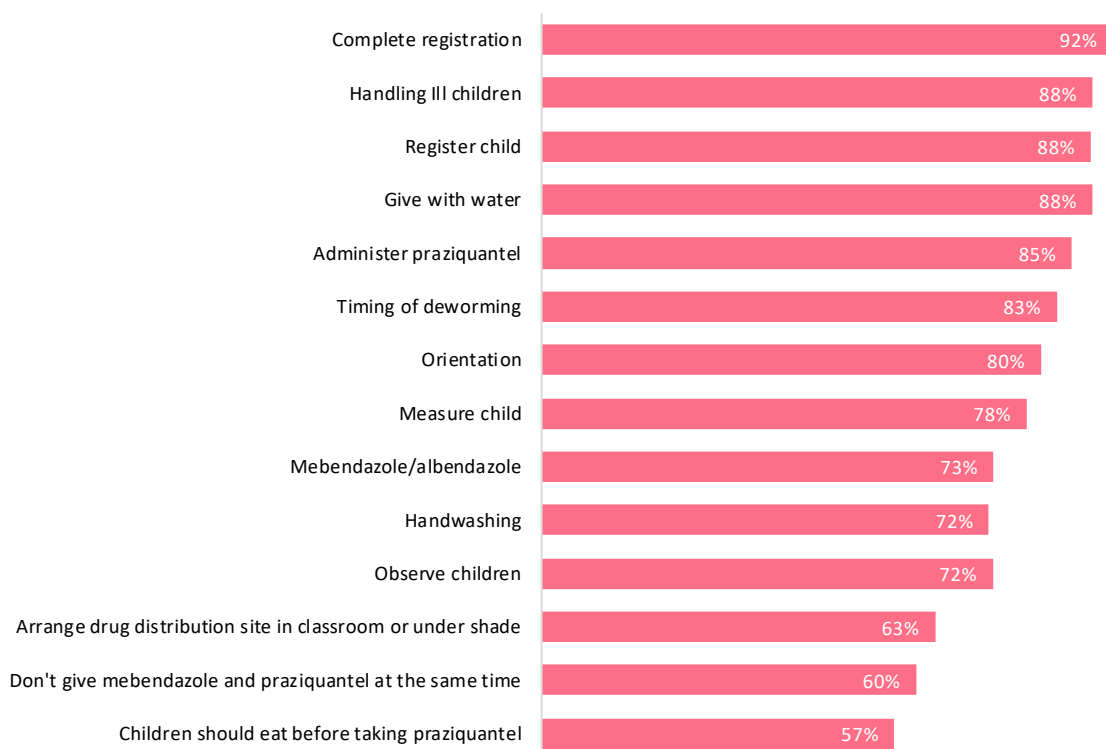


adverse events protocol. Topics less frequently covered in schistosomiasis training included the need for children to eat before taking Praziquantel and making sure Mebendazole and Praziquantel are administered at different times (where treatment with both drugs took place).

**Figure 2: Percentage of trainings where training topics were completely covered**



**Figure 3. Percentage of trainings where specific MDA procedures were completely covered**



The monitoring team observed that over 70% of trainers used lecture-based approaches for delivering all the different training topics. However, for all training topics covered, at least 50% of the trainers combined these lecture based approaches with some discussion/participatory approach based methods. Other frequently used teaching methods included group work, demonstrations and role play. Trainers should be encouraged to use multiple training methods for reinforcement and role play to ensure that participants can translate knowledge acquired into practical situations.

#### 4.1.3 Teacher roles and responsibilities

Trainers covered the roles of different actors within the deworming process, including neglected tropical disease (NTD) coordinators and education secretaries, frontline health facility staff and teachers. As **Figure 4** and **Figure 5** show, teachers were trained on their multiple roles in the process. Across trainings, emphasis was placed on the teachers' role of *organizing drug administration* and *completing forms* rather than *mobilizing non-enrolled children*. Teachers were also taught their role in school-based sensitization, including *displaying banners and posters* in the school and *encouraging children to share deworming day information with their parents* outside of schools.

Figure 6 shows that trainers covered a range of health messages to be shared with children, the majority of which were completely covered across all trainings observed.

Figure 4. Trainer definitions of teacher roles during deworming at school ( $n=43$ )

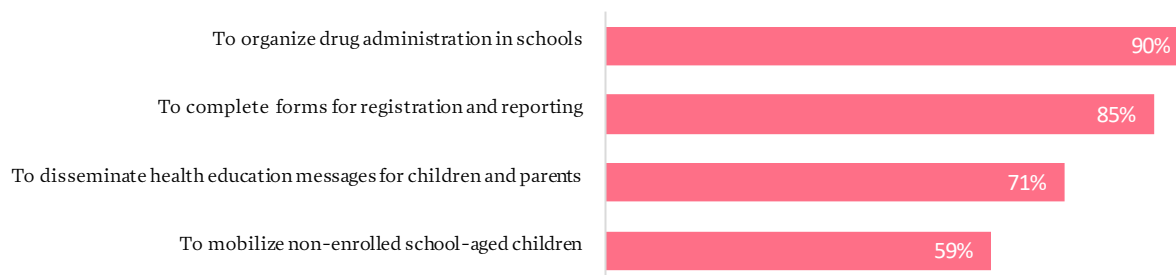
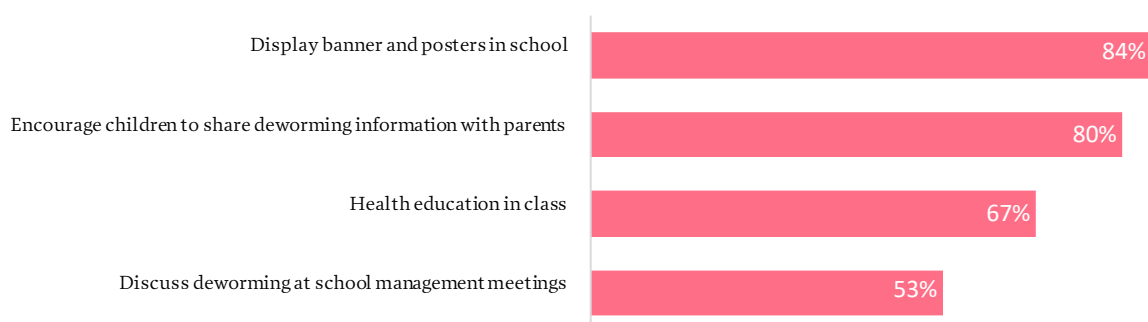
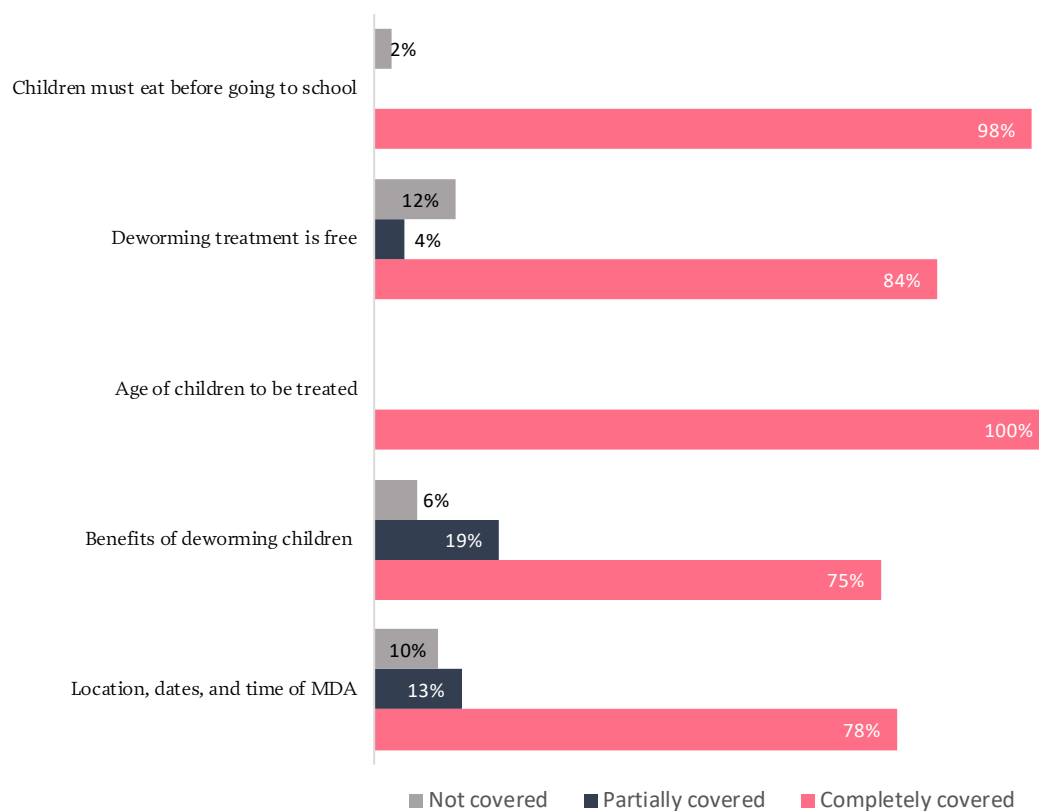


