

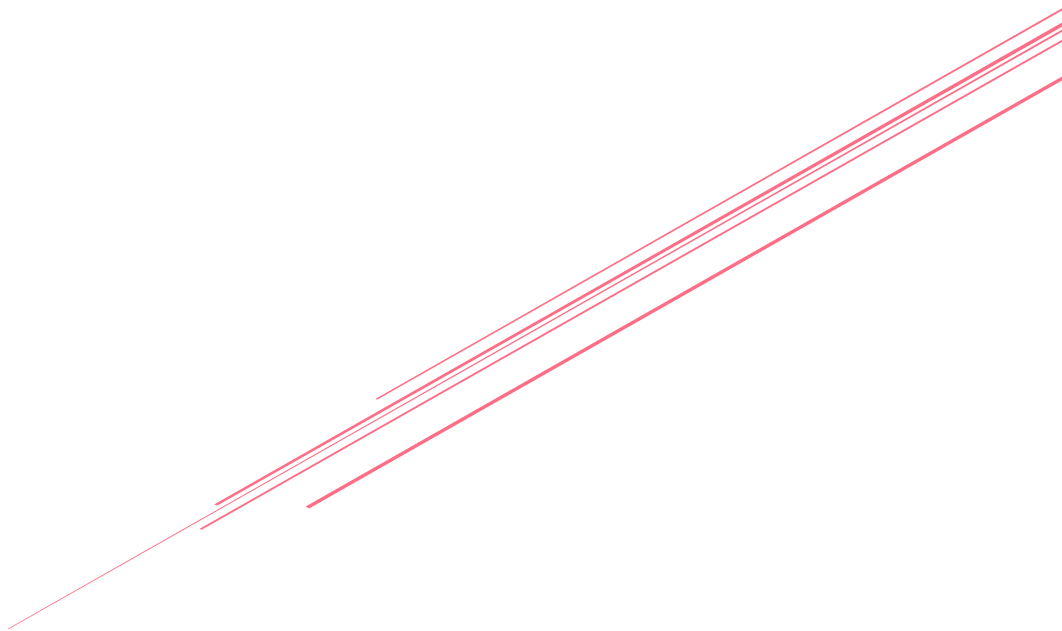
Evidence

Action



Deworm the
World Initiative

School-based Deworming in
Rivers State, Nigeria
Process Monitoring Report



June 2018

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Glossary

FLHF. Frontline health facility

FMOH. Federal Ministry of Health

LGA. Local government area

MDA. Mass drug administration

NTD. Neglected tropical disease

PC. Preventive chemotherapy

SAE. Severe adverse event

STH. Soil-transmitted helminths

WHO. World Health Organization

1.0 Executive summary

In June 2018, Rivers State carried out the first round of 2018 school-based deworming of enrolled and non-enrolled children, ages 5-14 years, in 15 of 22 local government areas (LGAs), according to their endemicity for soil-transmitted helminths (STH). The state targeted 3,831 public and private primary and junior secondary schools.

To assess effectiveness of implementation and identify areas for improvement, Evidence Action designed data collection tools and a sampling method to observe and measure the quality of teacher training and deworming activities in the state, and assess the accuracy of treatment data reported by schools. Through a competitive selection process, Evidence Action recruited an independent consultancy firm, Infotrak Research and Consulting, to collect data from a sample of 46 teacher trainings and 66 schools participating in school-based deworming.

Prior to deworming day, the program trained teachers to administer the safe and effective deworming drug, mebendazole. The monitors attended a sample of 46 teacher training sessions and found that the key training materials were distributed in most trainings, with treatment registers distributed in 91% of trainings, and school summary forms in 98% of trainings. Across all trainings, the average attendance from expected participants was 65%. Delayed communication of training dates and venue, or last minute changes, were the major reasons cited by trainers for low turnout at the training. Most (89%) participants were on time for the trainings. Of the nine topics meant to be covered, seven topics were completely covered in at least 80% of the monitored events.

On Deworming Day, teachers adhered to key procedures in drug administration, including giving the correct dosage (one tablet per child) to the children in observed schools. In at least 90% of schools, monitors observed that deworming teams were comprised according to program guidelines, were requesting children to chew the deworming tablet, and used treatment registers to record treatment. Monitors observed side effects after STH treatment in four schools and these were all handled by staff without a need for further referrals to health facilities. In 11% of the monitored schools, children forced to swallow the drugs against their will, which is against program instruction; this should be re-emphasized in future trainings.

