

Deworm the World: Preliminary Report on Programme Monitoring and Coverage Validation Data

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1. Background

There are two key sets of information utilized by DtW in monitoring the School Based Deworming Programme. Both sets will also be used in planning and modifying subsequent rounds of treatment to maximize performance. These two sets of information are:

1. Coverage Data
2. PMCV Data

1.1 Coverage Data is collected via the reverse cascade and records which schools, divisions and districts have been reached by the programme. Coverage Data comprises of forms that provide information from the various stages of the deworming cascade; this includes planning, training and implementation coverage. These forms should be completed in **all** districts, teacher training sessions and deworming days.

- Forms MT and P capture information from the training in the district and a deworming day planning exercise. These are filled in at the regional trainings. Schools are listed, teacher training sessions are planned and a common deworming day for the entire district is decided. ATTNR attendance forms are also filled at the regional training days.
- In the next step of the cascade teacher training attendance forms ATTNT (teachers), ATTNC (CHEWS) are completed. At the end of the teacher training, Form TAB 2, TAB 5 and TAB 7 are filled in to capture information on drug distribution to head teachers of the schools attending.
- On deworming day teachers use Forms N and E to record administration of deworming drugs. The head teacher then summarizes Form N and E into Form S which is submitted to the division level. At the division level Form S from various schools is summarized into Form A and submitted along with all Form S from that division to the district level. Form D summarized district level deworming from various division level Form A. All forms Form S, A and D are then submitted to the national team in Nairobi.

1.2 Process Monitoring and Coverage Validation Data, (PMCV) is utilized to assess the programme quality and to verify coverage data. PMCV information is collected by a group of field monitors who are deployed to observe a sample of the following events:

1. Regional trainings
2. Teacher trainings
3. Pre deworming day preparation
4. Deworming day
5. Post deworming day for data confirmation

This evaluates the success of the training cascade at moving information, materials, funds, and drugs from the national to the school level.

The sampling plan was developed at three levels in the cascade for each type of event and is detailed below for each level. Given the nature of the program and roll-out, the sampling strategy is designed to be agile and responsive to program changes and last-minute scheduling. The sample is structured such that the each selection is a subset of the selection before. For example the selection of teacher training events is made from within those regional trainings which were observed.

- Thirty five percent of all the regional trainings are targeted for monitoring
 - The sampling frame¹ is made up of the 111 target districts as defined at the start of the programme.
 - Sampling² of regional training takes place before each wave when 35% of the waves districts are randomly selected.
- Ten percent of all teacher training sessions in the programme are targeted for monitoring.
 - The sampling frame is made up of all planned teacher training sessions in the districts within the regional training sample.
 - Sampling of teacher training takes place using form P after the regional planning event.
- Two percent of all school deworming days, 3% of pre deworming days and 3% of post deworming days in the programme are selected for monitoring.
 - The sample frame is made up of 10 schools from each teacher training day within the teacher training day sample.
 - Sampling of deworming days (and pre and post visits) takes place after the teacher training events where FOs are responsible for randomly listing out 10 of the schools attending each session.

To mitigate the effect of being observed, on the results, there is then a second limited selection outside of this cascade at each level. Both Schistosomiasis and STH only areas are covered by the PMCV data selection. Table 1 provides a summary of the sample planned and executed under PMCV.

Table 1: Summary of Monitoring Activity

Event Type	Assumed number of events for sample calculation (a)	Estimate of number of events to be monitored (b)	Percentage of events to be monitored (b/a)	Actual Number of events up to Dec 2012 ³ (A)	Actual number events monitored (B)	Percentage of event monitored (B/A)
Regional Training	111	40	35%	85	42	49%
Teacher Training	1,200	120	10%	637	96	15%
Pre-Deworming day school and ECD center visit	12,000	350	3%	11,526	105	1%
Deworming Day School visit	12,000	200	2%	11,526	171	1.5%
Post-Deworming Day school visit	12,000	400	3%	11,526	249	2%

¹ The **sample frame** is the source material from which the sample is drawn.

