Evidence Action

Deworm the World Initiative

Deworm the World Initiative, Kenya

National School-Based Deworming Program

Process Monitoring and Coverage Validation Report

July 2018

Contents

Glossary

CHEW. Community health extension worker

CHV. Community health volunteer

ECD. Early childhood development

MDA. Mass drug administration

MOE. Ministry of Education

MOH. Ministry of Health

NSBD. National School-Based Deworming

SAE. Severe adverse events

STH. Soil-transmitted helminths

1.0 Executive Summary

Evidence Action's Deworm the World Initiative supports governments with technical assistance for school-based deworming, including Kenya's National School-Based Deworming (NSBD) program. Evidence Action has supported the government of Kenya since 2012 in the implementation of large-scale mass drug administration (MDA) for soil-transmitted helminths (STH) and schistosomiasis. The program targets ages 2-14 years for STH and 6-15 years for schistosomiasis.

Evidence Action annually monitors the program to ensure effective implementation and to identify areas for improvement. Evidence Action observes and reviews the quality of sub-county trainings, teacher trainings, community health extension worker (CHEW) activities, school preparedness, MDA procedures, and community sensitization efforts. The following report presents findings from the sixth year of implementation (2017-2018).

The monitors attended 55 sub-county trainings and found that in 81% of trainings, training booklets were given to all participants. Of the sub-counties treating for both schistosomiasis and STH, only 17% availed the tablet pole for demonstration; this is problematic as the pole is required to properly dose the schistosomiasis drug on deworming day. Among the 93 observed teacher trainings, required training materials such as monitoring forms, posters, and drugs were available in the majority (94%) of sessions.

Pre- and post-training tests were administered at sub-county and teacher trainings. Sub-county participants' scores increased from 80% to 100% for STH and from 50% to 98% for schistosomiasis. Teachers' scores increased from 66% to 95% for STH and from 45% to 90% for schistosomiasis. This attests to the effectiveness of both trainings in delivering essential knowledge to the participants. Of the 198 CHEWs interviewed, most (78%) cited community sensitization as their primary responsibility, with displaying of posters as the main activity (81%).

Ninety-four percent (94%) of monitored schools had the appropriate drugs in place (albendazole for STH and praziquantel for schistosomiasis) prior to Deworming Day.

Awareness on Deworming Day was higher among parents of enrolled children (71%) than parents of non-enrolled children (49%). The key source of information for all parents was their child (56%) or a teacher (37%), indicating that word of mouth remains the most effective means of community sensitization.

Coverage validation was done within a week of MDA treatment, using WHO guidelines, to estimate the program reach and surveyed coverage, in comparison to the reported results. Coverage validation for STH treatment indicated a high program reach (proportion of children offered the drug), of 90%, alongside a surveyed coverage (proportion of children who swallowed the drug) of 84%[1]. A high program reach for schistosomiasis was also achieved (85%) with a corresponding surveyed coverage of 78%. With the overall surveyed coverage for both STH and schistosomiasis surpassing the recommended WHO threshold of 75%, this suggests that the deworming exercise was well-executed. However, majority of the children who didn't swallow the drugs (STH and schistosomiasis) cited non-enrollment in school (53% for STH and 43% for schistosomiasis) as the major reason for not swallowing the respective drugs offered to them.

[1] The "program reach" refers to the proportion of children interviewed who were given the opportunity to receive the drug, regardless of whether the drug was ingested. The "reported coverage" is the proportion of children within the program area whom head teachers reported as having received the drug.

2.0 Methodology

To assess the quality of sub-county and teacher training sessions as well as the implementation of deworming in schools, random samples of 55, 93, and 320 sub-county training, teacher training, and participating schools respectively were selected. Samples were selected to achieve a 90% confidence level and a 10% margin of error. Process monitoring activities were carried out across all three waves of deworming conducted in 2018[2].

Monitors observed a two-day training for sub-county officials that prepared them for teacher training. Evidence Action used stratified sampling to randomly select 55 of the 130 sub-county trainings for observation. Through observation guides and questionnaires, monitors assessed the quality of trainings and tested participants' pre and post-training knowledge on key content. Teachers from all 1,007 targeted schools were invited to a one-day training to prepare them for deworming. Monitors observed 93 randomly selected teacher trainings, assessed the quality, and tested participants' pre and post-training knowledge.

Prior to Deworming Day, monitors also interviewed CHEWs, CHVs, and personnel at sampled early childhood development (ECD) centers and schools to assess their preparedness for deworming. Parents residing in areas around the selected schools were interviewed one day prior to deworming to gauge their level of awareness of the program. Monitors interviewed 904 parents: 587 parents of enrolled children and 317 parents of non-enrolled children.

On Deworming Day, monitors observed deworming in 320 schools and interviewed ECD teachers, school teachers, and CHEWs. Monitors targeted a different sample from those visited prior to Deworming Day to avoid bias.

The monitors also carried out coverage validation within a week of the MDA to minimize recall bias. Coverage validation aimed to estimate the program reach and surveyed coverage. This was done using WHO guidelines for coverage evaluation surveys in schools and communities post-deworming. For this exercise, six randomly selected counties, 3,937 households, and 312 schools were sampled.

Table 1. Process monitoring and coverage validation

[2] Note that methodology for coverage validation is explained later in the document.

Monitoring activity	Total population	Target sample size	Actual sample size
Total number of Sub-country training sessions	130	58	55
Total number of teacher training sessions	1,007	103	93
Total number of schools treated	16,726	346	320
Pre Deworming Day interviews			
Parents interviewed	-	960	904
ECD teachers interviewed	-	160	203
CHEWs interviewed	-	160	163
Deworming Day interviews			
Head teachers interviewed		346	320
Teachers interviewed	-	346	320
Parents interviewed	-	237	237
Enrolled children interviewed	-	692	624
Coverage Validation			
Number of households[3]	-	5,100	3,937
Number of schools	-	360	312

[3] The discrepancy between targeted and sampled households was mostly due to an error in survey programming in the second treatment wave: many interviews were prematurely terminated due to incorrect skip patterns which left out the non-enrolled population. Monitors also found that community members in some counties had migrated, making it difficult to realize the expected sample. For example, migrations in Tana River meant that only 37% of the intended sample was reached in that county.

3.0 Results

3.1 Review of sub-county training

The monitoring team observed 55 sub-county trainings; of these, 39 covered STH treatment and 16 covered both STH and schistosomiasis. Monitors assessed attendance, time taken to complete training, whether necessary materials were distributed, and if all topics were covered. They interviewed 277 sub-county officials prior to training and 220 officials after training to test pre and post-training knowledge on the core aspects of STH and schistosomiasis treatment.

3.1.1 Distribution of materials

Monitors observed that in 81% of trainings, trainers distributed sub-county training booklets to all participants. Among the 16 trainings covering both STH and schistosomiasis, only 17% of trainers had the tablet pole available for demonstration.

3.1.2 Training attendance

On average, the two-day training took six hours each day to complete. **Table 2** shows that across all the 55 monitored trainings, only 904 participants of the 1,257 who attended the training on day one arrived on time. On day two, only 697 out of the 919 participants were present on time for the training. In order for participants to receive all the information on topics covered in the training, their attendance is required from the start of training.