Awareness of the deworming date and target age group were high among interviewed parents (91% and 86% respectively). However, parents of enrolled children were more knowledgeable than parents of non-enrolled children. The key sources of deworming information cited by parents were children (55%) and posters (44%). These two communication methods should continue to be used in future deworming rounds.

To assess the quality of treatment data, an audit was carried out at two levels, comparing the class treatment registers to corresponding entries in school summary forms and the state electronic database. The findings indicate that only 35% of schools were able to match all elements in the school summary form data to within a 10% range of the class register data, while only 26% of schools' summary form data elements fell within a 10% range of corresponding state database entries. Along with the high error rates noted at both state (up to 44%) and school level (up to 50%), this points to a need for stronger data management at school and state levels. The state should also consider adopting unique school identifiers (IDs) to ease the process of matching school data collected by monitors to the data on the state electronic database.

2.0 Introduction

Worm infections interfere with nutrient uptake, causing anemia, malnourishment, and impaired mental and physical development. These symptoms 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 at all. Parasitic worms also pose a massive threat to human capital, hindering schooling and economic development in parts of the world that can least afford it. School-age children harbor the highest intensity of infection from STH and schistosomiasis, and therefore the World Health Organization (WHO) and Nigeria's Federal Ministry of Health (FMOH) recommend large-scale school-based deworming to control these diseases. Evidence Action provides technical support to several Nigerian state governments working to eliminate the public health threat of worms through school-based deworming.

In June 2018, the first round of state-wide school-based deworming took place in 15 LGAs in Rivers state with moderate-high endemicity levels for STH¹ out of 22 LGAs. Enrolled and non-enrolled children ages 5-14 years received deworming drugs in both public and private primary and junior secondary schools. School teachers received training to properly administer safe and effective deworming drugs.

¹ LGAs with 20% and above prevalence for STH are considered moderate – high endemicity LGAs and require preventive chemotherapy for all children age 5 – 14 years.

Evidence Action designed data collection tools and a sampling method to observe, review, and measure the quality and success of teacher trainings, community mobilization, sensitization, and Deworming Day activities. Infotrak was chosen through a competitive selection process to collect the data, which Evidence Action then cleaned, entered, and analyzed. The findings are presented in this report.

3.0 Methodology

Infotrak recruited a total of 79 monitors and 11 supervisors, using pre-defined criteria, to monitor a random sample of 46 teacher training sessions and 66 schools where deworming took place. Evidence Action rigorously trained monitors in two batches for three days each from May 28-June 2, 2018. The curriculum covered an overview of the NTD program, with emphasis on school-based deworming, the basics of conducting a survey/administering a questionnaire, paper and electronic survey tools, field logistics, and data collection protocols. A pre and post-test was administered to all monitors, with the average pre-test score at 67% and the average post-test score at 86%, indicating a 19% knowledge increase attributable to the training.

Prior to Deworming Day, teachers from all 3,831 targeted schools received a one-day training on mass drug administration (MDA) conducted by the LGA team (Education Secretaries, FLHF staff, NTD Coordinators) trained by the state master trainers. Evidence Action used stratified sampling to randomly select 46 of the 242 teacher training sessions, and 66 of the 3,831 schools for observation by independent monitors to assess the quality of teacher training and deworming implementation. The sample size was determined to ensure a 90% confidence level and 10% margin of error.²

Parents residing in areas around the selected schools were interviewed one day prior to deworming to gauge their awareness of the program. Monitors interviewed 402 parents: 214 parents of enrolled children and 188 parents of non-enrolled children.

On Deworming Day, monitors interviewed teachers regarding their plans for deworming, their treatment knowledge, and sensitization activities carried out in schools and communities. Monitors then observed the drug administration process to verify that the required procedures were followed. Following the treatment, monitors

² 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.

randomly selected and interviewed one parent, one teacher from the deworming team³, two enrolled children, and one non-enrolled child. In total, the monitors interviewed 23 parents (present during deworming), 66 teachers, and 143 students (12 non-enrolled and 131 enrolled) on Deworming Day. Monitors aimed to interview two consenting enrolled children per school and one consenting non-enrolled child per school, but because they were not always present on Deworming Day, monitors only interviewed 12 non-enrolled children.

Finally, five days after deworming, monitors visited a different set of schools to carry out a data audit by collecting data from the class treatment register and school summary forms. This was compared to data received at the state level, to assess for accuracy.