Figure 5. Trainer definitions of teacher roles in community sensitization ( $n=43$ )



**Figure 6. Coverage of health messages to be shared by teachers with children at training sessions observed ( $n=43$ )**



Trainers also covered the roles of other key actors in the deworming process. The most common roles defined for frontline health facility staff were to *communicate the rationale of the (deworming) intervention to community leaders* and *quantify appropriate amounts of the drugs given to each school*. The main role of frontline health facility staff in community sensitization were more frequently defined as *discussing deworming day and objectives with community leaders* and *mounting deworming day posters*.

The main roles of both the NTD coordinators and the education secretaries were to *distribute appropriate quantities of drugs to each school* and to *compile treatment coverage reports* (see **table 2**).

**Table 2. Trainer explanation of the role of health and education staff in the deworming program (N=43)**

<b>The role of the frontline health facility staff in the deworming program</b>	<b>Percentage</b>
To communicate the rationale of the intervention to community leaders	48%
To quantify appropriate amounts of the drug(s) given to each school	40%
To organize the drug administration campaign in schools with the teachers	32%
To administer drug(s) to children on deworming day	15%
<b>The role of the NTD coordinator and education secretary in the deworming program</b>	<b>Percentage</b>
To distribute appropriate quantities of drugs to each school	60%
To compile a report about the treatment coverage in the district as a whole, including all problems experienced, all adverse events and possible solutions and report to the zone/region	44%
To collect unused drugs from the schools at the end of the treatment period	34%
To store the drugs in a proper storage facility until the next round of treatment	26%
<b>Responsibility of the frontline health facility staff in community sensitization and mobilization?</b>	<b>Percentage</b>
Discuss deworming day and the objectives of deworming with community leaders	54%
Mount deworming day posters	41%
Discuss deworming day and objectives of deworming with local communities	34%
Be a town announcer	33%
Mobilize community leaders for house-to-house sensitization	29%

#### 4.1.4 Mass Drug Administration procedures

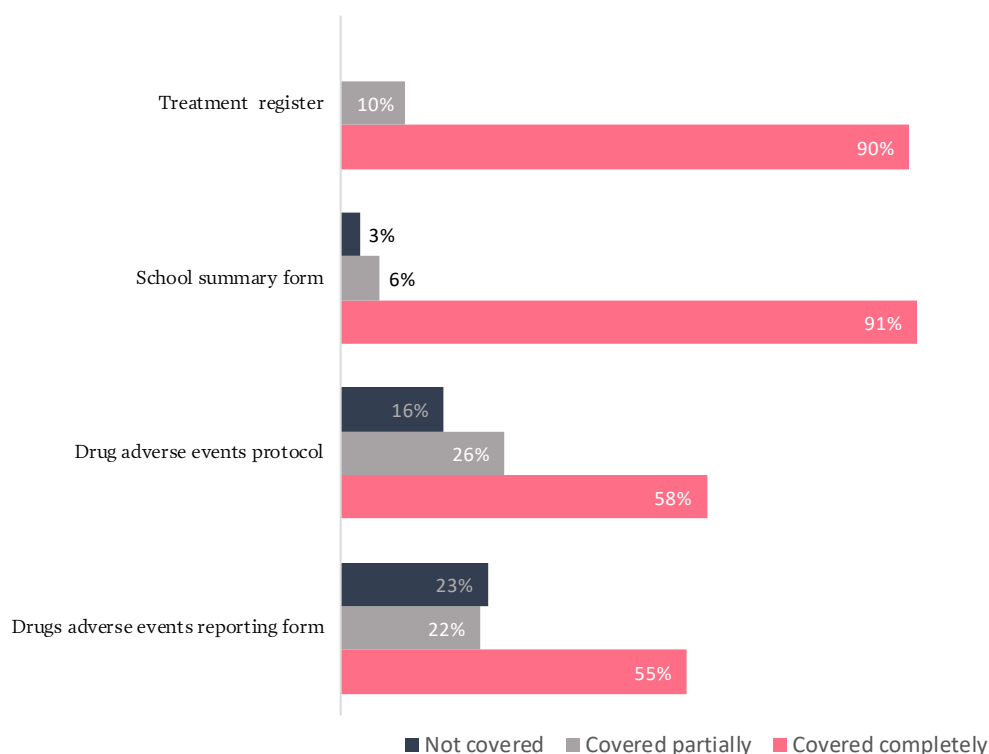
Monitoring teams reviewed whether trainers covered the key points of MDA, such as how to manage excess drugs, which children should not be treated, and how to manage side effects. **Table 3** provides a summary of the percentage of trainers who covered these topics and the multiple messages they provided on each topic. Relatively few trainers covered how to manage excess drugs and how to handle adverse reactions to drugs during treatment.

