Evidence Action

Independent Monitoring and Coverage Validation of Schools and *Anganwadis* based mass deworming program in Telangana, February 2016

REPORT

July, 2016

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1. EXECUTIVE SUMMARY

The World Health Organization (WHO) estimates that more than 1.5 billion or 24% of world's population is infected with soil-transmitted helminth (STH) infections worldwide. Over 270 million preschool-age and over 600 million school-age children live in areas of intensive worm transmission, and face physical, nutritive and cognitive impairment as a result of preventable STH infection. In 2001, WHO developed a strategy to control worm infection and recommended periodic mass deworming for all people living in endemic areas.[1]

India has an estimated 220 million children living with STH infection- almost one quarter of the global burden. In order to combat the high prevalence of STH, the Government of India launched National Deworming Day (NDD) program as a part of National Health Mission in February, 2015 to deworm all children between 1-19 years of age. The program aims to provide supervised administration of albendazole tablets to all children of preschool and school-age, in *anganwadis* and schools, including unregistered (1-5 years) and out-of-school (6-19 years) children. The first round of NDD in Telangana was observed in all ten districts of the state on **February 10, 2016** followed by mop-up day (MUD) on **February 15, 2016**. Evidence Action-Deworm the World Initiative, as the technical assistance partner, facilitated planning and implementation of the deworming round in the state.

Evidence Action engaged an independent research agency to provide process monitoring on both deworming day and mop-up day to assess the preparedness of *anganwadis* and schools to implement the mass deworming program, followed by coverage validation to evaluate accuracy of the reporting data and coverage estimates post deworming. Due approvals for the survey were obtained from the Department of Health & Family Welfare, Government of Telangana.

On NDD and mop-up day, 100 monitors visited 222 randomly selected government, government-aided, and private schools, and 221 *anganwadis* to observe the ongoing deworming activity. Coverage validation was undertaken from February 20-26, 2016 during which 100 monitors visited 320 randomly selected government, government-aided, and private schools and 301 *anganwadis* to verify their reported treatment figures. Findings from independent monitoring highlighted that around 94% of schools and 97% of *anganwadis* observed deworming on NDD and MUD. Approximately 94% of schools and *anganwadis* reported to receive sufficient drugs for deworming. Around 80% of schools and 90% of *anganwadis* received program posters and banners. However, integrated distribution of NDD kits[2] was relatively low for both schools (46%) and *anganwadis* (53%). 63% of schools and 89% of *anganwadis* received training for recent round of deworming. Nine of the 21 private schools reported being trained within the last two months. Awareness of the causes of worm

[1] WHO: Soil-transmitted helminth infections. *www.who.int/mediacentre/factsheets/fs366/en/*

[2] Integrated distribution of NDD kits including deworming drugs, banner/poster and handout-reporting forms and provided to schools and AWC during the trainings at block or PHC level.

infection, possible adverse events, and adverse event protocols was high among teachers and *anganwadi* workers.

High compliance with procedures and protocols was observed across the schools and *anganwadis* in the state. Almost all school principals, teachers and *anganwadi* workers were able to accurately mention at least one of the symptoms of adverse events. Although the basic knowledge of processes for management of adverse events was high, very few teachers and *anganwadi* workers had awareness of adverse event reporting protocols. Cases of any adverse events were reported in around 15% of schools and 10% of *anganwadis*.

Coverage validation data revealed that around 65% of schools and 98% of *anganwadis* followed correct protocols for recording the number of children dewormed. However, around 19% of schools did not adhere to any recording protocol. A substantial proportion of *anganwadi* workers did not have a list of unregistered preschool-age children (40%) and out-of-school children (54%). Despite substantial compliance with recording protocols, coverage validation data for school enrolled children exhibited high overall inflation (85%; verification factor of 0.53) of treatment figures. Nevertheless, interviews indicated that 97% of all enrolled children received a deworming tablet.