Table 1. Methodology for the process monitoring

Monitoring activity	Target sample size	Actual sample size
Teacher training sessions	54	46 ⁴
Total number of schools targeted for deworming	67	66 ⁵
Parents interviewed before Deworming Day	402	402
Head teachers interviewed	67	66
Teachers interviewed	67	66
Enrolled children interviewed	134	131
Non-enrolled children interviewed	67	12
Parents interviewed (present at school on deworming)	67	23
Data Audit	66	66

³ The deworming team comprises two or more teachers trained and assigned to oversee the MDA; often a head teacher and a health teacher and any other teachers trained/sensitized within the schools to support MDA activities.

⁴ The list of teacher training sessions shared by the state had schools erroneously listed as teacher training centers and these were selected for sampling but monitors found out only after they had been sent to the field on the day for teacher training.

⁵ Only 66 schools were successfully monitored by the IM firm.

4.0 Results

4.1 Review of teacher training

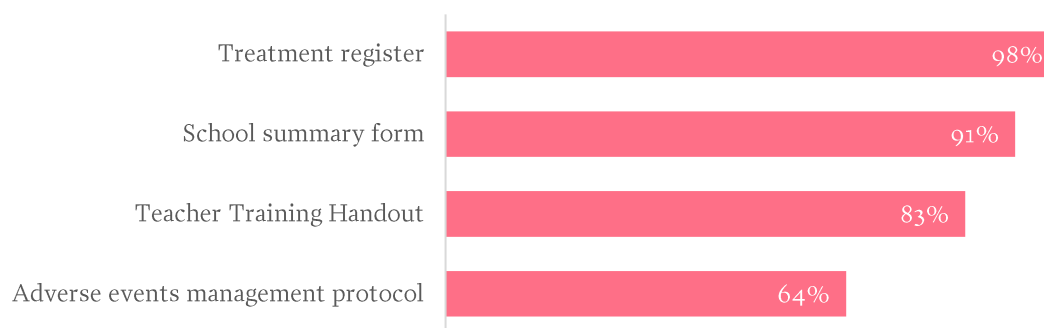
4.1.1. Attendance during trainings

The monitors visited 46 trainings, with average attendance at 65%⁶ of the expected attendance based on registers. Monitors conducted a head count of participants at the start of the training session, and twice during training. The average head count at the start of the training was 17, while the average count in the subsequent two intervals was 19 participants. The majority (89%) of attendees were on time for the training, and most participants attended all modules of the training.

4.1.2 Access to training materials

Key training materials were distributed in most of the trainings monitored. Treatment registers were distributed in 98% of trainings, while school summary forms were distributed in 91% of trainings. However, the adverse events management protocol was only distributed in 64% of observed trainings (**figure 1**). This is a key document with critical program guidance; the program team should pay extra attention to ensure its availability in future rounds.

Figure 1. Materials given to teachers at teacher training sessions (n=46)



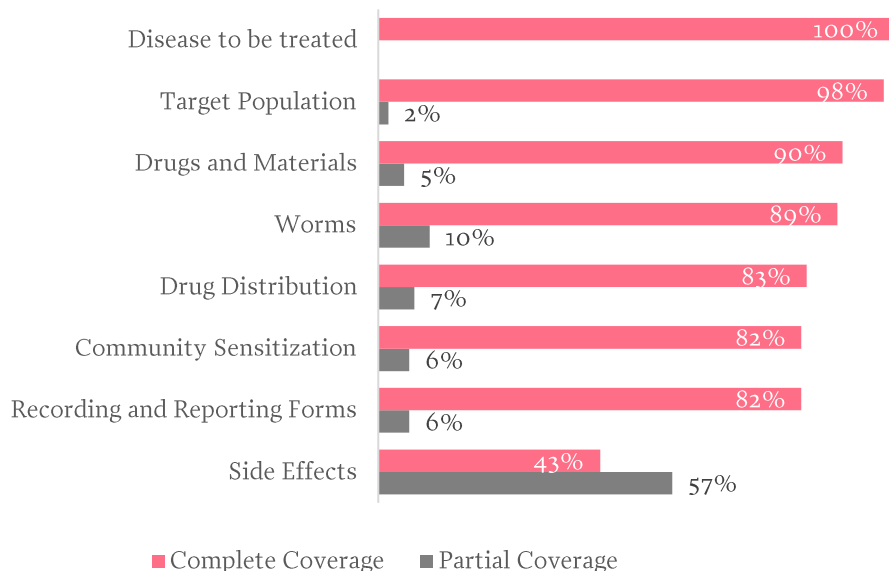
4.1.3 Training topics covered

There were nine topics covered in the trainings, including: information on the worms treated, distribution of the disease, the target population, drugs and materials used for deworming, drug distribution, side effects and management of SAEs, recording and reporting forms, roles and responsibilities of the various actors on Deworming Day, and community sensitization.