Table 2. Attendance on day one and day two of sub-county trainings (*n* = 55)

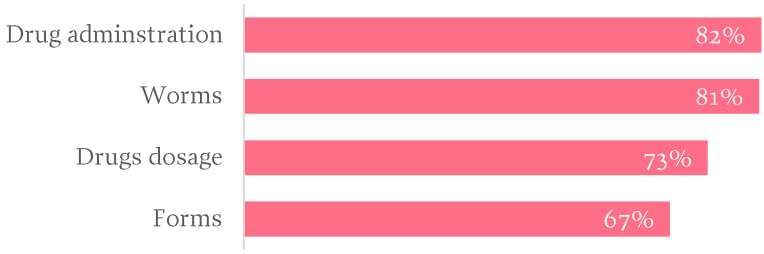
Time of attendance monitoring	Day 1	Day 2[4]
Before training started	904	697
1 hour after training started	934	694
4 hours after training started	963	707
1-4 hours after training started	969	676
Before lunch	1,257	919
After lunch	1,239	884

3.1.3 Topics covered during training

Figure 1, below, shows that the majority of topics completely[5] covered related to drugs, worms, and drug dosage. There is room to improve on the topic of forms.

[4] There were fewer participants on day two because CHEWs were only required to attend on day one.
[5] The term 'completely' means that the trainer covered the prescribed content of the topic according to the training manual and presentations.

Figure 1. Topics completely covered in sub-county training (*n*= 55)



3.1.4 Pre and post-training knowledge

Prior to the training, 214 participants were randomly selected and assessed on their ability to identify the correct STH drug, dosage, and appropriate age groups for treatment. After training, 171 participants were randomly selected to test knowledge on the same topics. Monitors also interviewed 63 participants before the training on their ability to identify the correct schistosomiasis drug, dosage, and age groups for treatment. After training, 49 participants[6] were randomly selected to test knowledge on the same topics. There was a clear increase in knowledge post-training for all topics related to STH and schistosomiasis treatment (**figures 2 and 3**). Overall, post-training knowledge for STH increased by 20%, while schistosomiasis post-training knowledge increased by 48%. These results support the continuation of annual training of CHEWs, sub-county, and division level offcials.

Figure 2. Sub-county training participant pre and post-training knowledge on STH

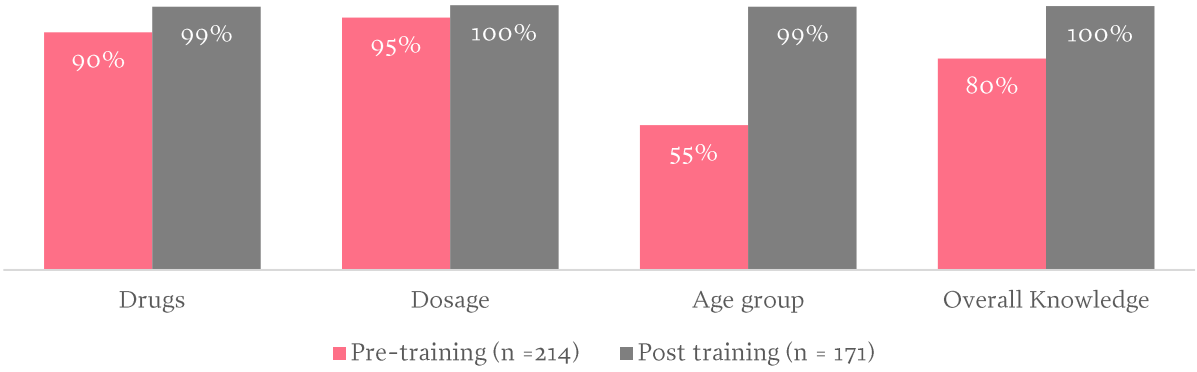
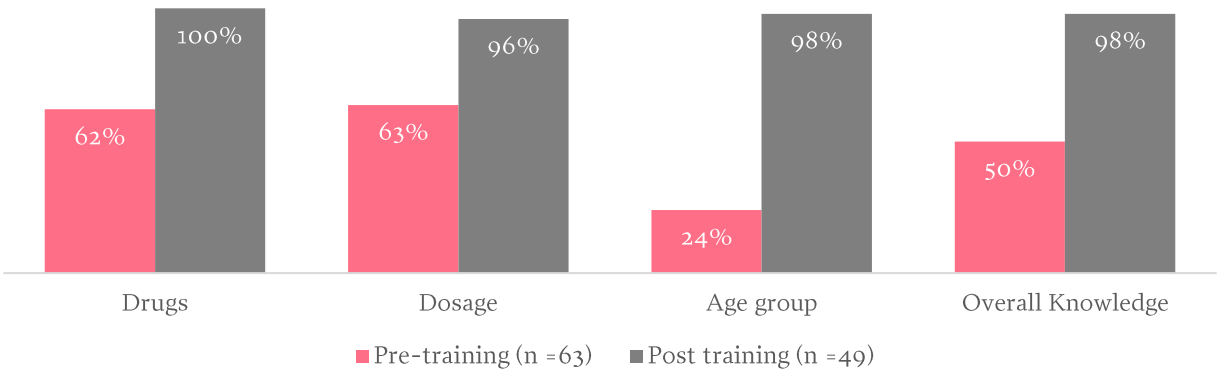


Figure 3. Sub-county training participant pre and post-training knowledge on schistosomiasis

[6] The monitors reported that in some trainings participants left immediately after the training ended thus failing to capture the intended sample through the post-test. This explains the smaller number for pre-test against that of the post-test.



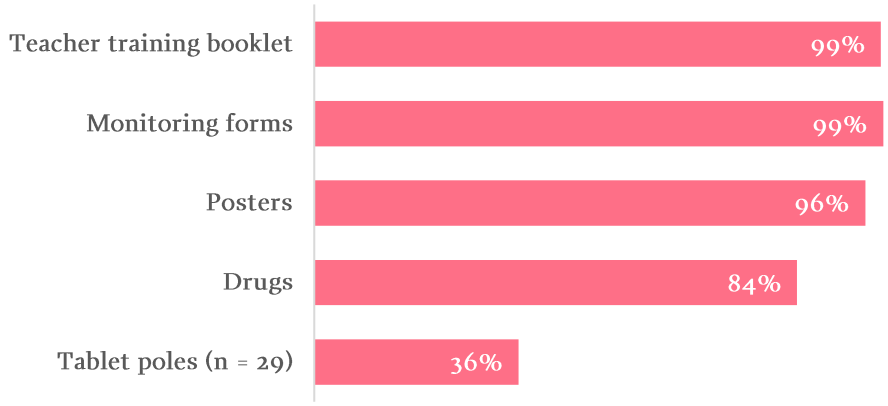
3.2 Review of Teacher training

Monitors observed 93 teacher trainings, of which 64 covered STH and 29 covered both STH and schistosomiasis. Similar to the monitoring for sub-county training, the team assessed attendance, time taken to complete the training, whether training materials were distributed, and if all topics were covered as expected.