**Table 3. MDA procedures covered by trainers during the training session (N=43)**

<b>How to manage excess drugs on deworming day</b>	<b>Percentage</b>
Remaining drugs are to be returned to the health center for next campaign	60%
Remaining drugs are to be returned via the reverse cascade along with reporting and recording forms	42%
Remaining drugs are to be stored at the frontline health facility close to school	34%
<b>Which children should not be treated under the program</b>	<b>Percentage</b>
Any child sick on deworming day	95%
Any child shorter than the tablet pole (schistosomiasis)	73%
Any child with a history of epilepsy, fits or seizures (schistosomiasis)	38%
Any child under 5 (schistosomiasis)	34%
<b>The potential side effects of receiving deworming treatment</b>	<b>Percentage</b>
Vomiting	85%
Abdominal pain	82%
Nausea	70%
Fatigue	46%
<b>How to manage side effects or adverse events following treatment</b>	<b>Percentage</b>
Make sure airway is clear, tablet is not choking child	67%
Give paracetamol based on recommended doses	56%
Record event on reporting forms	34%
Give antihistamines based on recommended doses	9%

**Figure 7** shows the different forms that trainers covered during training sessions. The treatment register and school summary form were completely covered in the majority of trainings. The adverse events protocol and the drug adverse events reporting form were less frequently covered. In 23% of trainings observed, the adverse events reporting form was not covered at all.

Figure 7. Percentage coverage for different MDA forms during training ( $N=43$ )



## 4.2 Deworming day assessment

### 4.2.1 Teachers trained in preparation for Deworming Day

Seventy percent (70%) of head teachers interviewed had attended a training session in preparation for deworming in their school. When interviewed by the monitoring team on deworming day, 84% of teachers interviewed had attended an onward training session in preparation for this deworming campaign. This was either done by the health teacher (64%), a teacher who had attended the teacher training (22%), or a head teacher (8%). The majority had been trained using some form of materials provided by the program. Only two deworming teams had been trained with no materials at all. The majority had been trained using the training handout (85%), posters (87%), and the monitoring forms (55%). In schools treating for schistosomiasis, 73% of teachers had been trained with the tablet pole used for demonstration. Ninety eight percent (98%) of those interviewed across sampled schools found the teacher training very useful.

### 4.2.2 Deworming team knowledge

On deworming day, monitors assessed teacher knowledge on the core aspects of drug administration to check that knowledge had been transferred from training into practice. The findings show that most teachers had a good understanding of worm transmission, drug administration procedures and how to complete reporting forms.

#### Treatment

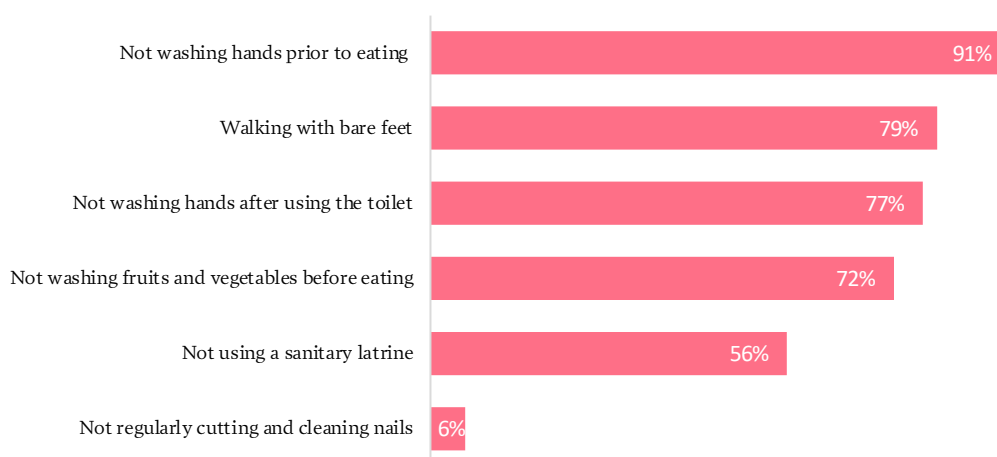
Eighty-seven percent (87%) of teachers interviewed knew the correct treatment for STH was Mebendazole and 97% knew the correct dosage for Mebendazole. In schools that treated for schistosomiasis, 91% of teachers knew that treatment was Praziquantel and 88% of them knew the dosage is determined by measurements on the tablet pole.

Ninety-five percent (95%) of teachers said that the treatment age for the deworming exercise was 5-14 years. The monitors did not ask specific ages eligible for treatment with Praziquantel, and were therefore unable to characterize teachers' knowledge in this area.

#### Worm transmission

The teachers interviewed were knowledgeable on STH transmission and could provide a variety of causal factors in transmission (**figure 8**). Ninety-one percent (91%) of teachers interviewed knew that the key factor in STH transmission was eating food without washing hands.

**Figure 8. Teachers' knowledge of how children contract STH ( $n=34$ )**



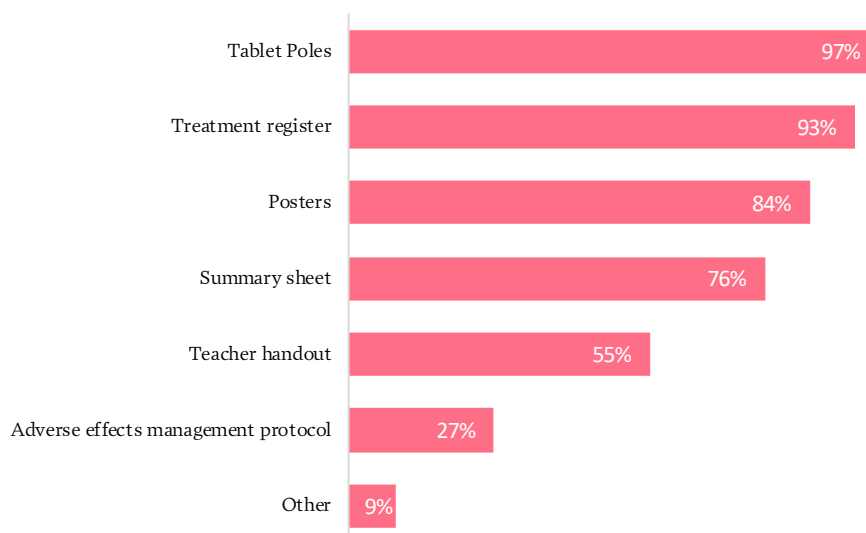
### 4.2.3 Materials received and used for deworming

On deworming day, head teachers were asked to show monitors what materials they had received from training (**figure 9**). Ninety-seven percent (97%) of head teachers showed that they had received tablet poles (in schools treating for schistosomiasis