⁶ Most teachers that did not attend indicated that they were not informed about the training date or venue; in other instances, some did not get information of changes in venues or dates.

Most topics were completely⁷ covered in at least 80% of the trainings. The disease being treated was completely covered in 100% of trainings, closely followed by the target population (98%). However, complete information on side effects was only given in 43% of the trainings (figure 2); this should be more thorough in future rounds.

Figure 2. Coverage of topics during trainings (n=66)

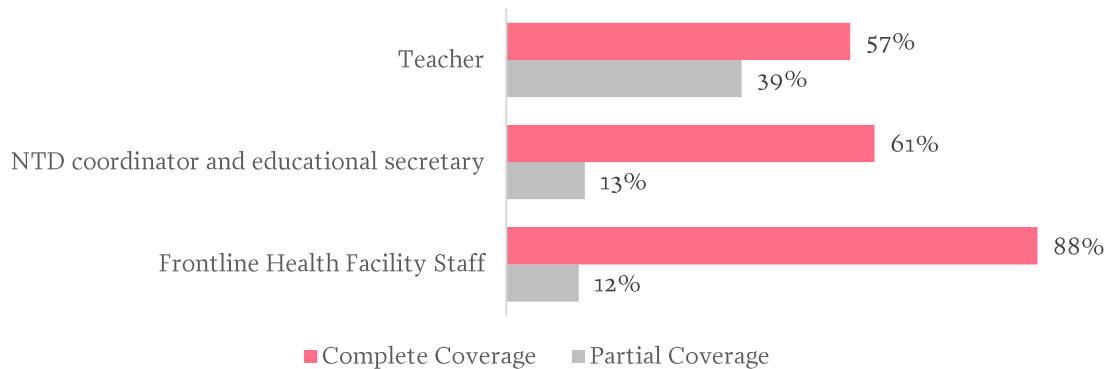


4.1.3.4 Roles and responsibilities

Trainers explained the roles of different personnel in the deworming process, including NTD coordinators, education secretaries, frontline health facility (FLHF) staff, and teachers. As shown in Figure 3, the role of teachers was discussed to some degree in 96% of trainings, with 57% of trainings covering this aspect completely, and 39% of trainings only partially covering this information. Less than 20% of trainings completely covered all roles of NTD coordinators, educational secretaries, and FLHF staff.

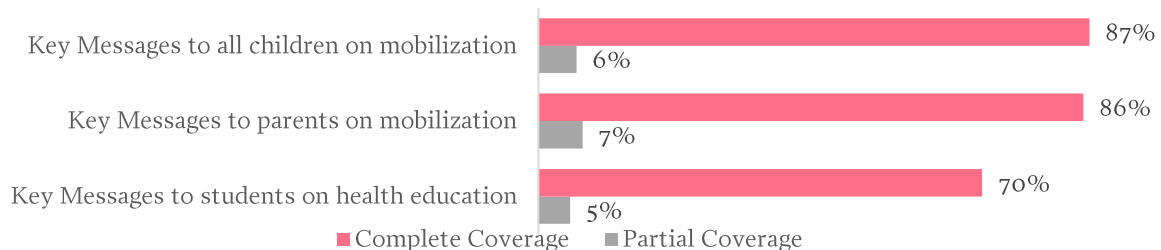
⁷ The term “completely” means that the trainer covered the prescribed content of the topic according to the training manual and presentations

Figure 3. Coverage of roles and responsibilities of personnel in the deworming program



Trainers emphasized key messages that teachers should pass to various stakeholders during community sensitization, including children and parents. For instance, messages for teachers to pass to their students included: location, dates, and time of MDA; benefits of deworming; ages to be treated (5-14 years); the fact that deworming is free and safe; and that both non-enrolled and enrolled children should be included. Key messages for parents and children on mobilization were completely covered in 86% and 87% of trainings respectively, while key messages to the students on health education were completely covered in only 70% of the trainings (figure 4).