3.2.1 Distribution of materials

In 94% of monitored trainings, all teachers present received the required materials, including forms, posters, training booklets, and tablet poles. **Figure 4** shows a high distribution rate for monitoring forms, posters, training booklets, and drugs.

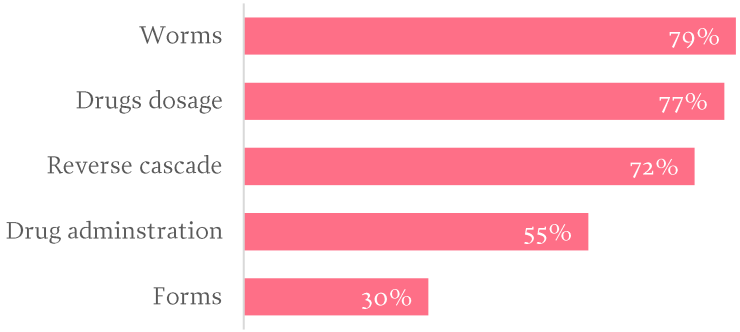
Figure 4. Materials distributed during teacher training (*n*=93)



3.2.2 Topics covered during training

The trainers covered all steps in the prescribed checklist in 86% of trainings. Topic coverage varied considerably per subject. Content regarding worms was completely covered in 79% of trainings, while forms were only completely covered in 30% of trainings (**figure 5**). The topic on monitoring forms was also least fully covered during sub-county trainings, which could explain lower coverage during teacher training.

Figure 5. Topics completely covered during teacher training (*n*=93)



3.2.3 Training attendance

On average, teacher trainings took five hours to complete. Monitors recorded attendance at particular intervals in each of the 93 trainings, with an average of 21 participants recorded at the start of training, and 31 participants at the end of the training (**table 3**). The average number of participants per training recorded at different intervals indicates that not all participants arrived on time. For participants to receive all necessary information, their attendance is required from the start of training.

Table 3. Participant attendance at teacher training (*n*=93)

Participant attendance training	Number
Participants present before training started	21
Participants 1 hour after training started	26
Participants 4 hours after training started	31

3.2.4 Pre and post- training knowledge

Monitors asked whether participants attended a training previously, and found that 66% of interviewed participants had attended a previous training. Prior to training, 381 participants were randomly selected and tested on their ability to identify the correct STH drug, dosage, and age groups for treatment. After training, 382 participants were randomly selected to test their knowledge on the same topics. Monitors also interviewed 113 participants before the training on their ability to identify the correct schistosomiasis drug, dosage, and age groups for treatment. After training, 104 participants were randomly selected to test knowledge on the same.

There was a clear increase in knowledge post-training for all topics (see **figures 6 and 7**). These results support the continuation of year-on-year training of teachers to properly prepare them for STH and schistosomiasis treatments.

Figure 6. Teachers' pre and post-training knowledge on STH treatment

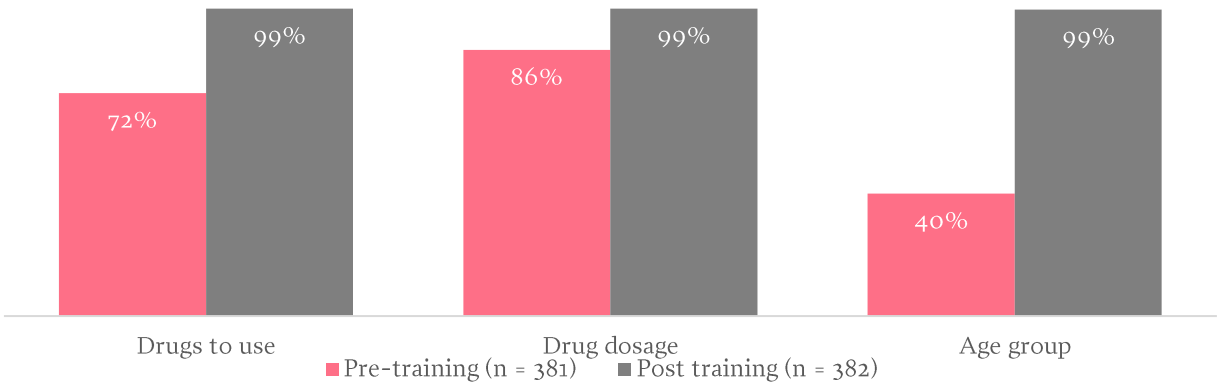
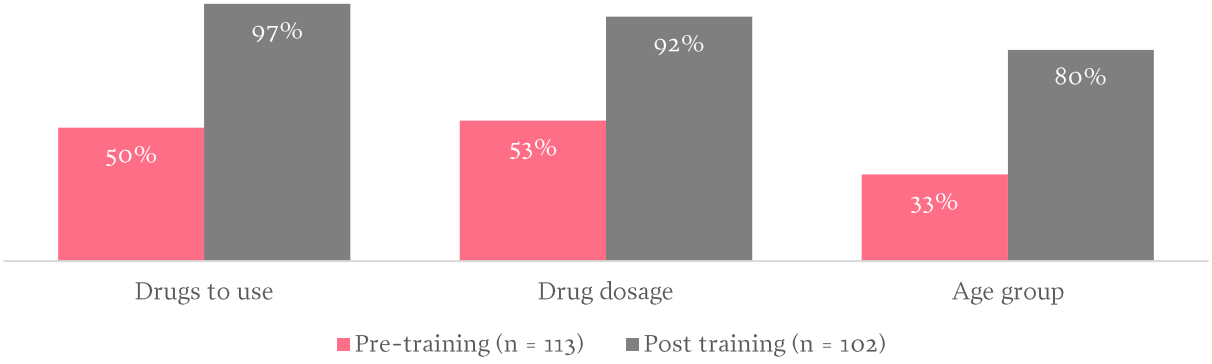


Figure 7. Teachers' pre and post-training knowledge on Schistosomiasis treatment



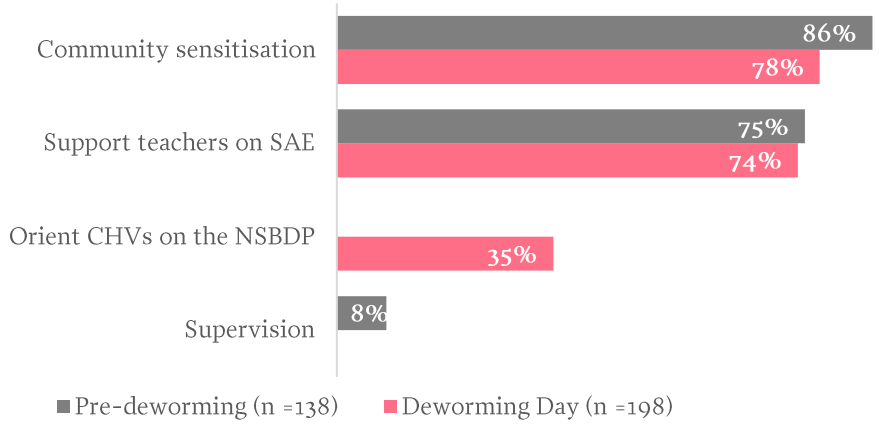
3.3 CHEW interviews

Monitors interviewed 163 CHEWs one day prior to deworming, and 198 CHEWs on Deworming Day to gauge their preparedness. They asked CHEWs to list their responsibilities on Deworming Day and demonstrate awareness of handling severe adverse events (SAEs). Eighty-nine percent (89%) of those interviewed had attended a training session on deworming in the past 15 days.