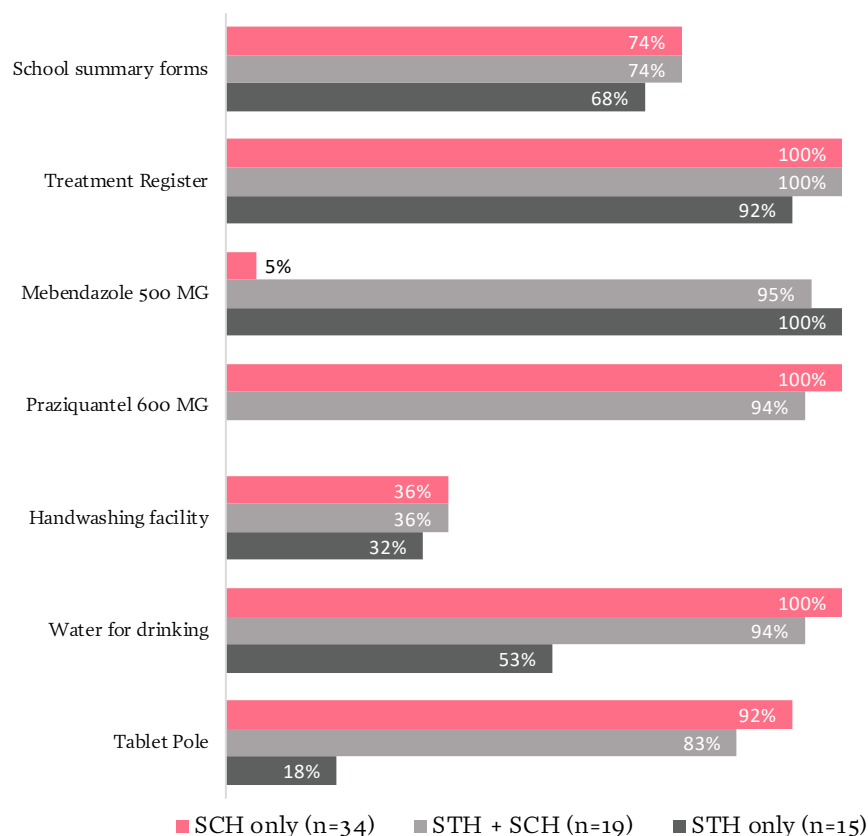
only) and 93% that they had received the treatment register. Twenty-seven percent (27%) showed that they had received the adverse effects management protocol.

**Figure 9. Materials received by head teachers and shown to the monitoring team (n=68)**



Data from school observations showed that most materials received by the head teacher, including school summary forms and treatment registers, were present on deworming day (see **figure 10**). Tablet poles were available in 92% of schools that planned to treat using Praziquantel only and 83% of those treating with both Praziquantel and Mebendazole. Sixty-seven percent (67%) of schools observed had placed posters in locations clearly visible to all. Eighty percent (80%) of head teachers planned to use the school summary form and 64% planned to submit these within five days to the frontline health facility, as per program guidelines. The monitors observed that school summary sheets were present at the deworming station in 72% of schools and 61% of teachers interviewed knew how to complete and submit these forms.

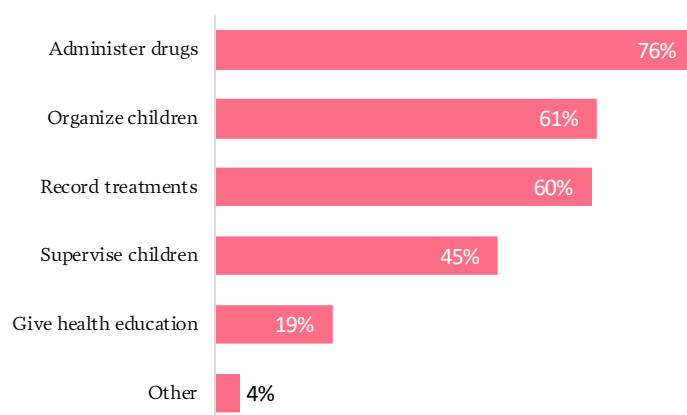
Figure 10. Materials observed on deworming day ( $n=68$ )



#### 4.2.4 Teacher roles on Deworming Day

Monitors asked teachers to define their roles and responsibilities during deworming day. Teacher responses largely reflected those given by their trainers. Seventy-six percent (76%) said their primary role was *to administer drugs*. The least common response was to *give health education* (figure 11). Nevertheless, monitors observed that 64% of deworming teams did in fact provide health education messages to children on Deworming Day.

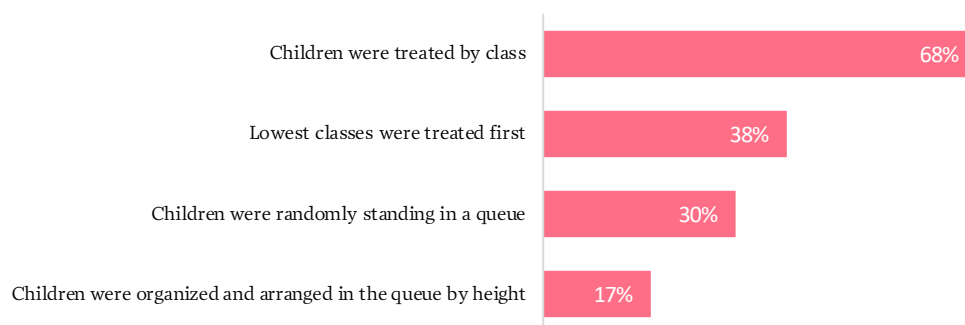
**Figure 11. Teachers' perceptions of their roles on deworming day ( $n=68$ )**



#### 4.2.5 Treatment procedure for deworming

Monitors observed whether key procedures were adhered to by the deworming teams in schools. They observed that 68% of children were treated by class and 38% of schools treated children in the lowest classes first. In only 17% of schools were children arranged by height (**figure 12**).

**Figure 12. Drug administration procedure in sampled schools ( $n=68$ )**



As **table 4** shows, teachers followed the MDA procedures in most schools. Treatment registers were used in 97% of sampled schools and treatment poles were used in 93% of schools treating with Praziquantel. In 90% of schools, deworming teams checked children's health before administering treatment. In only 29% of schools were all students present for treatment on deworming day, highlighting the importance of both community sensitization about deworming day as well as a mop-up day. Where students were absent, 68% of teachers noted this on registration forms. Spoilt tablets were observed in 50% of schools. Of these, 64% disposed of spoilt tablets correctly.

**Table 4. Monitoring team observations of MDA procedures on Deworming Day (n=68)**

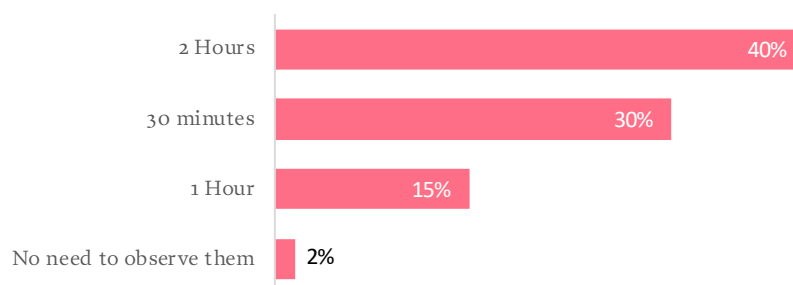
MDA procedure in schools	Percentage
Treatment register was used	97%
Teachers used the dose pole (in schools treating for schistosomiasis; n=53)	93%
Deworming team comprised of two teachers	90%
Teacher asked if child was sick or under medication before administering medicine	85%
Teacher noted any student absence	68%
Cases of spoilt tablets (e.g. tablet fell on floor, water spills on tablet, child spits it out)	50%
Spoilt tablets (e.g. tablet fell on floor, water spills on tablet, child spits it out) were correctly disposed of by teachers	64%
All students were observed to be present	29%
A child was observed to be forced to swallow medicine against wishes	18%
Teachers gave medicine to sick children	3%

#### 4.2.6 Managing adverse events

Ninety-six percent (96%) of head teachers knew that children should eat prior to treatment with Praziquantel to avoid side effects. Whilst only 9% of schools sampled had a school feeding program, all schools had requested children to eat a good breakfast before coming to school on deworming day. Ninety-seven percent (97%) of students interviewed had eaten a snack or meal before school. Of those, 95% received this snack or meal at home and 5% received it at school.