Figure 4. Complete coverage of key messages to be passed by teachers



4.1.4 Training methods used

Trainers adopted several teaching methods to convey content to the participants. Lecture-based presentations were most commonly observed (87%), followed by discussion (70%). Role play was the least used approach, seen in only 13% of trainings. Participatory learning is a powerful way to impart a sense of confidence, so trainers should be strongly encouraged to use role play as a training method in future rounds.

The monitors reported that 89% of trainers administered a pre-test, and 83% gave a post-test to assess knowledge transfer. The participants' pre and post-tests showed

an average pre-test score of 50%, and post-test average score of 74%, which indicates a 24% knowledge increase attributable to the training.

4.2 Deworming day assessment

4.2.1 Preparedness for Deworming Day

Monitors visited 66 randomly sampled schools on Deworming Day to assess MDA procedures and interview the deworming team (i.e. two or more teachers assigned to oversee the MDA; often a head teacher and a health teacher) to assess their knowledge and capability to deliver the MDA. All head teachers indicated that either they or another teacher had attended a training in preparation for Deworming Day.

From the head teacher interviews in 66 schools, 44% of head teachers reported having a significant⁸ number of non-enrolled children in their area, and 50 (76%) schools had made plans to deworm non-enrolled children. Nine (14%) head teachers said there were no plans to deworm non-enrolled children, with the major reason being that non-enrolled children were not informed (table 3). The remaining head teachers responded ‘don’t know’ when asked about their plans for deworming non-enrolled children. On Deworming Day, monitors observed deworming of non-enrolled children in 13 (20%) of the 66 monitored schools.

Table 3. Reasons cited by head teachers for not deworming non-enrolled children (n=9)

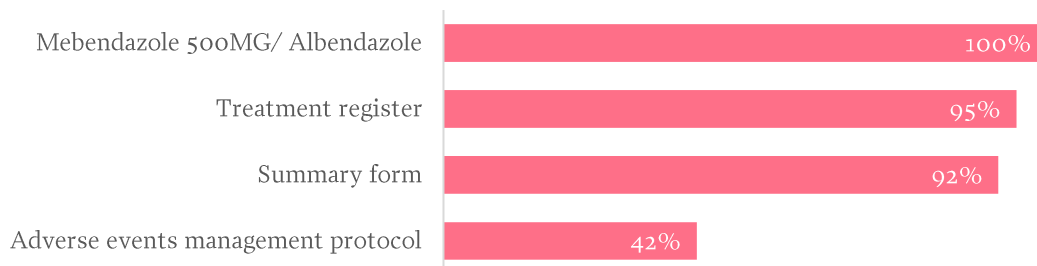
Reason for having no plan to deworm non-enrolled children	Percentage
Non-enrolled were never informed	66%
Non-enrolled SAC will not come	22%
The management is against it	11%

4.2.2 Materials observed for deworming

Key deworming materials were observed in the majority of the visited schools, with the deworming tablets available in all schools (figure 6). Of the 63 schools with the treatment register available, 57 (90%) were filling all sections, adhering to the recording and reporting practices that was taught in the training. The adverse events management protocol was, however, present in only 42% of schools.

Figure 6. Materials observed on Deworming Day at schools (n = 66)

⁸ Monitors defined ‘significant number’ to the head teachers to mean more than the number of enrolled children actively coming to school in the area.



4.2.3 Drug administration procedures

Monitors observed whether deworming teams adhered to key drug administration procedures, and found that all teachers knew the correct mebendazole dosage, with 98% requesting the child to chew the tablet. However, washing hands prior to treatment was only observed in 42% of deworming stations.

Table 4. MDA procedures observed by monitors during drug administration

MDA procedure	Percentage
Teachers who knew the correct dosage for mebendazole (1 tablet)	100%
Teacher asked child to chew the mebendazole tablet	98%
Deworming team comprised of two teachers	95%
Treatment register was used to record treatment	95%
The teacher had transferred the names from the class register to treatment register prior to the deworming exercise	89%
Health education messages given to children prior to treatment	83%
Teacher asked if child was sick or under medication before administering medicine	83%
Teachers noted student absence for possible future treatment	80%
Teachers properly disposed of spoiled tablets (n=24) ⁹	69%
Teachers ensured children washed their hands prior to treatment	42%

While many of the key procedures were adhered to, monitors reported that in seven (11%) schools, children were forced to swallow the mebendazole tablet against their will. This should be addressed in future trainings, as teachers are meant to encourage—but not force—children to take the tablets.

4.2.6 Managing side effects

⁹ Percentage derived from monitors that observed any spoiled tablets in schools.