The monitoring exercise conducted during Telangana's first round of NDD highlights opportunities to strengthen future rounds. As training is a critical component of the program, program quality and coverage can be improved by ensuring timely communication of training dates to schools and *anganwadis*. Improved attendance of school teachers in trainings would enable effective implementation of the program in the schools. The database of functionaries across all stakeholder departments needs to be regularly updated to ensure information dissemination is reaching the key audience in a timely manner. Efforts are also required to ensure that teachers who attend training also impart adequate training to other teachers in the school. Further, efforts are needed to strengthen the integrated distribution of deworming kits at trainings. Integrated distribution would ensure availability of drugs at school and *anganwadi* level and enable more widespread use of IEC materials for community mobilization and awareness, potentially improving program reach. Enhanced engagement of ASHAs and AWWs is also critical for program success. Utilizing incentives approved by the national government for ASHA workers will provide motivation to these workers to mobilize out of school children and proactively prepare the list of all out-of-school and unregistered children in the community. Schools and anganwadis should be encouraged to retain a copy of school and anganwadi reporting forms after submission. The high levels of reporting inflation suggest that additional efforts are needed to increase accuracy of program coverage reporting, including an increased emphasis on the importance of reporting protocols during training, in IEC materials, and through training reinforcement messages (SMS).

2. MONITORING AND EVALUATION

2.1 Study Background

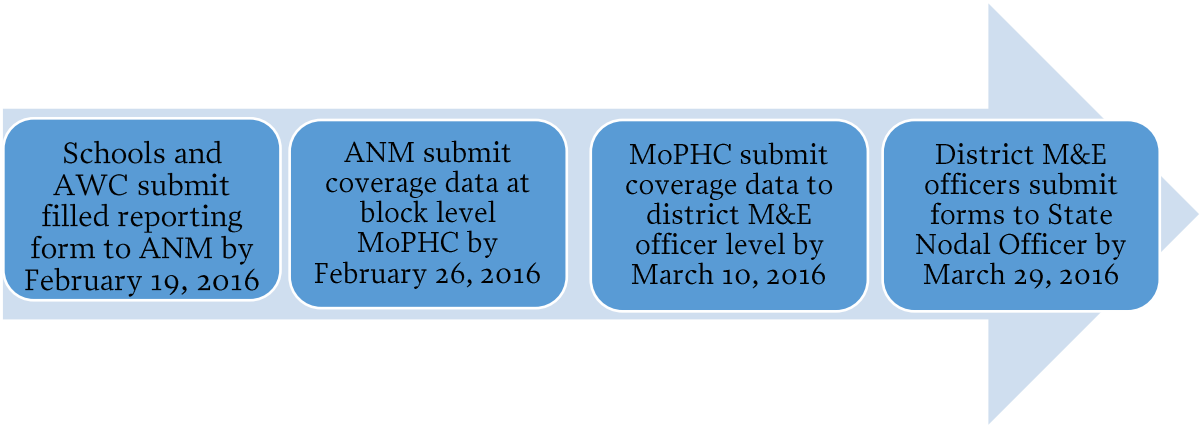
Understanding program reach and quality is a key component of a successful deworming intervention. In order to fulfil this need, Evidence Action worked intensively with Government of Telangana's health and education departments to assess the quality of program planning and implementation with an ultimate focus on developing recommendations for improvements in future rounds. The preparedness of schools, *anganwadis,* and health systems to undertake deworming; adherence to the prescribed deworming processes; and ensuring accurate coverage reporting are key components of the supervision process. Three processes of monitoring and evaluation are included in each deworming program round: (1) process monitoring, (2) coverage reporting and (3) coverage validation.

2.2 Process Monitoring, Coverage Reporting, and Coverage Validation

Process Monitoring assesses the preparedness of schools, *anganwadis*, and health systems to implement mass deworming and the extent to which they have followed correct processes to ensure a high quality deworming program. Evidence Action assessed program preparedness during the pre-deworming phase and selected independent monitors who observed the processes on deworming day and mop-up day. Evidence Action conducted process monitoring in two ways: a) telephone monitoring and cross verification and b) physical verification by visiting schools and training venues.

Coverage Reporting assesses the estimated number of program beneficiaries, and is a crucial component to measure success. With close support from Evidence Action's state and field teams, the Department of Health collected and compiled the coverage report for NDD within the established reporting timelines. School teachers and *anganwadi* workers had been trained on the recording and reporting protocols. These protocols, along with the reporting cascade and timelines (refer to Figure A below), were shared with all districts through the state's directives. In order to improve the accuracy of coverage reporting by the schools and *anganwadis*, every participating school and *anganwadi* was instructed to follow a recording protocol for deworming. Every teacher and *anganwadi* worker was required to put a single tick mark (✓) next to a child's name in the attendance register if they received albendazole on deworming day, and a double-tick mark (✓✓) if received on mop-up day. These tick marks are the basis for the numbers reported by every school and *anganwadi*. Schools and *anganwadis* provided the number of enrolled/registered children dewormed by counting the single and double tick marks in the registers. Headmasters and *anganwadi* workers compiled the number of dewormed children from attendance registers, filled out the summary reporting format, and submitted it to the next level.