Monitors asked head teachers what plans they had in place to handle side effects or adverse events. Sixty-two percent (62%) said that frontline health staff should manage adverse effects following treatment, and most of them also said that children were to be monitored for two hours post-treatment for any side effects (**figure 13.**)

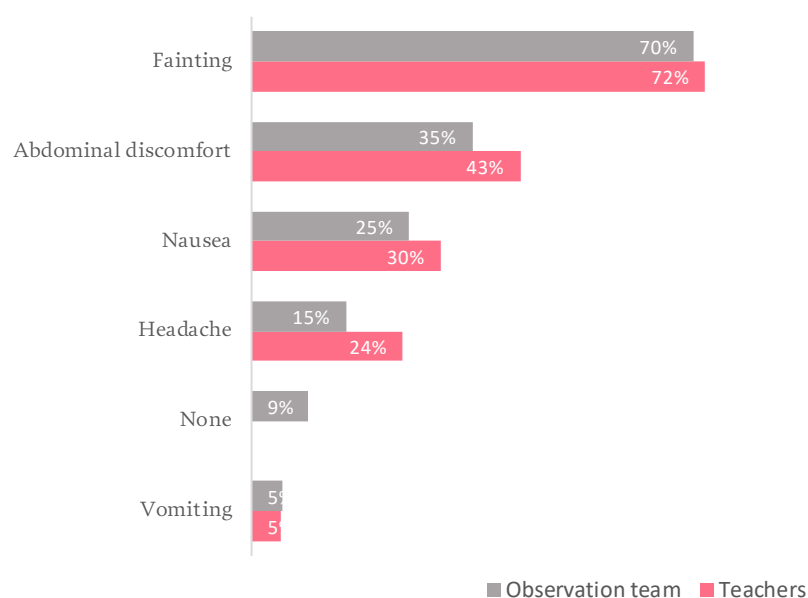
**Figure 13. Head teacher perception of how long children should be monitored for side effects (n=68)**



### 4.2.7 Incidents of adverse side effects

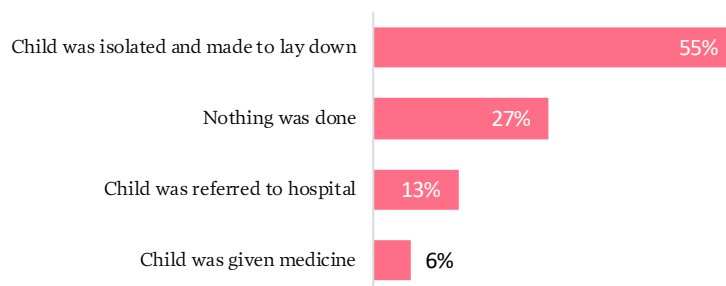
According to monitors, 31% of schools witnessed some sort of side effects in children treated. This was confirmed by deworming team interviews, where 31% of teachers confirmed they had observed side effects. The most common side effects observed by both monitors and teachers included *fainting* and *abdominal discomfort* (see **figure 14.**)

**Figure 14. Teachers' vs. monitoring teams' observations of side effects observed in schools. ( $n=68$ )**



Monitors asked teachers who encountered side effects how they handled the situation. In 55% of cases teachers isolated the child and made them lie down. In 13% of cases, children were referred to a hospital (**figure 15**). Monitors observed that only 36% of adverse effects were recorded in an adverse events recording form by teachers.

**Figure 15. Teacher's response to side effects ( $n=22$ )**

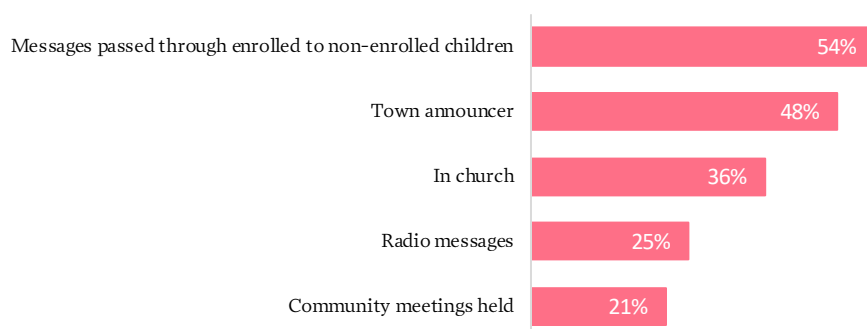


### 4.2.8 Inclusion of non-enrolled children

On deworming day both enrolled and non-enrolled children are targeted for treatment. Forty-one percent (41%) of head teachers agreed that there was a significant number of non-enrolled children between the ages of 5-14 in their area. Monitors observed non-enrolled children attending deworming day in only 16% of schools.

The most common approach to treating non-enrolled children (when present) was to separate them from the enrolled children but to treat them at the same time (38%). Head teachers were asked how non-enrolled children and their parents in the community were sensitized on the deworming exercise. The most common response was that messages had been passed through enrolled to non-enrolled children. Other responses included using town announcers, the church, radio and community meetings (**figure 16**). It was not clear if these efforts were carried out by the school or others in the community.

**Figure 16. Sensitization efforts to encourage non-enrolled children to attend (n=68)**



### 4.2.9 Head teacher post-deworming interview

After deworming, 94% of head teachers found the deworming day to be a success and 96% had sufficient drugs to carry out deworming successfully. Ninety-six percent (96%) of head teachers also had extra tablets left over. Most head teachers planned to keep these tablets for further ‘mop up’ activities.