On Deworming Day, monitors observed side effects in only four (6%) of the 66 schools visited and managed them by isolating the children and having them lie down, per program instructions.

4.2.7 Enrolled and non-enrolled children interview

The monitors at the school interviewed 131 enrolled and 12 non-enrolled children after deworming. Overall, more enrolled children (77%) could cite at least one way a person gets infected with worms, as compared to only half (50%) of non-enrolled children. Similarly, 80% of enrolled children could cite at least one means of preventing worm infections, as compared to 75% of non-enrolled children. However, comparisons between the two groups' knowledge should be interpreted with caution as there is a large difference in the number of children sampled in each category.

4.2.8 Head teacher post-deworming interview

Upon completion of deworming, all interviewed head teachers described the Deworming Day as having been a success. Ninety-five percent (95%) reported having extra tablets left over. Of the schools with leftover drugs, 87% planned to keep these tablets for mop-up day and 10% planned to immediately return balances to the LGA¹⁰.

4.3 Community sensitization

One day prior to deworming, monitors visited 66 schools for interviews with head teachers to gauge the measures taken towards sensitizing the community on the upcoming deworming exercise. At the end of these interviews, they visited the community and spoke with 402 parents (both non-enrolled and enrolled) for interviews on their knowledge and preparedness for Deworming Day.

4.3.1 Sensitization reported by head teachers

Eighty-three percent (83%) of the 66 head teachers interviewed indicated that a member of the school had reached out to sensitize community members about Deworming Day. A majority indicated that this person was a teacher (67%). Nine percent (9%) of head teachers also indicated that they used in-school meetings as a platform to sensitize parents on the upcoming Deworming Day.

4.3.2 Parents' knowledge on deworming

¹⁰ Program strategy is to return drugs 5 days after mop-up.

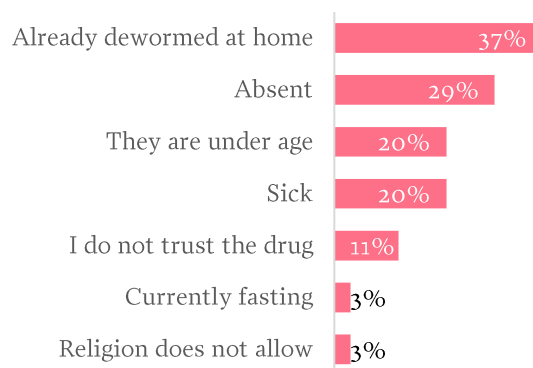
A total of 402 parents were interviewed by the monitors, including 214 (53%) parents of enrolled children and 188 (47%) parents of non-enrolled children, on aspects such as the date of deworming, target age group, and the type of worms being treated.

Knowledge of the date and target age group was high, with 91% and 86% of parents giving correct responses, respectively. Only 55% of parents knew the type of worm (STH) being targeted. Generally, parents of enrolled children were more knowledgeable than parents of non-enrolled children across all aspects, including the deworming date (96% vs. 84% for non-enrolled), age group (86% vs. 85%), and worm type (55% vs. 49%). This difference in knowledge may be attributable to the fact that children were reported as the most common (68%) method of communication for parents of enrolled children while this was only 33% for the parents of non-enrolled children. Majority (49%) of parents of non-enrolled children cited the poster as the main source of deworming information.

4.3.3 Parents' reasons for not sending children for deworming

A majority (95%) of parents indicated that they would send at least one of their children for deworming; this was higher among parents of enrolled (99%) compared to non-enrolled children (89%). Only 12 parents interviewed indicated that they would not send any of their children for deworming. The most common reason for non-participation was that their children had already dewormed at home (Figure 7). There was not a significant difference among the sets of parents as far as their reasons for not sending children for deworming.