Figure A: Reporting cascade and timelines



Coverage Validation is an ex-post check of the accuracy of the reporting data and coverage estimates. Coverage validation data was gathered through interviews with headmasters and three students (in three different randomly selected classes) in each school, and by checking all class registers and reporting forms. These activities provided a framework to validate coverage reported by schools and to calculate the level of inaccuracy in the data by comparing the ticks with numbers reported in school reporting forms.

2.3 Sampling and Sample Size

Through a competitive selection process, Evidence Action hired an experienced independent research agency, Karvy Insights Limited, to implement monitoring across 100 clusters/mandals in all 10 districts of the state. A two-stage probability sampling procedure was adopted to select schools for process monitoring and schools and *anganwadis* for coverage validation (Table A). For process monitoring, *anganwadis* near sampled schools were selected. Process monitoring was carried out on two days: NDD (February 10, 2016) and mop-up day (February 15, 2016). On each day, 100 monitors aimed to visit 100 randomly selected government/government-aided schools and 100 nearby *anganwadis* to observe deworming. Coverage validation was undertaken during February 20-26, 2016 during which 100 monitors targeted to visit 300 randomly selected government/government aided schools, and 300 *anganwadis* to verify the reported coverage numbers. Additionally five monitors visited 10 private schools on NDD and mop-up day, and 30 private schools during coverage validation.

Process information was collected to check for adequacy of drug supplies and awareness materials; assess whether teachers had received training; and check knowledge of adverse event management and reporting protocols. During coverage validation monitors collected information by interviewing school headmaster/teacher, *anganwadi* workers, checking attendance registers, and interviewing three children from each school.

Table A: Target and coverage of schools and *anganwadis* during independent monitoring

Indicators	Process monitoring		Coverage validation	
	Target	Achieved	Target	Achieved
Total number of districts	10	10	10	10
Total number of cluster/*mandals*	100	100	100	100
Total number of schools	220	222	330	320
- Total number of government/ government-aided schools	200	201	300	300
- Total number of private schools	20	21	30	23
Total number of children interviewed in schools	220	191	990	903
Total number of *anganwadis*	200	201	300	301

2.4 Independent Monitoring Formats

To ensure comprehensive coverage and triangulation of data, four formats were administered - one each for process monitoring at school and *anganwadi* on NDD and mop-up day, and one each for schools and *anganwadi*s for coverage validation. Evidence Action designed and finalized formats in consultation with Department of Health, Government of Telangana. The formats were translated into the regional language, checked to ensure that the language was concise and easily understandable, and loaded onto tablet PCs. Using these four standard formats, monitors collected information on training, availability and use of IEC material, availability and submission of reporting forms, and frequency and management of adverse events.

2.5 Authorization from Government

The surveys were conducted with prior approval of the state government. An approval letter was issued by Department of Health, Government of Telangana. Each monitor carried copies of the letter explaining the process of monitoring and coverage validation, and requesting participation from school and *anganwadi* staff.

t2.6 Training of Trainers and Independent Monitors

A two-phase training program was organized at the state level. In the first phase, representatives from Evidence Action provided a one-day comprehensive training to 15 master trainers of Karvy Insights in Hyderabad on February 4, 2016. These master trainers conducted a two-day training of 120 monitors during February 5-6, 2016 in batches of 50-55 monitors, supervised by Evidence Action. A total of 130 trainees participated, including 20 buffer monitors and 10 supervisors.

The training included discussions on the deworming initiative, importance of independent monitoring, and monitoring formats. Afterward, all relevant formats were shared. Monitors received a demonstration of tablet PCs and were briefed on computer assisted personal interview (CAPI) administration process and troubleshooting. Upon completion of these modules, each monitor used the tablet to complete at least one practice session in the presence of trainers. During this period, trainers replied to any queries, and a live demonstration was conducted after the practice session. At the end of the training, all participants were tested on their degree of comprehension and ability to work in the field.