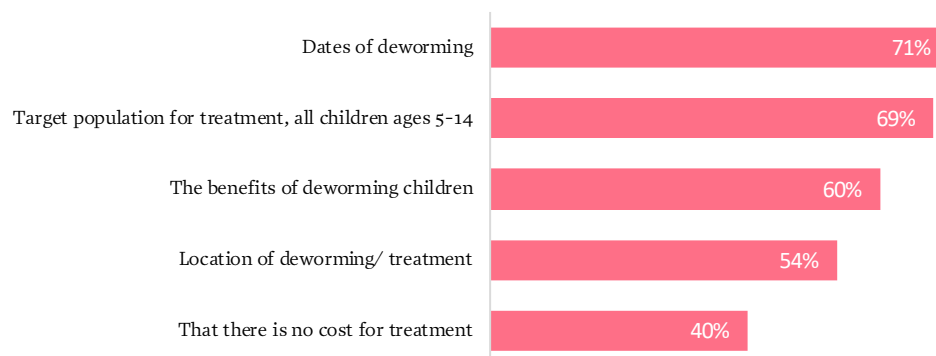
## 4.3 Community Sensitization

### 4.3.1 Community sensitization reported by teachers

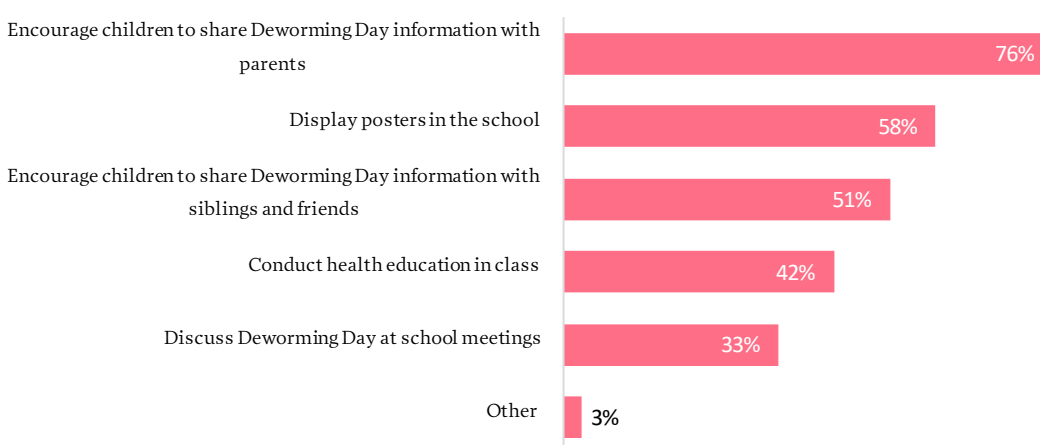
The monitors asked head teachers what messages had been shared with community members prior to deworming. Head teachers most frequently responded with the *dates of deworming*, the *target population* and the *benefits of deworming* (**figure 17**).

However, data was not clear on whether this information was shared by schools or other actors in the community. Teachers interviewed on deworming day indicated that the focus of sensitization activities was limited to the school (**figure 18**). Nevertheless, some teachers had also communicated with individuals outside of schools, including parents, community leaders and church members (**figure 19**).

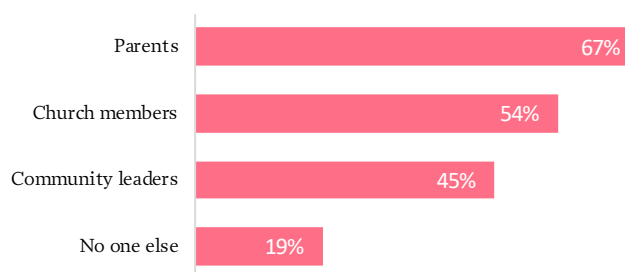
**Figure 17. Topics shared with community members as reported by the head teacher ( $n=68$ )**



**Figure 18. Community sensitization activities conducted by teachers ( $n=68$ )**



**Figure 19. Community members whom teachers spoke to about deworming (n=68)**



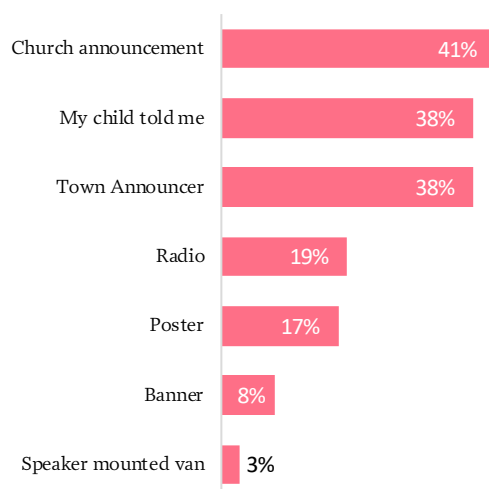
### 4.3.2 Community sensitization as reported by the community

Prior to deworming day the monitors interviewed 216 community members located close to schools to assess their knowledge of the deworming exercise. Sixty-nine percent (69%) of community members were aware that children in the community would receive deworming medicine in the next week. Of those, 25% knew that STH were being treated under the program and 19% knew that schistosomiasis was also being treated. The data available does not disaggregate respondents by those living in communities treated for STH only. Sixty-nine percent of community members (69%) knew that children between 5 and 14 years were the target population for the deworming program.

Eighty-seven percent (87%) of community members had not seen any program materials displayed (e.g., posters or banners). Of those that were aware of treatment taking place, 41% heard about it through a church announcement. Children and town announcers were other common sources of information (**Figure 20**). Of the community members interviewed, 83% planned to send their children, aged 5 to 14 years, to the nearest school for treatment. Reasons for not sending children for treatment included that the child was sick, not at home, or had been dewormed recently.



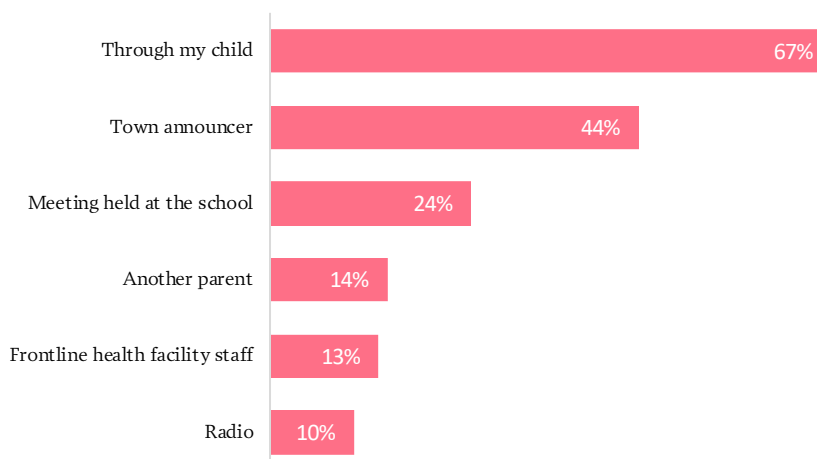
**Figure 20. Information sources about treatment of worms ( $n=216$ )**



### 4.3.3 Sensitization initiatives as reported by parents

On deworming day the monitoring team interviewed 38 parents of treated children to assess their knowledge of deworming and where they accessed their information on deworming day. Sixty-seven percent (67%) of parents interviewed said their main source of information was their child, followed by town announcers. Differing from community interviews, church announcements were not mentioned (see **figure 21**).

**Figure 21. Sources of information mentioned by parents on deworming treatment ( $n=38$ )**



### 4.3.4 Parent knowledge on worms

The monitoring team assessed parents' knowledge on worm transmission. **Figure 22** indicates that parents have a high awareness of ways that worms can be transmitted.