² **Sampling** is the process of selecting the sample from within the sample frame.

³ According to planning forms and utilized to make up sample frames as described above

2. Data Entry and Analysis

Coverage Data and PMCV data collected from the field is entered into a series of Access and CSPro databases. Data is double entered, reconciled and error checked before analyzing in STATA.

This process is ongoing and still being streamlined to allow entry of different versions of each of the instruments, which were subject to significant development in early stages of the programme.

2.1 Current Status of Data Processing

All received form MT, P, D, A and S have been logged in an access data base as received. For more robust analysis of the data and accurate treatment numbers all form S, A, D, P and MT are entered on CS-Pro Databases and analysed in STATA. This is in a partial state of completion and not uniform across districts. The numbers of expected and received, logged and available for analysis are as follows.

Table 2: Summary of Current Status of Coverage Data Sets

Form	Number Expected	Number Expected	Number Logged	Number Available in data set for Analysis
MT	One per district doing RT	85	85	82
P	One per division doing RT	217	217	211
S	One per school listed on form P	11526	10597	5647
A	One per division listed on form MT	217	217	81
D	One per district implementing programme	85	85	82

For reporting on planning, the data set from Forms P and MT have been used for the 82 districts in which they are available. All of these districts are those treating for soil transmitted helminthes (STH) only. On these forms, the target population⁴ was identified as follows and included in the analysis.

Districts	82
Divisions	211
Targeted Schools	11,093
Targeted Enrolled School Age Children	3,776,004
Targeted Attached ECD Children	1,138,837
Targeted Feeder ECD Children	266,322
Targeted None Enrolled Children ⁵	880,798
Total Children Targeted	6,061,961

For reporting on deworming the Form S database has been used. 10,597 Form S have been received from an expected estimated 11,526 schools, however only 5,647 are available for analysis. Within these 5,647 schools an estimated 2,695,046 children are reported as dewormed. Because the entry of these forms is incomplete, the Form S database cannot be utilized to give an overall absolute number of children dewormed in all the districts implementing so far. For estimates of programme

⁴ **Target population** is the number of schools and children identified by the districts on the planning day. At this stage it is considered the best baseline for establishing coverage as no other official figures exist for the 2012 districts. Long term this will be triangulated with any other numbers possible e.g. census data, as well as actual enrolments reported by schools to ensure these populations are within the expected ranges.

⁵ In 2009 the World Bank estimated 83% net enrolment in primary education Kenya (girls and boys). This is the most recent figure available and so non enrolled students have here been assumed as 17% of all enrolled students. As more data is available this figure may be refined.

wide coverage numbers please refer to the end of year report 2012 which utilized the estimates of each district on Form D. These numbers are also explored in more detail in *section 3.2*.

The Form S data set has been analysed as if it were a sample of deworming days and has been used to generate proportional statistics (such as % children non enrolled) applicable to the 85 districts which implemented in 2012. As entry of the Form S data has not been systematically based on performance in any way, i.e. there is no reason to suppose those schools yet to be entered are systematically different to those already entered, it is believed to be a relatively representative sample. Due to the large sample size these proportions give good indications about the programme in these 85 districts. As coastal districts which are culturally quite distinct and under-represented in these 85 districts implement in 2013, the proportions as they relate to the whole programme may shift a little. implement in 2013 The sample size of the Form S data set used for this analysis is spread over 79 districts and is as follows and, as stated above, comprises 5647 schools (Form S) which report 2,695,046 children dewormed.