2.7 Field Implementation

Each monitor was allotted two schools and two *anganwadi*s for process monitoring. Subsequently, they were allotted three schools and three *anganwadi*s to survey for coverage validation. Monitors were provided a tablet PC, charger, printed copy of monitoring formats, and albendazole tablets for demonstration. The details of sample schools were shared with them one day before fieldwork commenced to ensure that monitors do not inform local educational authorities ahead of their visit, thus potentially affecting compliance.

For process monitoring monitors were instructed to visit schools first and then a nearby *anganwadi*. In most cases, however, schools administered albendazole tablets only after the mid-day meal, so monitors were instructed to revisit those schools around noon after collecting information from *anganwadi*s. For coverage validation, however, the strategy was slightly modified; if a school was closed or non-traceable, monitors were asked to cover the next school on their list, and return to the first school at another time on a subsequent day. If the school was non-traceable or closed consistently after attempting three visits, a new school was substituted for the old one.

Adilabad district had declared holiday on February 10 because of local tribal festival of *Nagoba Darbar* and observed NDD on February 12. Coverage validation in Warangal district started on February 21 because of public holiday on the account of the *Samakka-SarakkaJatara* festival.

Monitors' attendance and compliance with protocols were assessed by the supervisors. The monitors completed both formats by 4:00 pm, and then reported to their supervisors. Data was synced to the main server after completion of work, and assessed and scrutinized for comprehensiveness.

2.8 Quality Control

Appropriate quality control measures were taken to ensure data collected was accurate and comprehensive. Approximately 15% of schools and *anganwadi*s were contacted over the phone, next day to confirm that they had participated in monitoring and validation. In addition, district coordinators visited sampled schools to spot check the monitoring processes and tele-callers contacted schools and *anganwadis* to verify monitoring visits. In

all cases, school and *anganwadi* staff were asked to sign a participation form and provide an official stamp, verifying that the school or *anganwadi* was actually visited. The data synced to tablets was vetted as quickly as possible to ensure comprehensiveness, and errors were subsequently addressed by follow up visits or calls.

3. KEY FINDINGS

Key results from independent monitoring are provided below, with further details shared in annexures.

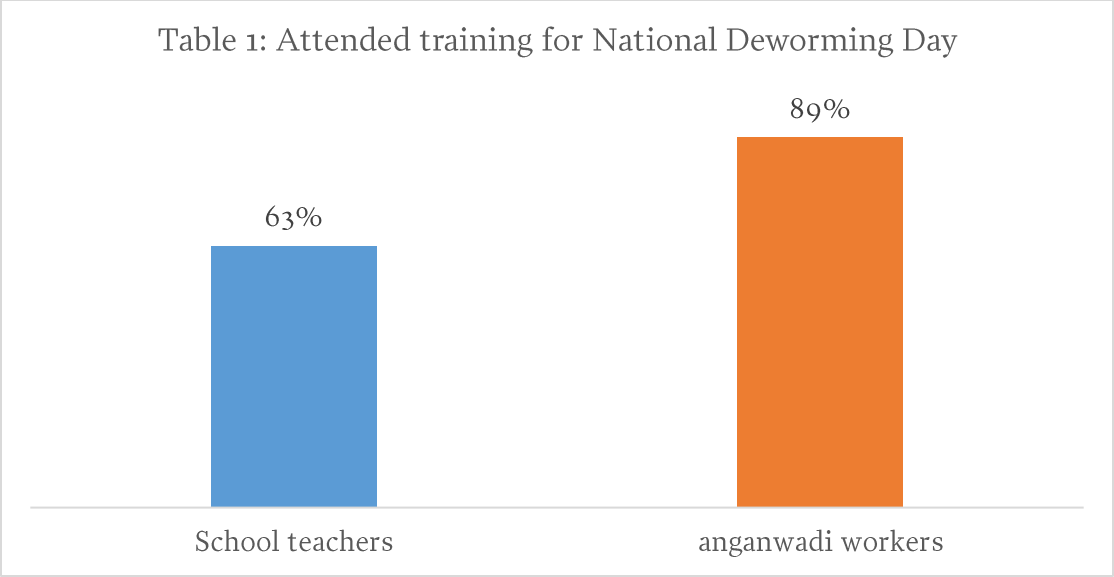
3.1 Training

For effective implementation of NDD, teachers and *anganwadi* workers are trained prior to the deworming day. Independent monitoring data demonstrated that teacher/ headmasters from 63% of schools and 89% of *anganwadi* workers received training for the deworming round[3] **(Figure 1).** Among those who did not attend training, majority of teachers (49%) and *anganwadi* workers (58%) cited unawareness about the date and time of training as the main reason. **(Annexure 1 – Table 1)**.