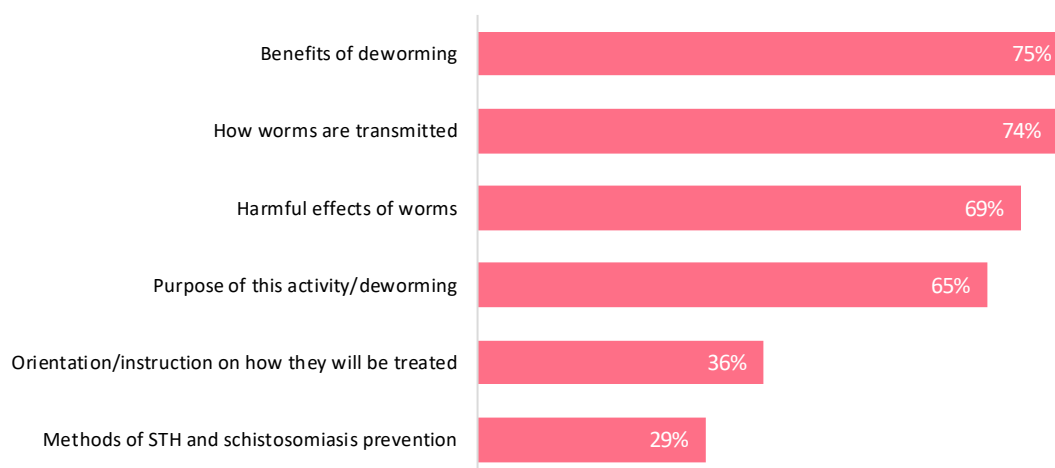
**Figure 22. Ways of getting infected by worms mentioned by parents ( $n=38$ )**



#### 4.3.5 Student sensitization

The monitoring teams observed that on deworming day 64% of teachers provided some form of health education to children prior to deworming. In these health messages teachers focused on explaining the benefits of deworming, the harmful effects of worms and how worms are transmitted. Fewer teachers conveyed messages on how children would be treated and the methods children can use to prevent STH and schistosomiasis infections (see figure 23).

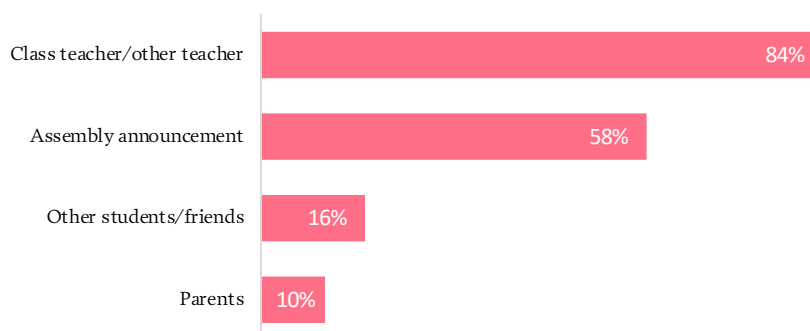
**Figure 23. Health messages conveyed to children on deworming day ( $n=68$ )**



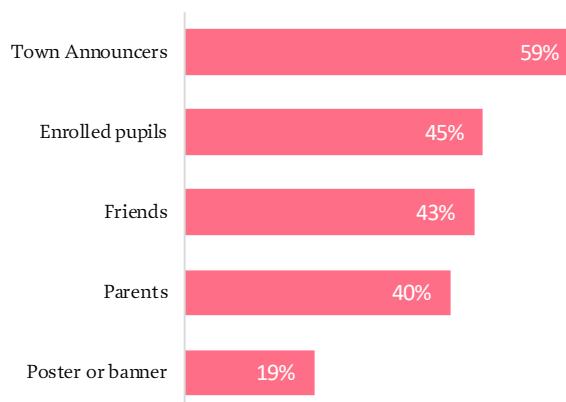
When the monitoring team interviewed 134 enrolled children and 22 non-enrolled children, 67% of enrolled students and 63% of non-enrolled children knew the purpose of the deworming tablets. Eighty percent (80%) of enrolled children knew before the day of treatment that they would be given a tablet, as did 63% of non-enrolled children.

For enrolled students, the class teacher or an assembly announcement were the main source of information on deworming treatment (**figure 24**). Eighty-five percent (85%) of enrolled children said they told their parents about deworming. Most non-enrolled children found out about deworming through town announcers, enrolled pupils, friends and parents. Only 19% got their information from program posters (**figure 25**).

**Figure 24. How enrolled children learnt about the deworming exercise (n=134)**



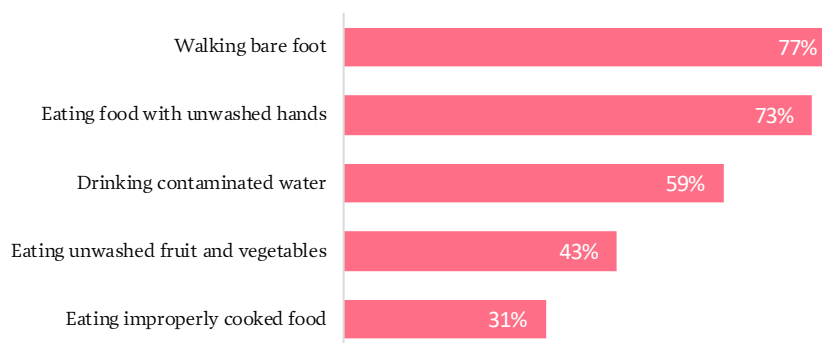
**Figure 25. How non-enrolled children learnt about the deworming exercise (n=22)**



#### 4.3.6 Children's knowledge of worms

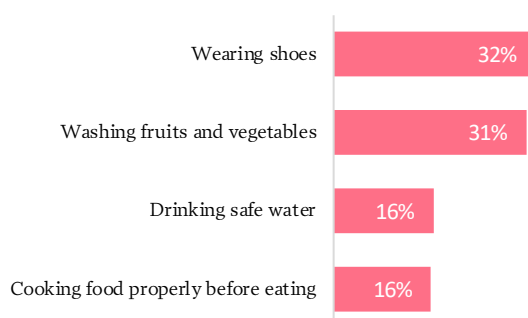
Forty-five enrolled children (33%) said they knew how worms were transmitted. Most of these said that transmission occurred by walking barefoot or eating food with unwashed hands (**figure 26**).

**Figure 26. Enrolled children’s knowledge of worm transmission ( $n=45^3$ )**



Fifty-four enrolled children (40%) said they knew how to prevent worms, with the majority saying that wearing shoes and washing fruits and vegetables as the main ways to prevent transmission (**figure 27**).

**Figure 27. Enrolled children’s knowledge worm prevention ( $n=54$ )**



### 4.3.7 Sources of community health information

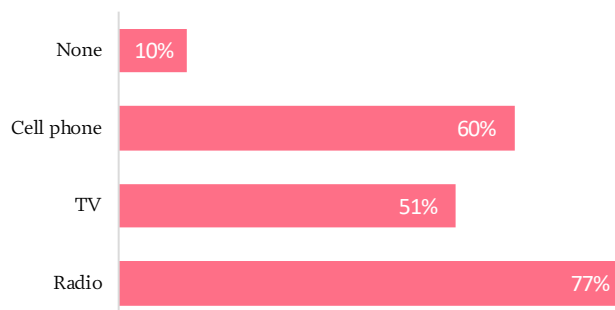
Prior to deworming day the monitors interviewed 192 community members to better understand information sources on health campaigns in the community, so that the program can more effectively design and target community sensitization approaches.