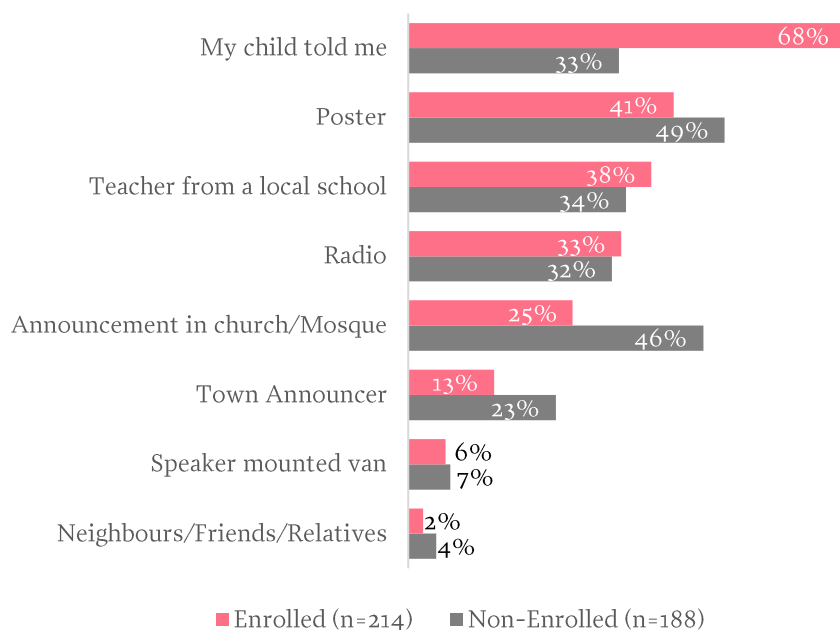
Figure 7. Reasons for not sending children for deworming (n=12)



4.3.4 Medium used for community sensitization as reported by parents

Most parents of enrolled children heard about deworming from their children (68%), while most (49%) parents of non-enrolled children received their information via a poster, and 46% from a church/mosque announcement. Analysis across both sets of parents revealed the child to be the most effective means of reaching parents (55%), followed by the poster (44%). Subsequent rounds of deworming should continue to emphasize the use of these two methods.

Figure 8. Medium used for sensitization as cited by both parents of enrolled and non-enrolled children



4.4 School hygiene facilities

Sanitation plays a major role in preventing intestinal worms. Monitors therefore observed the presence and functionality of toilets and handwashing facilities within the schools.

Fifty-three (53) of 66 schools visited had a toilet structure. Among these, the ‘pour-flush’ structure was most common (91%). Further observations showed that 96% of the toilet structures were functional¹¹. Only 23 (63%) schools had handwashing facilities. Considering that only 42% of children were observed washing hands prior to deworming, there is a clear need to more strongly encourage handwashing among the students and within the schools; trainers should report these findings back to teachers and challenge them to achieve better results in future treatment rounds.

¹¹ Functional: Clean/somewhat clean, fresh stool in the pit, footpath, and door/some kind of privacy

4.5 Data audit results

During the MDA, deworming teams used a class treatment register to record the children treated and drugs received, and the data is summarized by head teachers in a school summary form. One copy of the summary form is returned to the school's zonal education office, a second copy is sent to the LGA office, and a final copy to the state office. The state team enters data from the summary forms into an electronic database and prepares a report for the national NTD program. Evidence Action uses data collected by the independent monitors to check the accuracy of the report through a data audit in a sample of schools. Specifically, monitors compared the data in class treatment registers with data in school summary forms, and then compared the summary forms with data in the state's electronic database for the same schools.

4.5.1 Class Treatment Register vs. School Summary Form

The data audit assessed five components from the class treatment register and school summary forms: the total number of children treated (disaggregated by gender), the number of non-enrolled children treated (disaggregated by gender), and number of mebendazole tablets used.

Error rates refer to the percentage of schools where the absolute percentage difference for a data element as recorded on the two forms was greater than 10%. The median indicates the percentage difference for half (50%) of the schools if the absolute percentage differences between treatment register and the school summary form were arranged in ascending order.

The overall findings indicate that only 35% of school summaries presented all elements within a 10% range of their corresponding class register values. Error rates were generally low for the number of non-enrolled children treated, at 7% for both non-enrolled males and non-enrolled females treated. This means that 93% of schools summarized the number of non-enrolled children treated within an absolute range of 10% of the corresponding register entries. Overall, error rates were high for the total number of children treated (48% for males and 47% for females), as well as the number of mebendazole tablets used (50%) (Table 5).

The median was generally low (0% to 10%) across the various data elements, implying that at least half of the schools were able to match the elements in the school summary within a 10% range of corresponding class level entries. The zero median for the number of non-enrolled children treated indicates that for at least half of the schools, the class registers exactly matched the school summary forms.