3.3.1 CHEW roles and responsibilities

Seventy-eight percent (78%) of CHEWs defined their main responsibility as community sensitization, followed by supporting teachers on SAEs (74%). **Figure 8** shows how CHEWs defined their roles and responsibilities, and suggests room for improvement in their understanding of the expectations to orient CHVs on the program and to provide supervision.

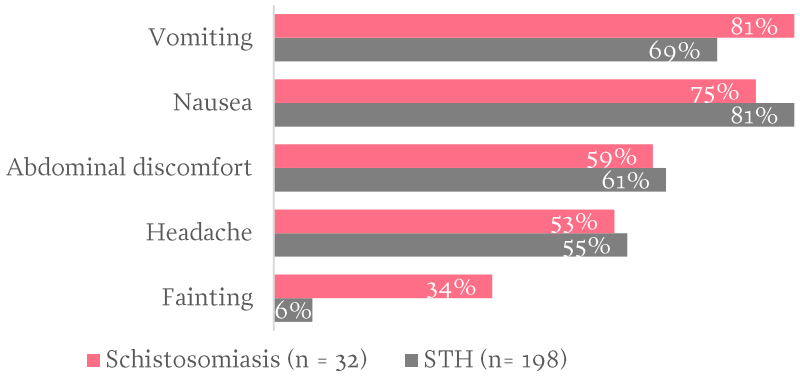
Figure 8. CHEWs' definition of their responsibilities in NSBD



3.3.2 CHEW knowledge of side effects

CHEWs demonstrated a high level of knowledge on the side effects of STH and schistosomiasis treatment (**figure 9**). Ninety-five percent (95%) correctly said that children should be fed prior to treatment with praziquantel to avoid side effects.

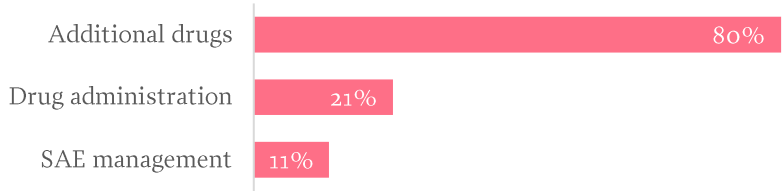
Figure 9. CHEW knowledge on side effects of STH and schistosomiasis treatment



3.3.3 Support requested from CHEWs by teachers

Fifty-eight percent (58%) of CHEWs interviewed on Deworming Day said teachers contacted them to request support. CHEWs said the majority of teachers asked for support in obtaining additional drugs or on drug administration (**figure 10**).

Figure 10. Types of support needed by teachers from CHEWs (*n = 114*)



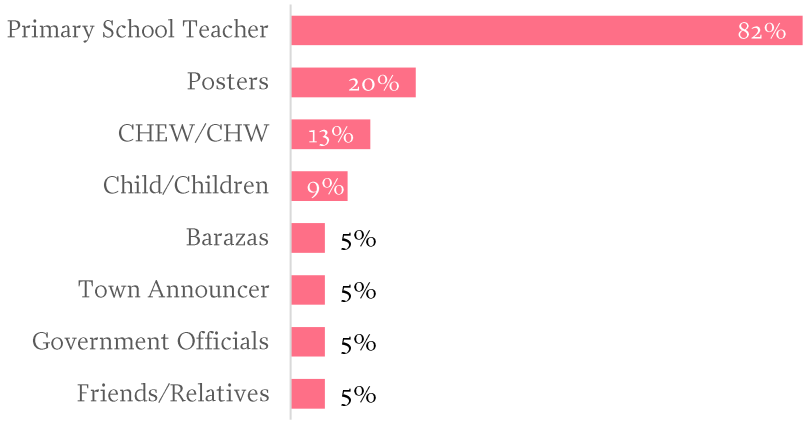
3.4 ECD Awareness

The monitoring team interviewed 203 ECD teachers one day prior to deworming, and 229 on Deworming Day to gauge their preparedness. Eighty-seven percent (87%) of ECD teachers knew the correct date of deworming, and 77% could identify the primary school as the venue for treatment.

3.4.1 ECD teachers' sources of information

Eighty-two percent (82%) of ECD teachers said that their main source of information on Deworming Day was primary school teachers (**figure 11**). The main channel by which primary school teachers reached ECDs was a personal visit (49%) or phone call (44%).

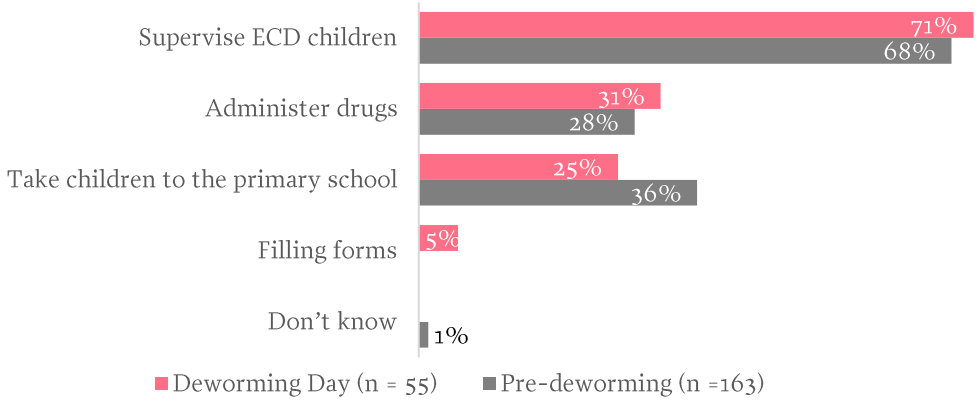
Figure 11. ECD teachers' sources of information on Deworming Day (*n*=55)



3.4.2 ECD teacher's roles and responsibilities

Sixty-eight percent (68%) of ECD teachers said their role was to supervise ECD children during Deworming Day, followed by taking children to the primary school for treatment, and administering drugs (**figure 12**).