Monitoring teams asked community members what electronics they owned at home to determine ways to spread information about future school-based deworming in the state. **Figure 28** shows that the majority of households own a radio and a cell phone. Community members were also asked how they typically heard about health campaigns in their area. **Figure 29** shows that cell phones and town announcers were the most

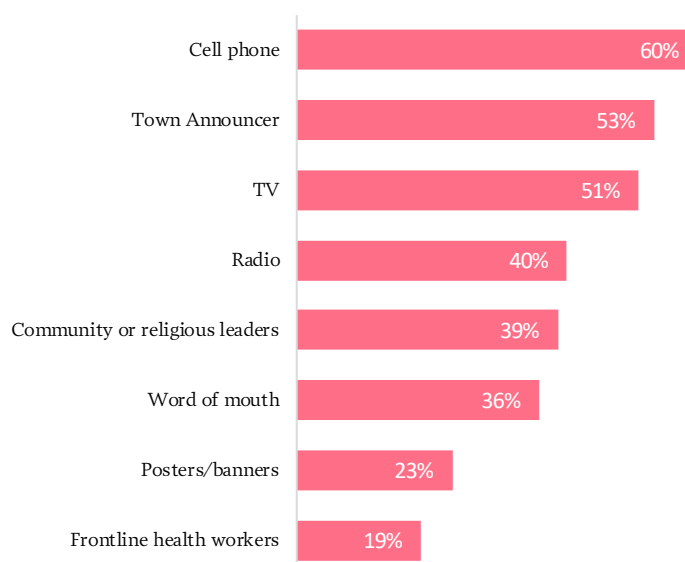
<sup>3</sup> A subset of children who indicated having some knowledge about transmission

common information sources on health campaigns, and television was a more frequent source of information than the radio.

**Figure 28. Community ownership of electronics ( $n=216$ )**

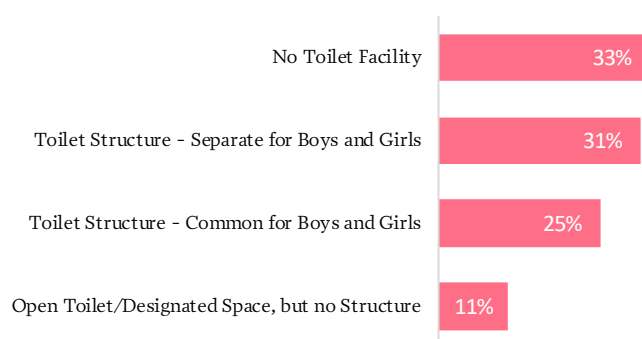


**Figure 29. Community information sources about health campaigns ( $n=216$ )**



## 4.4 School hygiene facilities assessment

Lack of adequate sanitation in schools has an impact on the effectiveness of preventing worm transmission and other diseases among children. Hygiene facilities in schools were observed to be moderate to poor, and 49% of schools had no hand washing facilities. Of schools with hand washing facilities, 45% had soap or ash available. Toilets were more common but 33% of schools had no toilet at all (**figure 30**).

**Figure 30. Toilet facilities in observed schools ( $n=68$ )**

## 4.5 Data audit results

Schools that deworm are required to use a class treatment register to record the names of children treated and what they are treated for. This data is summarized by the head teacher using the school summary form. One copy of the school summary form is returned to the school's respective Zone, a second copy is sent to the LGA office and a final copy to the State. The State enters the data from the school summary forms into an electronic database and prepares a summary report for the National program.

The accuracy of data reported by schools in Cross River state was verified through a data audit on the sample of schools visited by the monitoring team. Monitors compared data in the class treatment registers with data in the school summary forms. They then compared the data in the school summary forms with treatment data provided by the state from the same schools. When monitors compared the total number of children recorded in the treatment registers and those recorded in school summary forms they found that the majority of schools correctly entered the number of treated children into the school summary forms (plus or minus 10 percentage points of error), with STH figures generally having more errors than those for schistosomiasis (**table 5**).

**Table 5. Error rate (+/- 10%) of data entered into school summary forms on total number of children treated for STH and schistosomiasis**

	Denominator	Error rate	
		Male children	Female children
STH	33	33%	42%
Schistosomiasis	44	27%	25%

However, due to data entry errors on the school summary forms, the monitoring team were unable to compare the treatment register data with that in the summary form for the number of enrolled children treated. However, they found that only 20% of schools

treating for STH and 25% of schools treating for schistosomiasis had data entry errors for non-enrolled children on the same school summary forms.

Treatment data in the school summary forms was compared to the data available at the State. The data audit showed that the figures provided by the government for the schools sampled did not match for non-enrolled children treated for STH but matched in 96% of the sample for non-enrolled children treated for schistosomiasis. Data was not compared for enrolled children due to general data entry errors.

These data quality issues could be attributed to inadequate training on data management tools prior to the treatment wave. There could also have been data errors during summation and data entry into the electronic database at the State level.

## 5.0 Lessons Learnt

After evaluating the results of deworming day in Cross River state, there are some lessons that can be learnt from the program process monitoring review.

### What worked well

1. Monitoring data suggests that teachers were well trained and this translated into knowledge and ability to effectively administer deworming medicines as observed by the data collectors. The training cascade is an effective means of transmitting drug administration procedures from LGA to school level.
2. Most teachers had access to the materials they needed to effectively complete teacher training and most topics were adequately covered across all trainings.
3. The majority of schools had all the materials they needed to effectively complete the deworming exercise. The data indicates that deworming teams followed correct procedures for drug administration, were knowledgeable about the treatment procedure, and were equipped to handle side effects.

### What needs to improve

1. There is a need to increase strategic sensitization about including non-enrolled children in deworming. Whilst it is not possible to draw concrete conclusions on reasons for lower attendance of non-enrolled children on deworming day, program teams can work towards identifying ways to raise awareness of deworming day within the wider community, particularly non-enrolled children and their families.

2. Sensitization efforts should continue to focus on means closer to the community such as church announcements and town announcers. These are not only the most cost-effective but also yielded the greatest results compared to mass media (radio, speaker mounted vans). Interviews with community members, parents, and non-enrolled children show that printed materials (posters and banners) were not particularly effective. Most interviewees accessed information from children or churches. Enrolled children got their information from their teachers or assembly announcements.
3. The data audit found issues in data management at both the school and state levels. More in-depth training is required for data management tools - especially school summary forms - focusing on how to fill the tool using the class treatment registers with practice sessions during teacher training. This should be followed up by supervision from the LGA coordinators who should keenly validate data before submission to the state level.
4. Adverse event management protocols should be made available in all teacher trainings.
5. Health education and sensitization on worm infection transmission and preventive measures needs to be reinforced and emphasized. Continuous health education in schools on preventive measure against worm infections would help to achieve this.