Table 5. Data variances in class registers and school summary forms

Data elements	Error rate	Median ¹²
Total Male children treated (n=62)	48%	9%
Total Female children treated (n=62)	47%	7%
Male non-enrolled children treated (n=59)	7%	0%
Female non-enrolled children treated (n=60)	7%	0%
Total mebendazole used (n=64)	50%	10%

4.5.2 School Summary Form vs. State Electronic Database

Evidence Action compared data in school summary forms (collected by monitors) with data in the state’s electronic database. Across all elements, only 26% of schools had their school summary form data recorded to within a 10% range of the corresponding state database entry.

Error rates, or the percentage of schools where absolute percentage difference between elements in the school summary form was greater than that in the state database by more than a 10% margin, were highest for the number of mebendazole tablets used (44%). Other data elements also had high error rates (35% - 44%) indicating across the various elements that state data managers over or under reported school summary form data by a margin of 10% for at least 35% of the schools (table 6).

The reported median indicates the distribution of errors in at least half of the schools. The zero median for the number of non-enrolled children treated implies that state data managers were able to correctly transcribe the number of non-enrolled children to the state database for at least half of the schools.

It should, however, be noted that the present design of the forms leaves room for error in the comparison of records given that school names, rather than unique identifiers, are used to compare records.

Table 6. Difference between data in school summary forms and state database

Data elements	Error rate (+/- 10)	Median
Total male children treated (n=53)	43%	3%

¹² The median represents the middle value in the range of the percentage difference between the treatment registers and the school summary forms. The percentage difference between the treatment register and summary form in all schools are arranged from lowest to highest and the mid-value is selected as the median.

Total female children treated (n=52)	38%	2%
Male non-enrolled children treated (n=37)	35%	0%
Female non-enrolled children treated (n=35)	40%	0%
Total mebendazole used (n=52)	44%	2%

4.5.3 Data audit conclusions

The overall findings indicate that 35% of schools had all their summary form data elements within a 10% range of corresponding state database entries. This is higher than that registered at state level where state data managers correctly matched school summary elements to state records for 26% of the schools. The high error rates at both levels point to a need for more data management trainings for both state data managers and head teachers in a bid to improve the quality of program data.

Further, the state should consider developing school IDs, not only for the IM exercise, but also to enable unique referencing of schools for other purposes within the state. Given the opportunity, Evidence Action can also support the state team to consider and implement suitable approaches to improve the accuracy and quality of data in the next round of treatment.

5.0 Lessons Learned

There were many lessons learned in the first round of 2018 deworming in Rivers State, as outlined below.

What worked well

1. The overall execution of the training was laudable. Key messages were correctly delivered in at least 80% of the trainings monitored, with most key materials distributed to participants as well.
2. Adherence to MDA procedures was noticeably high across the 66 trainings monitored. Aside from handwashing, which was seen in only 42% of observed schools, adherence to all other key procedures ranged from 69% to 100%. Teachers knew the correct dosage for mebendazole (100%), used the register to record treatment (95%), and gave health education messages to children prior to treatment (85%).
3. Community sensitization efforts were commendable with 95% of parents (both of enrolled and non-enrolled children) indicating that they would be sending a child for deworming. Children and program posters were the most effective methods in reaching parents.
4. Side effects were well managed in the four schools where they were observed, without a need for further referral.

What needs to improve

1. Records from teacher trainings indicate that, on average, only 65% of expected participants attended. Teachers that did not attend the training cited a gap in communicating either the training date or venue. Given the importance of these trainings, trainers need to improve communication in future rounds to ensure adequate attendance.
2. While the majority (76%) of schools reported that they had a plan to deworm non-enrolled children, and most (89%) parents of non-enrolled children pledged to send their children for deworming, monitors observed deworming of non-enrolled children in only 20% of schools. The reasons for low involvement from this group should be investigated, including the possibility that management in some of the schools are against non-enrolled children being dewormed in their school as indicated in one monitored school.

3. In some of the schools, monitors noted that children were forced to swallow drugs against their will; this contradicts program protocol and should be addressed in future trainings.
4. While the cases of side effects were few and well-managed, there was generally poor preparation in this area. The SAE management protocol was only distributed in 64% of trainings with messages on side effects correctly covered in only 43% of trainings. The state team and teacher trainers should ensure this is thoroughly covered in all future trainings.
5. The data audit conducted both at school and state level revealed significant challenges in data consistency and quality across recording and reporting channels. Compounded with the high error rates across various elements compared at both school (up to 50%) and state level (up to 44%), this indicates a need for stronger data management skills at both state and school level. This should inform future training agendas. The state team should also consider adopting unique school ID numbers that would allow more control in comparing specific schools' data across reporting mechanisms.