3. Preliminary Results

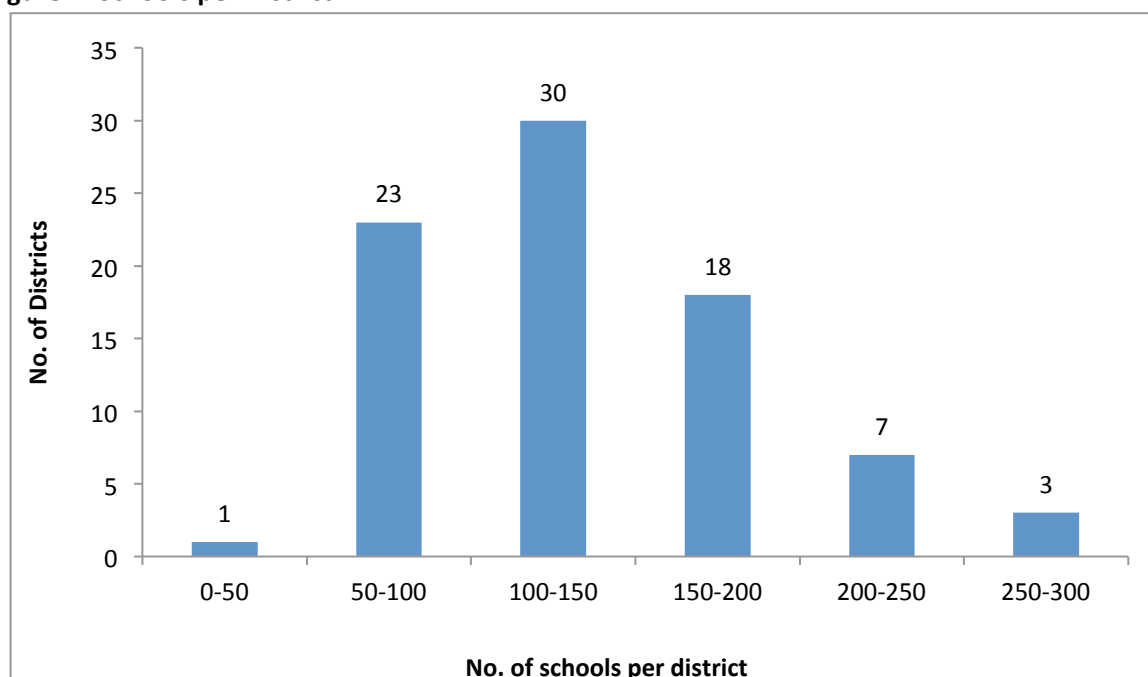
Note: Consider these results as extremely preliminary. Data is still incoming, being entered and reconciled. As this process continues more data points will become available for analysis. The report has been structured around the KPIs and each time a KPI is included it is indicated in a footnote.

3.1 Cascade Quality

Training and Planning

85 regional trainings have been conducted at the district level as part of implementation in these 85 districts. This is 77% of the total number of the 110 targeted districts in Kenya. 82 of those districts have Forms P and MT available for analysis. Within these 82 districts, 11,093 schools were listed in Form P during the planning exercise. This was a maximum of 279 schools per district and a minimum of 47, average 135. The figure below displays the variation seen between districts in terms of numbers of schools.