Figure 12. ECD teachers' definition of their role on Deworming Day



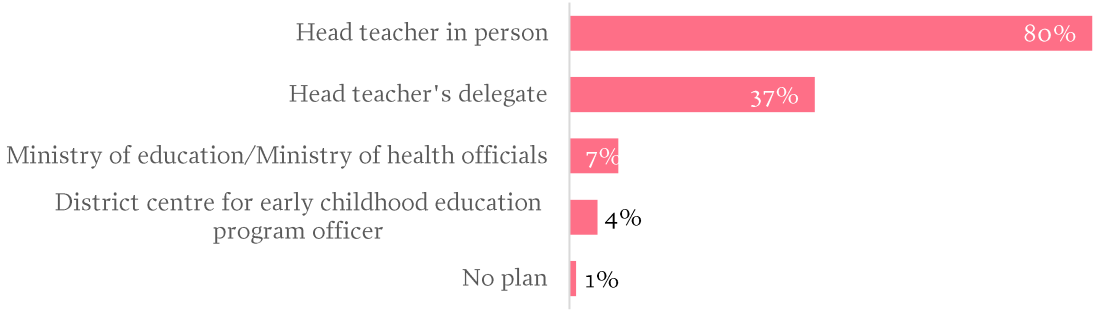
3.5 Deworming Day assessment

3.5.1 Preparedness for Deworming Day

Monitors visited 320 randomly sampled primary schools one day prior to deworming, and interviewed the head teacher at each school to assess their preparedness. Monitors visited a different sample of 320 primary schools on Deworming Day[7] to observe the treatment process and the presence of required materials (i.e. drugs and forms).

Sixty-seven percent (67%) of head teachers had already notified a nearby ECD center about the upcoming Deworming Day. In-person communication by the head teachers was reported in 80% of schools as the most used means of notifying ECD centers about Deworming Day (**figure 13**).

Figure 13. Methods used by head teachers to notify the ECD center (*n=214*)



3.5.2 Knowledge on the deworming treatment

Monitors interviewed head teachers on their knowledge of the deworming treatment. Ninety-seven percent (97%) reported that they or a representative from the school attended a training on deworming in the past 15 days. Thirty-three percent (33%) said that the two teachers who attended training would administer the tablets.

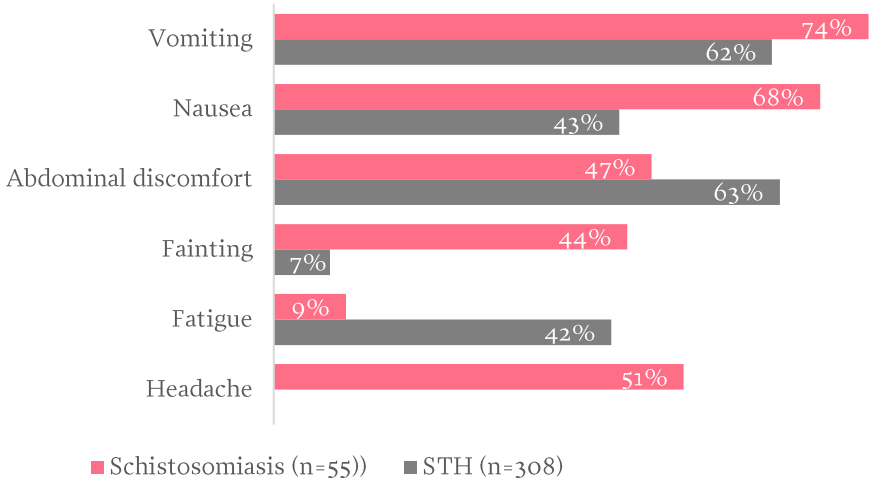
Eighty-two percent (82%) of teachers knew that the correct age group for STH treatment to be between 2-14 years. Across the monitored STH treatment schools, 97% of teachers interviewed prior to Deworming Day knew that the correct drug for STH treatment was albendazole, and 99% knew the correct dosage. Ninety-six percent (96%) of head teachers in schools treating for STH correctly identified the type of worms to be treated.

[7] A different sample of primary schools was visited before and during Deworming Day to avoid bias.

Across the monitored schools treating for schistosomiasis, 95% of teachers knew the drug for schistosomiasis treatment was praziquantel, and 89% knew the dosage was administered according to the tablet pole. Seventy-three percent (73%) of teachers knew that the correct age group for schistosomiasis treatment was between 6-14 years. Ninety-two percent (92%) of head teachers correctly knew how to minimize side effects of treatment with praziquantel. Of those aware of the need to feed children before schistosomiasis treatment, 23% planned to have children eat at home, 55% provided food at school, and 11% did not have a plan.

Head teachers could also list a range of side effects considered normal for STH and schistosomiasis (**figure 14**). Generally, high teacher training attendance and high levels of knowledge among program implementers are very strong aspects of the NSBD program, with consistently positive findings across the years.

Figure 14. Head teachers' definition of normal side effects for STH and schistosomiasis treatment



3.5.3 Treatment observation

Monitors observed whether schools adhered to key procedures in drug administration. **Table 4** shows that across schools, teachers largely followed the correct procedures, and that in 96% of observed schools, Deworming Day happened systematically. Ninety-seven percent (97%) of monitored schools had sufficient copies of Form 517A to record treatments, and 87% of teachers had pre-entered information as directed on the form.

Table 4. Deworming Day procedure

Deworming Day Procedure	Percentage

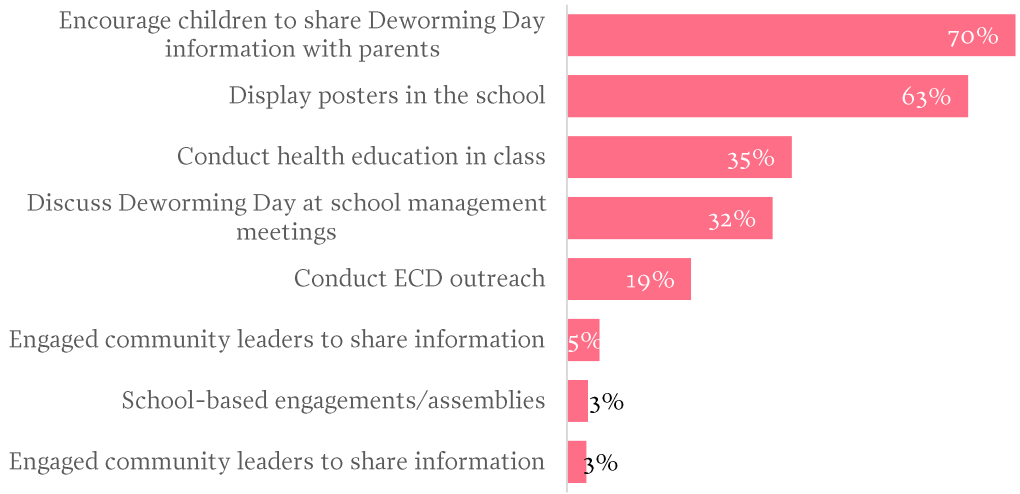
Teachers had sufficient copies of Form 517A	97%
Schools had appropriate drugs in place prior to Deworming Day	94%
Teachers observed to be using tablet poles correctly (*n=47*)	92%
Schools in which teachers gave the correct dose of drugs to children	91%
Teachers observed all children swallowing the tablets	91%
Schools having enough praziquantel tablets for non-enrolled children (*n=47*)	61%

3.6 Community sensitization

3.6.1 Sensitization methods used by schools

One day prior to deworming, monitors visited 320 primary schools to assess their preparedness for MDA. When asked how they sensitized the community about deworming, teachers responded that they encouraged children to share information with their parents (70%), and displayed posters in schools (63%) **(figure 15)**.