Nine of the 21 sampled private schools reported to have received training on deworming in the last two months. Among these teachers, unawareness about training date and time was also the major reason for not attending the training. 13 of the 21 private schools were aware of the possible adverse events and all of them were aware of the remedial measures to be taken in case of an adverse event.

Approximately 40% of schools and *anganwadis* reported that they did not receive an SMS about deworming schedule **(Annexure 1 – Table 1)**. Additionally, even in schools where a headmaster/teacher attended training, only 32% provided training to other teachers in the school **(Annexure 1 – Table 1)**. Only 10 of the 21 private schools reported to have received an SMS about deworming.

[3] Findings from both process monitoring and coverage validation were grouped together for this indicator.



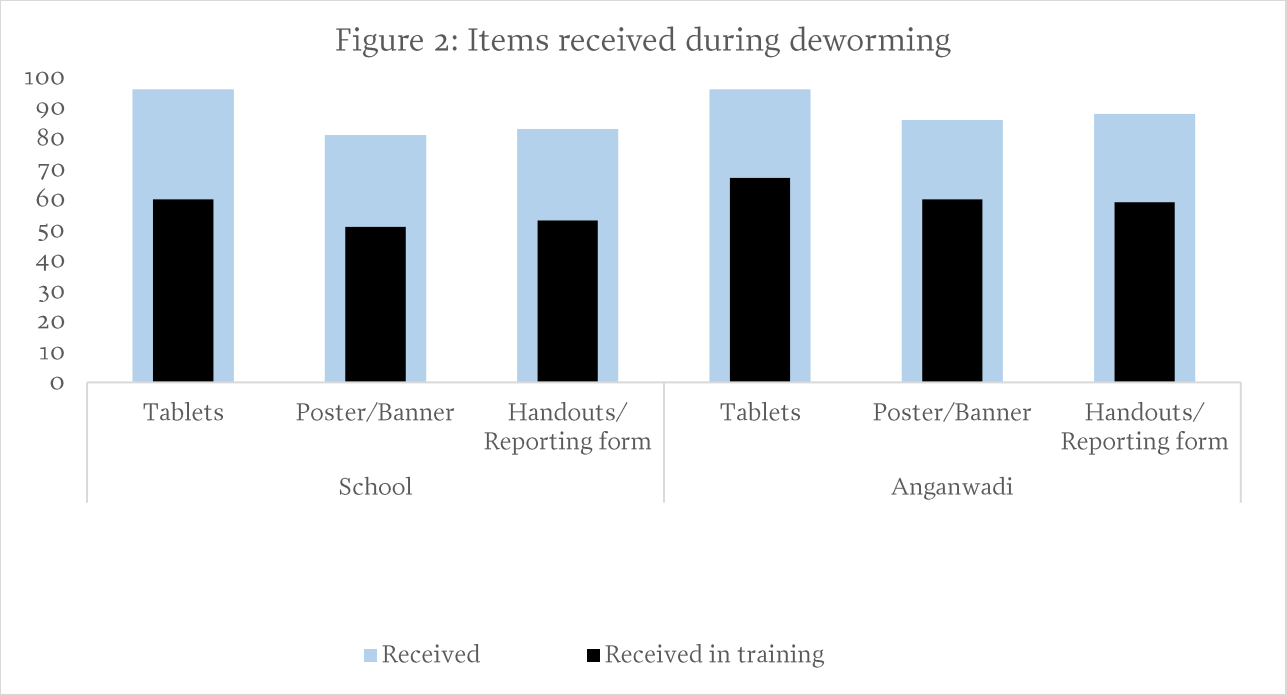
3.2 Integrated Distribution of Deworming Materials Including Drugs

As per NDD guidelines, there should be an integrated distribution process, providing all necessary IEC and training materials along with deworming tablets to schools and *anganwadi* centers at Block level training.[4] Despite the well-defined NDD kit and integrated distribution cascade, findings from independent monitoring demonstrate that only 46% of schools and 53% of *anganwadis* in the state had integrated distribution of deworming materials, highlighting large distribution of deworming materials on individually in trainings **(Annexure 1 – Table 1)**.