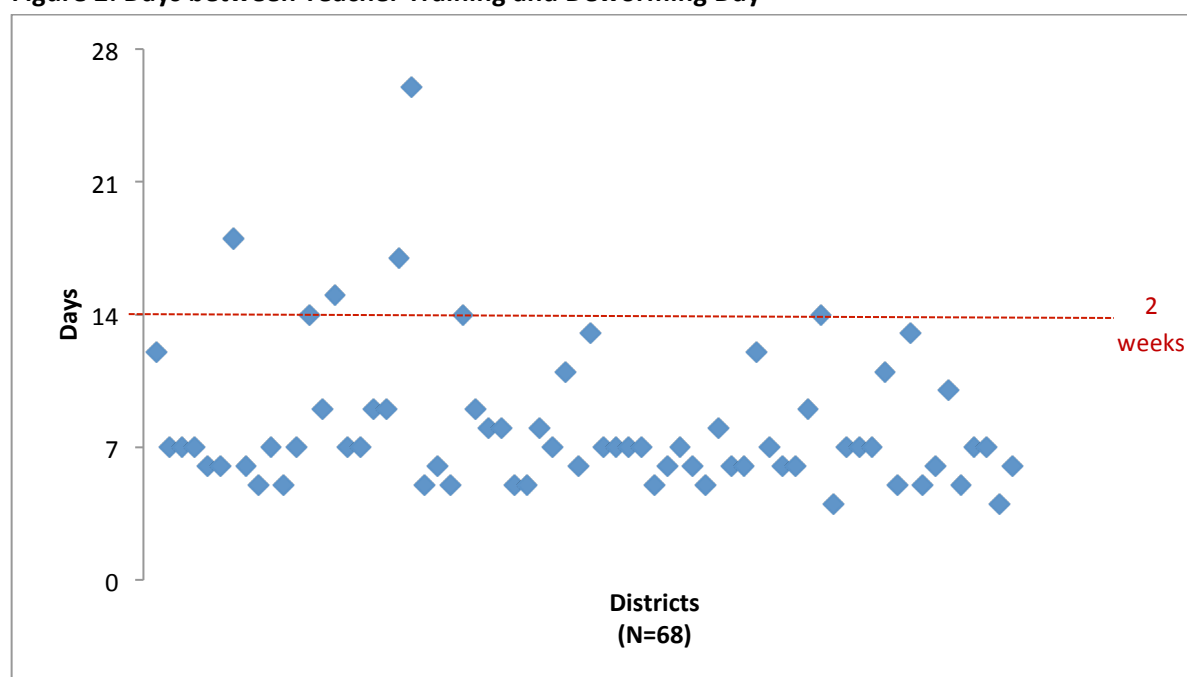
Figure 1: Schools per District



For these 11,093 schools, a total of 661 teacher trainings were planned, equating to a mean of 16 schools planned to attend each training session. There was a minimum of 2 and maximum of 39 schools planned to attend a training session. This range is very wide and the figure of 2 schools attending a single teacher training session will be subject to further clarification.

According to the planning forms returned, 68 of the 82 had deworming day and teacher training dates available on the forms and can be analysed⁶. 94% of these 68 deworming days were planned within 2 weeks of the final teacher training session in that district.⁷ The average time between the final training session and deworming day was 8 days (maximum 26 days and minimum 4 days) (Figure 2 shows the variation and number above the 2 week threshold). Field monitors were able to attend deworming days in 175 schools. Data on 35 of these schools is available for analysis. 91% of these 35 schools visited had their deworming day occurring on the day planned. In the remaining 9% (1 school), deworming day had occurred prior to the field monitor visit.⁸

Figure 2: Days between Teacher Training and Deworming Day



Note: Dates missing for the remaining districts
Source: Form P and MT

In 62 districts (72.9% of the 85 implementing districts) have returned attendance forms for teacher training sessions. Within these 62 districts, 4 districts showed variance from the planned number of teacher training sessions. 2 districts show an extra teacher training session and 2 districts show a lower number of teacher training sessions than planned on form P. Verification of this information is pending.

Field monitors were able to attend 96 teacher trainings (15% of the sample frame of planned teacher trainings). The planning of the field monitor visits was based around form P and on no

⁶ Where dates weren't given on forms, DtWI obtained the dates through other channels for programmatic purposes, but these are not available in the data sets themselves.

⁷ KPI 12: % schools executing deworming day within two weeks of training

⁸ KPI 16: % Schools performing deworming day on designated district deworming day

occasion did field monitors arrive to discover that the teacher training was not occurring as planned⁹.