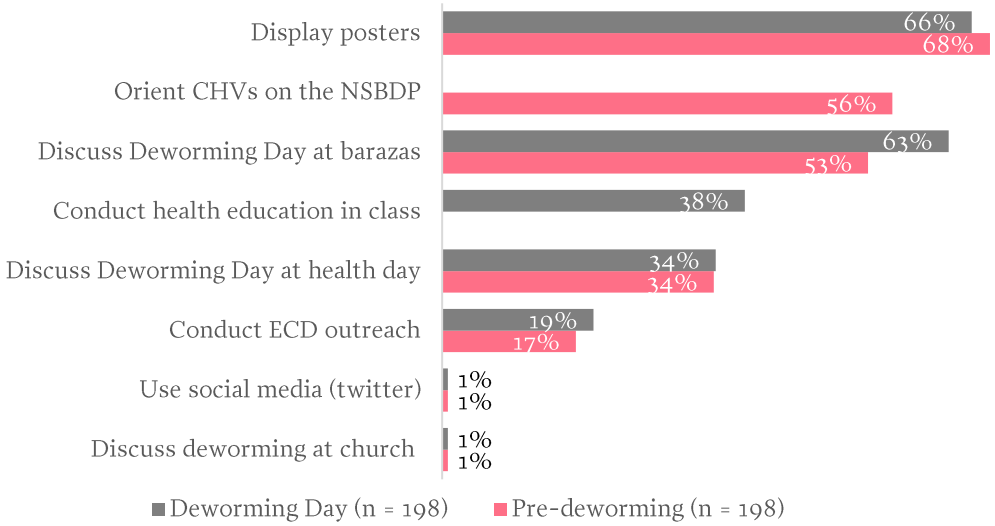
Figure 15. Methods used by schools for community sensitization (*n=308*)



3.6.2 Sensitization methods used by CHEWs

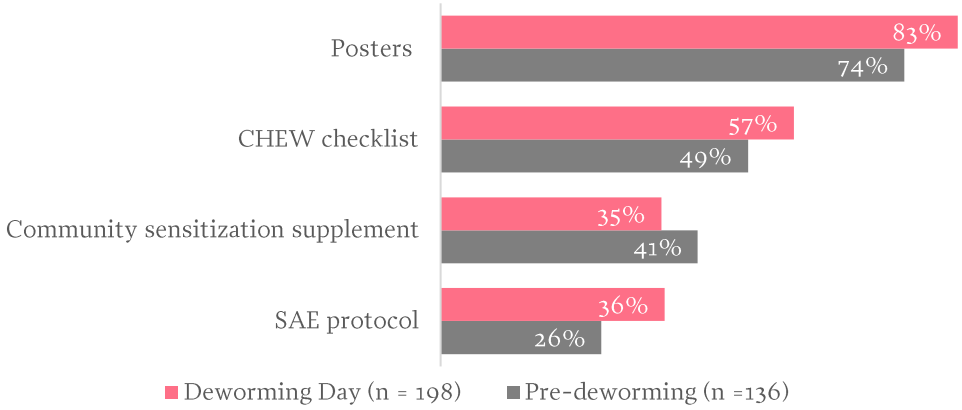
One day prior to deworming, monitors interviewed 163 CHEWs regarding the methods they used to sensitize the community; this is a key role for CHEWs. The most commonly reported method was displaying posters, mentioned by 66% of CHEWs on the day before deworming, and by 68% on Deworming Day (**figure 16**).

Figure 16. Community sensitization methods used by CHEWs reported prior to deworming and during deworming



The NSBD program provides certain materials to CHEWs to use when conducting community sensitization; of these, CHEWs mainly used the posters (**figure 17**).

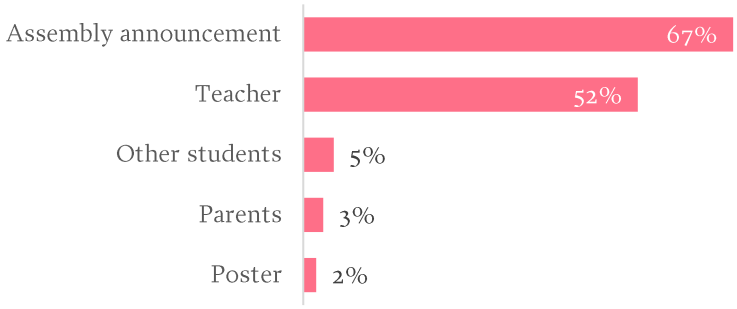
Figure 17. Program materials used by CHEWs for community sensitization



3.6.3 Sensitization as reported by children

Monitors interviewed 624 enrolled children on Deworming Day. Eighty-nine percent (89%) of enrolled children were aware of deworming happening in their school, and 84% reported that they told their parents about it. **Figure 18** shows that enrolled children mainly received information on Deworming Day during the assembly announcement in schools or through a teacher. This shows that the schools and teachers are an important factor in informing children about deworming.

Figure 18. Sources of Deworming Day information for enrolled children (*n=561*)



3.6.4 Parental awareness of Deworming Day

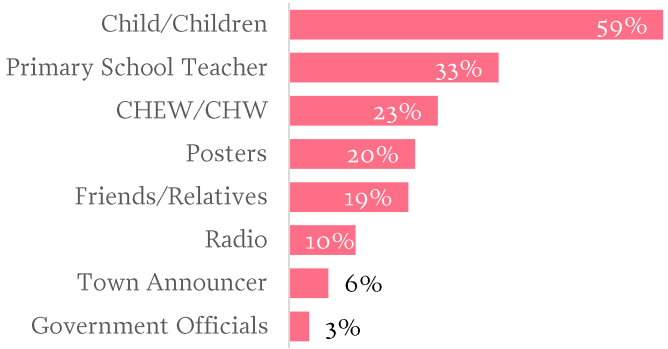
Prior to deworming, monitors interviewed 904 parents, including 587 parents of enrolled children, and 317 parents of non-enrolled children on their awareness and knowledge regarding deworming. Broadly, parents of enrolled children were more aware of deworming day: 71% of parents of enrolled children knew that children would be dewormed in the next week, compared to 49% of parents of non-enrolled children.

Of the 729 parents who knew about Deworming Day, 52% first heard about the program the previous year, 24% two years ago, 5% three years ago, and 20% this year. Only 1% had never heard about it before. Ninety-six percent (96%) of parents of enrolled children planned to send their children for treatment, compared to 91% of parents of non-enrolled children.

3.6.5 Parents' sources of deworming information

One day before deworming, monitors asked parents of enrolled and non-enrolled children about their primary source of information regarding Deworming Day. Most parents received information through their child (59%) or a teacher (33%) (**Figure 18**).