Drug and Materials Distribution

Using Form S (5,647 schools in 79 districts) it can be seen that 74% of schools report returning some (above zero) albendazole to the MoPHS. This indicates that on deworming day these schools had sufficient drugs to treat enrolled and non-enrolled children. The amount of drugs returned to MoPHS varied between 1 and 1,500 tablets with an average of 128. Of the 26% that did not return any drugs to the MoPHS, 25% reported using exactly the number of drugs supplied and 75% reported using more drugs than were supplied. Exploration of the reasons for this is pending. Matching ATTNT and TAB forms which track drug distribution with Form S data will be helpful.

There was a spoilage rate of 18 tablets per 100 supplied. None of the drugs¹⁰ expired in storage facilities.¹¹ Among the schools where the field monitors attended deworming days, (175 schools, data currently available on 35 schools) 86% of the school head teachers reported that they had sufficient STH drugs in place prior to deworming day.¹²

At each school field monitors observed a randomly selected class. In 97% of sampled schools, the required forms (Form N and E) were used by the teachers to record the administration of the deworming drugs. In 69% of the sampled schools the teachers had sufficient number of the required forms (Form N and E), in 17% they had the required forms, however insufficient in number. In 14% of the cases it was not clear to the field monitor whether the number of forms were sufficient.

3.2 Children receiving treatment

In December 2012 an initial estimate of children treated was made using Form D, as logged on the access database. To detect if form D had been subject to elevation or inflation of numbers a comparison was carried out with form A in a small number of districts. This comparison revealed little difference between the two information sources and so the estimate was generated.

Form D as logged on the database suggested that in 85 districts which had implemented, 10,181 schools had participated and 4,613,480 children had been dewormed. This data was un-verified and had not been double entered and cleaned.

The Form D dataset has now been created and as per *Table 2 in section 2.1*, clean, double entered data is available for 82 districts. Within these 82 districts, according to reported data in Form D, 4,494,904 children have been reached from a targeted 6,06,1961 (according to Form P) and 10, 223 schools from a targeted 11,093 (according to Form P).

Long term, analysis of Form S will provide more accurate estimates of coverage. At this stage, analysis of Form D district level estimates suggests coverage of 92% of targeted schools and 74% of targeted children.¹³

As described in *Section 2.1*, Form S entry is not complete and cannot be used to generate absolute coverage numbers. The Form S dataset has instead been considered as if it is a sample from which proportional indicators can be generated.

⁹ Based on available data

¹⁰ Albendazole and Praziquantel earmarked for this programme

¹¹ **KPI 20: % drugs expired in storage facility**

¹² **KPI 8 (and KPI14): % schools with appropriate drugs in place prior to deworming day**

¹³ **KPI 5: #/% of children receiving STH treatment once**

Analysis of the available sample of Form S revealed that of the children treated during the deworming days; 73% were school aged while 27% were ECD aged. 85% of the children dewormed were enrolled in schools or ECD centers and 15% were non enrolled children (Figure 3 shows this breakdown). By comparing to the total school age children enrolled in each school according to Form S to the number treated (according to form S) it can be seen that 86% of enrolled school age children have been reached by this programme.

Figure 3: Breakdown of Children Treated by Target Group¹⁴

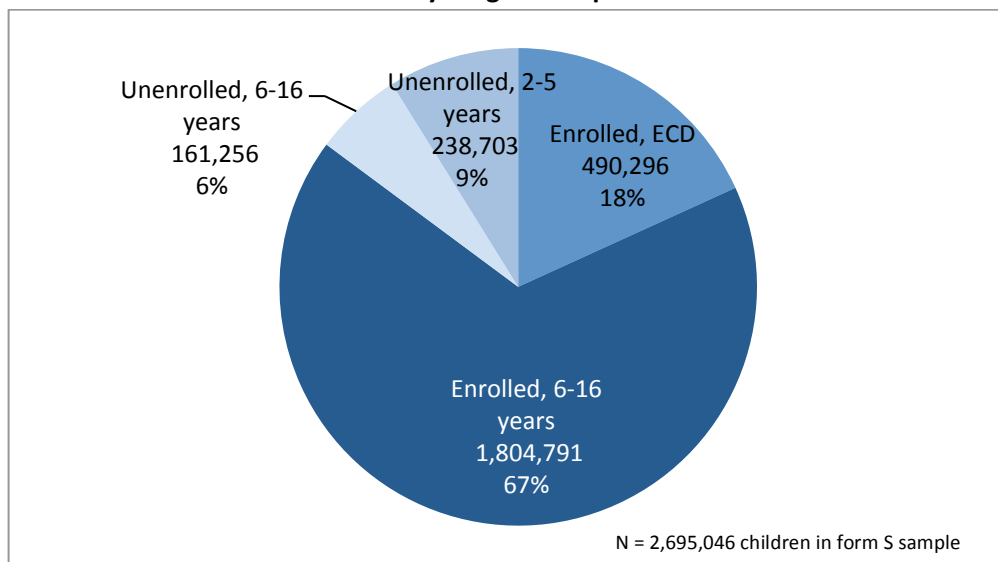
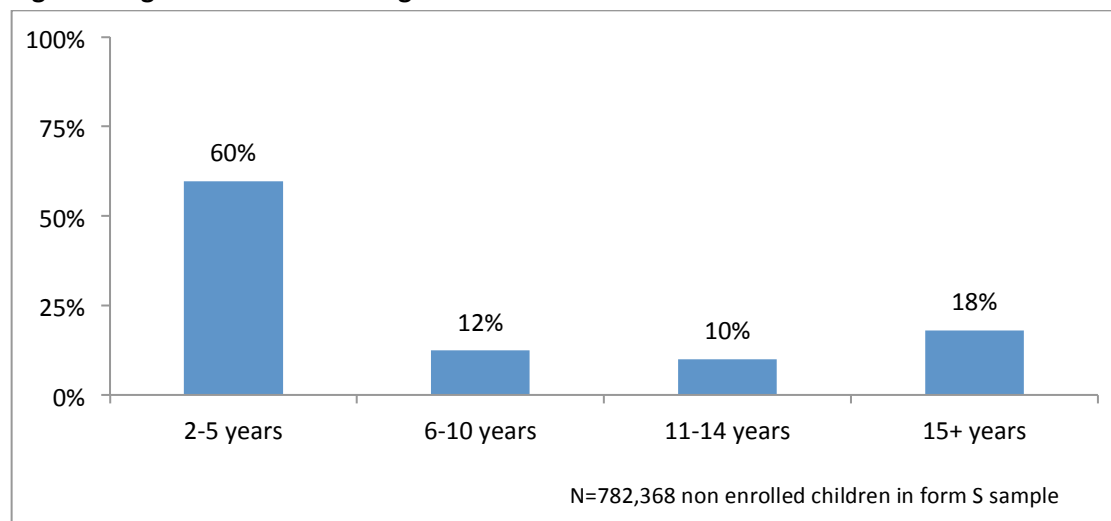


Figure 4: Age Distribution among Non-Enrolled



¹⁴ KPI 9: #/% of unenrolled children dewormed for STH and KPI 11 #/% of under 5s enrolled in ECDs receiving treatment (note enrollment data for ECD centres is not available either administratively or through the programme, we have provided as much detail as possible).