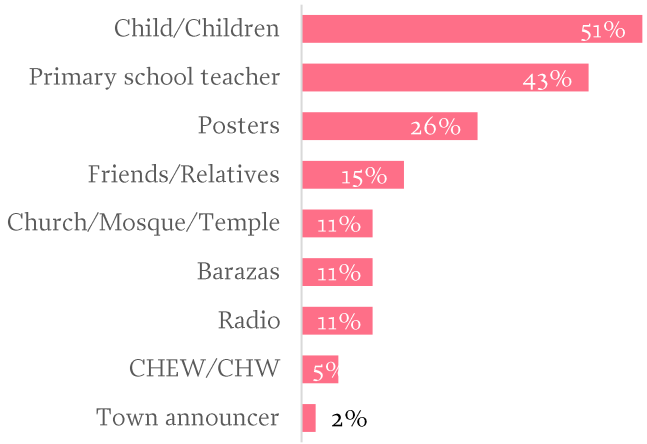
Figure 18. Primary source of information about Deworming Day as mentioned by parents of enrolled children



During Deworming Day, monitors only interviewed parents of non-enrolled children regarding their primary source of information on deworming. As with parents of

enrolled children, the child was the main source of information (51%), followed by a primary school teacher (43%). Town announcers (2%) and CHEWs (5%) were the least commonly reported sources of information (**Figure 19**).

Figure 19. Primary source of information about Deworming Day mentioned by parents of non-enrolled children



4.0 Coverage validation

4.1 Introduction

Coverage validation for STH was carried out in six counties of Bomet, Kirinyaga, Siaya, Vihiga, Trans Nzoia, and Tana River. Coverage validation was also done for schistosomiasis in Kirinyaga, Siaya, and Tana River. The counties included for both STH and schistosomiasis were all randomly selected. The two principal goals of coverage validation were:

- To determine if the surveyed coverage (proportion of interviewed children who ingested the drug) exceeded the WHO-defined threshold of 75%, and
- To validate the reported coverage as reported by head teachers.

4.2 Methodology

Coverage validation across the three waves in year six was carried out as follows. During wave one, coverage validation was conducted in the community. There was however, a challenge, as parents or guardians were often responding when their children were not present in the household at the time of the interview. As parents were not always present for deworming in schools, many of them responded that they did not know whether children took the medicine, and because they were not present to observe the treatment, the accuracy of their responses cannot be guaranteed. To remedy this challenge, in wave two, monitors used a two-pronged approach with school surveys targeting enrolled children and household surveys targeting the non-enrolled.* However, due to an error in digitizing the household surveys, monitors were unable to record data for non-enrolled children and therefore the survey sample only comprised of enrolled children. In wave three, the errors were resolved; non-enrolled children were included in the coverage validation sample via household visit, in addition to including enrolled children via school visits.

The number of children to be sampled was determined per the WHO guidelines, using a probability proportionate to estimated size (PPES) sampling approach. The sampling units in this approach are the subunits, which are sub locations divided into sections with a maximum of 400 households. Subunits are further divided into smaller divisions of at most 50 households known as 'segments'. A sample of 30 subunits was selected and in each, a segment randomly selected. In the selected segments, household surveys for wave one and both household and school surveys for waves two and three were conducted to achieve the sample. The proportion of household to school surveys was determined using county enrollment rates. For instance, for a county with an enrollment rate of 90%, 90% of the sample was distributed among the 60 schools to

**Updated August 2019:* Data was also collected from 30 schools to compare with the community data for the enrolled population, however school data was not included in analysis or reporting.

be interviewed, and in each school the sample was then further distributed equally per class level to select the pupils that would participate in the survey.

Households within the segments were selected using a random order generated by WHO's coverage survey builder. A household survey was then administered to all children in the target age-group present at the time of the interview. Upon completion of the household survey, field officers asked community leaders or parents for the two schools that most children in the segment attend. Once the schools were identified, a school survey was administered to pupils, selected as described above.

4.3 Results

Both household and school surveys were designed to determine if the drug was extended to the beneficiary and if it was, whether it was swallowed. If the child didn't swallow the drug or the drug wasn't availed, monitors asked why, in order to understand the underlying reasons that can help improve the program design.

The "surveyed coverage" refers to the proportion of children interviewed who indicated that they swallowed the drug. The "program reach" refers to the proportion of children interviewed who were given the opportunity to receive the drug, regardless of whether the drug was ingested. The "reported coverage" is the proportion of children within the program area whom head teachers reported as having received the drug.

Based on survey findings, the overall program reach for STH treatment was 90% with county-level figures ranging from 81% to 95% **(table 5)**. The overall STH surveyed coverage was 84%, above the 75% WHO threshold necessary for the STH activity to be deemed a success. For children who reported that they did not swallow the medicine, monitors asked for their reasons.
Of the 8,749 children interviewed for STH, 130 children were later found to be outside the targeted age group upon analysis of the results, and were thus dropped from the sample. In the future we will need to refine the survey design such that only eligible children are included in the sample. Across all waves, most of the eligible children who did not take the tablet (53%) said that they did not take the medicine because they were not enrolled in school (**figure 20**). While enrollment is not an eligibility criterion, it is important to note that non-enrolled children, and potentially other community members, may perceive it to be. The program team should take this into account when refining training and community sensitization materials for future rounds.

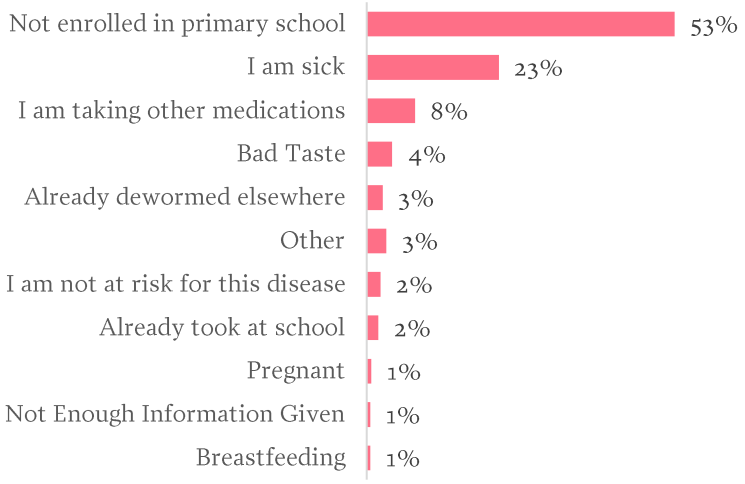
Across the board, some of the reported coverage figures are lower than the surveyed coverage, while others are higher. Given the varying methodology across the three waves, results from the counties cannot be directly compared, but the measures of

surveyed coverage, reported coverage, and program reach, can be evaluated alongside one another for each particular county. The comparison of surveyed coverage to reported coverage indicates that only Tana River and Kirinyaga had their reported coverage within the confidence interval of the surveyed coverage, validating their respective reported treatment figure. During coverage validation for wave one, parents were responding on behalf of their children which might have influenced the slight variations for Bomet. The low reported coverage for Siaya, Vihiga, and Trans Nzoia counties, as compared to the surveyed coverage, suggest a need for a data audit or a review of the denominator used in calculating the targeted children.

Table 5. STH Coverage validation survey results

Wave	County	Program Reach		Surveyed Coverage		Reported Coverage
		Mean	Confidence Interval (95%)	Mean	Confidence Interval (95%)	
1	Bomet	91%	89% - 92%	84%	82% - 86%	89%
	Kirinyaga	95%	94% - 96%	90%	89% - 92%	89%
2	Siaya	92%	91% - 93%	88%	86% - 89%	82%
	Vihiga	95%	94% - 97%	93%	92% - 95%	76%
3	Trans Nzoia	88%	86% - 90%	83%	81% - 85%	73%
	Tana River	81%	79% - 83%	68%	65% - 70%	66%

Figure 20. Reasons for low surveyed coverage for STH across all waves



The program reach for schistosomiasis was 85%, with county level figures ranging from 62% for Siaya to as high as 96% for Kirinyaga (**table 6**).

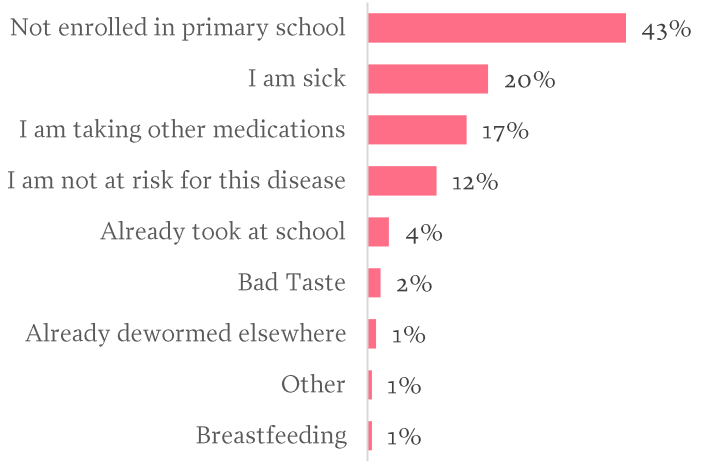
Table 6. Schistosomiasis coverage validation survey results

Wave	County	Program Reach		Surveyed Coverage		Reported Coverage
		Mean	Confidence Interval (95%)	Mean	Confidence Interval (95%)	
1	Kirinyaga	96%	95% - 97%	93%	91% - 94%	86%
2	Siaya	62%	58% - 66%	54%	50% - 58%	79%
3	Tana River	86%	82% - 89%	73%	69% - 77%	59%

The overall schistosomiasis surveyed coverage was found to be 78%, above the WHO threshold of 75% for the program to be considered a success. However, county level statistics varied, ranging from 54% to 93%. Once again, the changes in survey methodology prevent direct comparison across the three waves but it is important to note that none of the reported coverages fall within the range of the surveyed coverage confidence interval, making it difficult to completely validate these reported figures.

To inform improvements in future program implementation, reasons were sought from all those interviewed that didn't swallow the praziquantel. Similar to the results for STH, 27 of the 2,188 children interviewed for schistosomiasis coverage were later determined to be outside of the target age group and were dropped from the sample. Again, among eligible children, most indicated that they did not take the schistosomiasis medicine because they were not enrolled in school (43%) as indicated in **figure 21.**

Figure 21. Reasons for low surveyed coverage for schistosomiasis across all waves



4.4 Interpretation

The overall surveyed coverage for STH was high (84%) while that for schistosomiasis was 78%; both above the WHO threshold indicating success of both the STH and schistosomiasis MDA. Among the counties failing to meet this threshold in the surveyed coverage, the children's major reason for not taking the drug was not being enrolled in school (53% for STH and 43% for schistosomiasis). For the next round of MDA, it is recommended that communication materials and trainings emphasize that non-enrolled children are eligible to be treated through the program.

5.0 Conclusion

Program implementers were well prepared for the sub-county trainings. Trainers distributed training booklets in most (81%) of the sessions. In terms of topic coverage, drug administration and worms were fully covered in over 80% of sub-county trainings.

The required materials were available at most teacher training sessions. However, drugs were available at only 84% of teacher trainings, which can be improved upon in the future. Worms were fully covered in 79% of the observed trainings, with monitoring forms being fully covered in only 30% of trainings, the lowest of observed trainings. Trainings were effective in building teachers' knowledge about deworming as evidenced by the pre-test and post-test scores; knowledge for STH and schistosomiasis increased by 29% and 45% respectively.

CHEWs' most frequently reported responsibilities were community sensitization and supporting teachers on SAE management. Displaying posters and discussing Deworming Day at barazas were the methods CHEWs used most for community sensitization, mentioned by 68% and 53% of CHEWs respectively. Teachers reached out to CHEWs for support, mostly asking for additional drugs. The majority (97%) of CHEWs generally had knowledge on how to manage schistosomiasis side effects and the correct steps to be taken in the case of SAEs.

Primary school teachers were the leading source of information to ECD teachers about Deworming Day. The major role played by ECD teachers during Deworming Day was supervising the ECD children.

Coverage validation survey results suggest that most areas treating for STH either met or surpassed the WHO's 75% coverage threshold. However, surveyed coverage for schistosomiasis was below this threshold; the majority of surveyed children who indicated that they did not swallow the drug gave reasons of not being enrolled in school or not being old enough. Sensitization messages for the next deworming round can thus be improved to more clearly convey eligibility factors for MDA.

6.0 Lessons Learned

After evaluating the results of NSBD in 2018, there are some lessons that can be learned from the process monitoring review.

What worked well:

1. Key materials, such as the training booklet, monitoring forms, and posters were distributed in over 96% of teacher trainings. This shows that the distribution of materials through the cascade was executed as planned.
2. Knowledge levels on both STH and schistosomiasis treatment increased by 29% and 45% respectively after the teacher training. Sub-county knowledge scores for STH and schistosomiasis also increased by 20% and 48% respectively, confirming the effectiveness and value of sub-county and teacher training.
3. CHEWs showed high knowledge of possible side effects from STH and schistosomiasis treatment. They were also aware that feeding children before treatment is the best way to minimize side effects of schistosomiasis treatment.
4. Most parents of enrolled and non-enrolled children were informed about deworming by their child (56%) or a teacher (37%). Teachers should continue to encourage children to share deworming information with parents and friends.

What can improve:

1. For participants to receive the necessary information in training, their attendance is required from the start to the end of the session. Only 68% of participants for the teacher training and 72% of participants for day one of the sub-county training were on time.
2. Drugs were not available at some (16%) observed teacher training sessions. There were larger challenges with drug availability and distribution during the 2018 program year, but this should improve in the future.
3. Thoroughness of topic coverage varied in both sub-county and teacher trainings. Across both levels of training, forms received the least coverage, with more emphasis placed on worms. In future trainings, trainers should focus on covering each topic to ensure transfer of knowledge on all components.
4. The poster was not reported as a key information source for parents, even though it was a focus for most CHEWs. For the poster to have a better reach, the placement or design could be reconsidered; but it is also possible that the poster reinforces messages that are mainly delivered through other channels.
5. Based on findings from the coverage validation, majority of children did not swallow the drugs (both STH and schistosomiasis) because they thought they were ineligible as they were not enrolled in school. For the next round,

sensitization messages should emphasize that children are eligible for treatment even if non-enrolled in school.

6. In the future rounds of deworming support, it will be important to ensure that an appropriate and consistent design for monitoring and coverage validation is applied across all waves. This will allow us to draw more generalizable and applicable findings, with greater benefit to the program.