Figure 5: Class Distribution among Enrolled

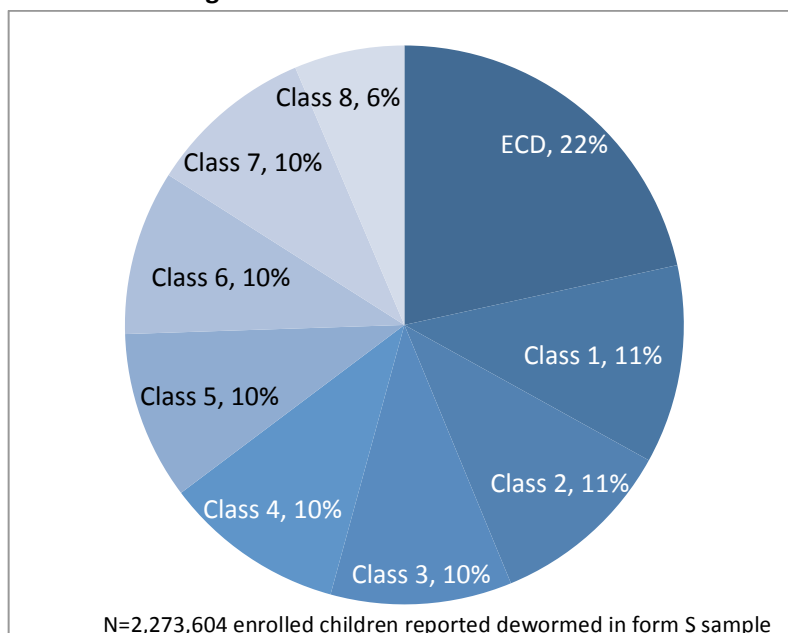
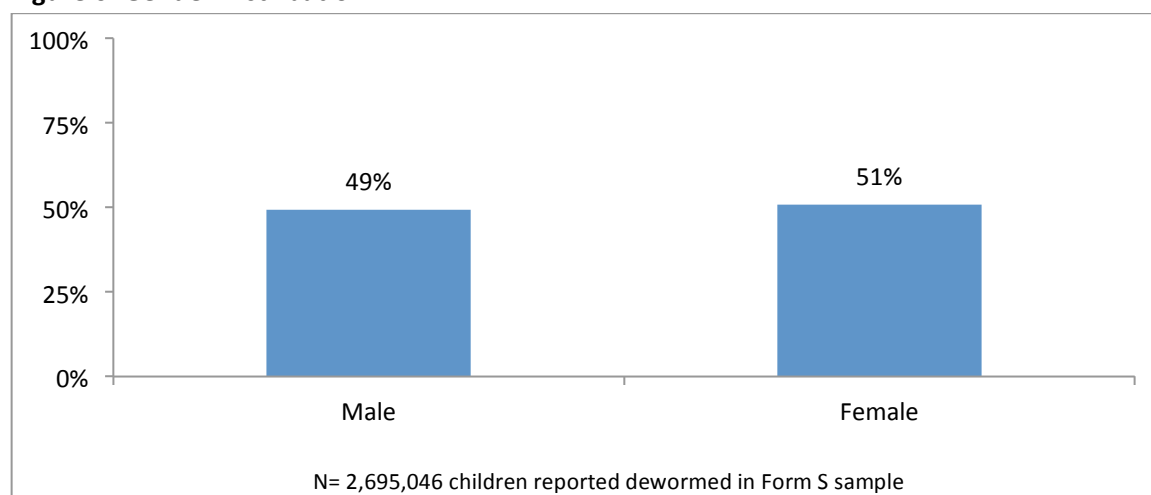


Figure 6: Gender Distribution

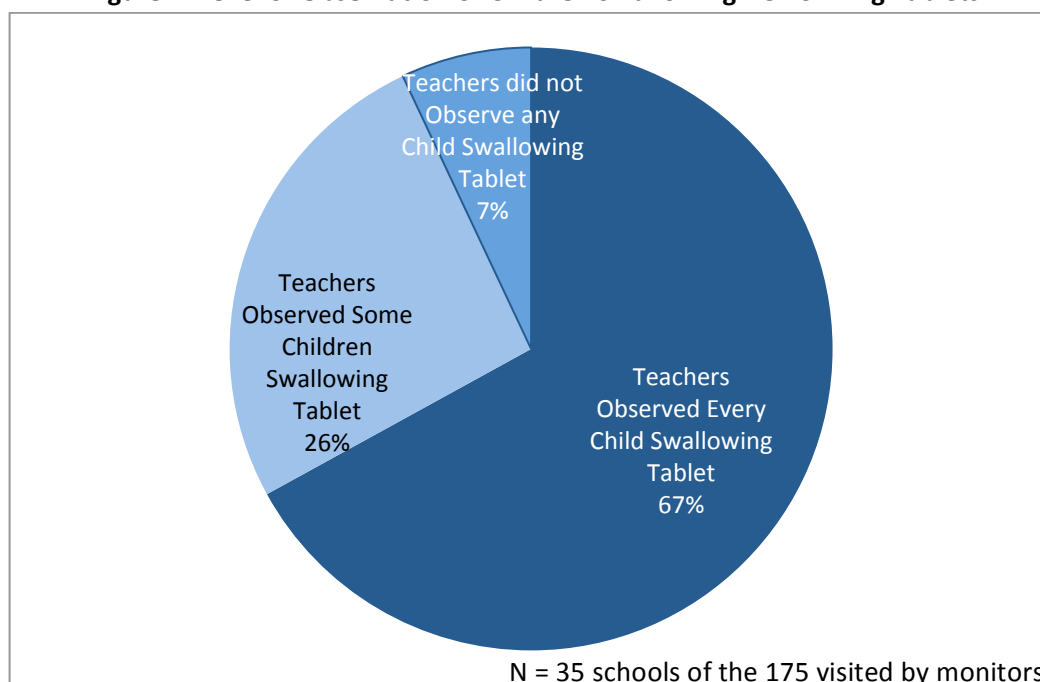


Field monitors were able to attend deworming days in 175 schools. From the available data (35 schools) some of the observations made are reported as follows:

78% of the schools who had their deworming day occurring on the day had the drugs stored centrally in the school, 19% had already distributed them to the teachers and 3% (1 school) had the drugs stored outside the school (at the DPHO's office). No schools reported having "no access" to drugs.

All schools reported that teachers participating in the deworming day exercise were sensitized about administering deworming drugs. In the sampled schools, field monitors observed deworming activities conducted by a teacher in one randomly selected class. From these observations we find that in 97% of the teachers observed by the monitors ensured that a child received one tablet of deworming drug. As shown in Figure 7, in 67% of the cases monitors reported that teachers observed every child swallowing the tablet, 26% of the cases the teachers observed some children swallowing the tablet and 7% of the cases the teachers did not observe any child swallowing the tablet.

Figure 7: Level of Observation of Children Swallowing Deworming Tablets



3.3 Reporting within the Programme

Schools use forms N, E and S to report deworming. Form S is submitted to the division level Area Education Officer (AEO). The AEO completes form A. Form A and all form S are then submitted to the district level District Education Officer who complete form D. All form S, A and D are submitted to the national team in Nairobi.

As of December 31st 96% (82/85) of districts have submitted data (form D) to the national programme. Forms D, A and S are usually submitted together to the national program. Within these 82, 78 had a recorded date of submission to the national programme. Of these 78, 99% were submitted within 6 months of the deworming day. All districts conducting a regional training (85) submitted forms P and MT.

Some districts have recorded the dates at which the forms were submitted to each level of the cascade and these are shown in the table below.

Table 3: Summary of Form Submission

Forms	KPI requirement for submission	No. with Date of Submission recorded	Percent of those with a date who submitted within KPI requirement
Form S ¹⁵ (submitted to division level)	2 months	11	88%
Form A ¹⁶ (submitted to district level)	4 months	39	100%
Form D ¹⁷ (submitted to national level)	6 months	78	99%

¹⁵ KPI 17: % schools submitting monitoring forms within 2 months of deworming day

¹⁶ KPI 18: % divisions submitting monitoring forms within 4 months of deworming day

¹⁷ KPI 19: % districts submitting monitoring forms within 6 months of deworming day