Around 96% of schools and anganwadis received tablets for deworming; however, 60% of schools and 67% of *anganwadis* received these tablets during training **(Figure 2 & Annexure 1 – Table 2).** Moreover, 94% of schools and *anganwadis* reported to have received sufficient drugs for deworming **(Annexure 2 – Table 1).** 81% of schools and 86% of *anganwadis* received poster/banner whereas, around 51% of schools and 60% of *anganwadis* received banner/posters in training **(Figure 2 & Annexure 1 – Table 2).** About 83% of schools and 88% of *anganwadis* received handouts/reporting forms 53% of schools and 59% of *anganwadis* received them in the training **(Figure 2 & Annexure 1 – Table 1).**

13 of the 21 private schools covered during process monitoring reported to receive tablets and banner/posters for deworming; however, only five of them reported to receive tablets in training. Moreover, nine of the private schools reported to receive handouts/reporting forms in the training. During coverage validation 14 out of 23 private schools reported to have received sufficient quantity of deworming tablets.

[4] 'National Deworming Day, Operational Guidelines 2016,Ministry of Health and Family Welfare, Government of India http://nrhm.gov.in/images/pdf/NDD-2016/Guidelines/Draft_NDD_2016_Operational_Guidelines.pdf



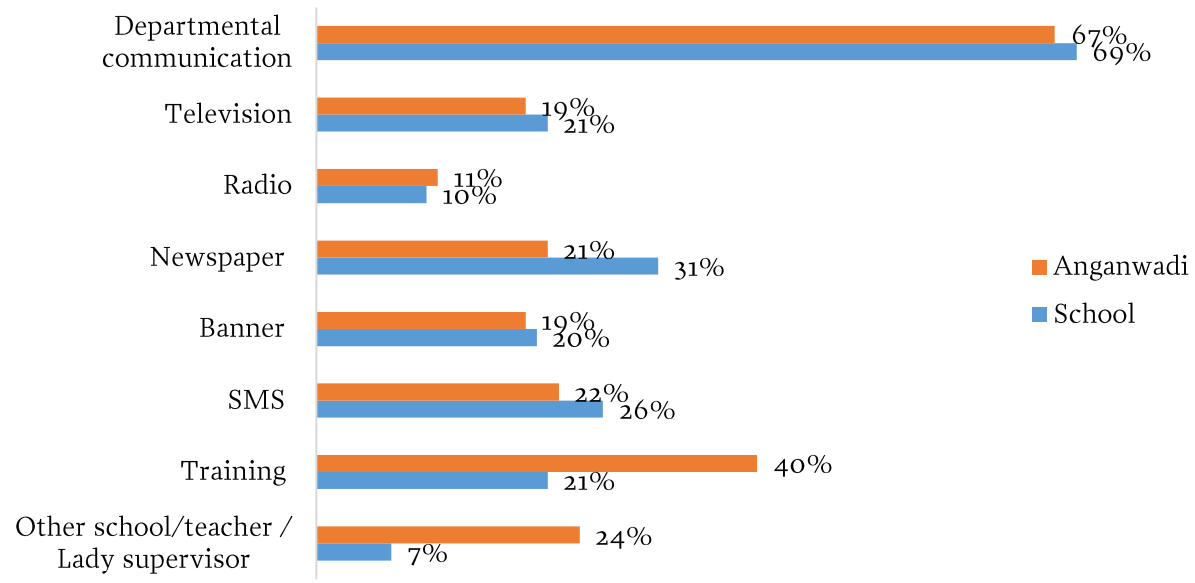
3.3 Source of Information about Recent Round of Deworming

Departmental communication was the major source[5] of information for the schools (68%) and *anganwadis* (67%) for deworming **(Figure 3).** This was followed by newspapers (31%) for schools and training (40%) for *anganwadis*. SMS and television were sources of information for approximately 20% and 26% of schools and *anganwadis* respectively **(Figure 3 & Annexure 1 – Table 1)**. Departmental communication was also the primary source of information for 14 out of 21 private schools. All children interviewed in private schools reported to have received the tablet. Thirteen of the 15 children interviewed were aware about deworming activity.

Most children reported their primary source of information about deworming to be verbal instructions and explanation from their teacher (96%), followed by the banner/poster (31%), newspapers (19%), and television (19%) **(Annexure 1 – Table 5)**.

[5] Major source of information is the maximum number of a medium reported by school teachers/headmaster and *anganwadi* workers

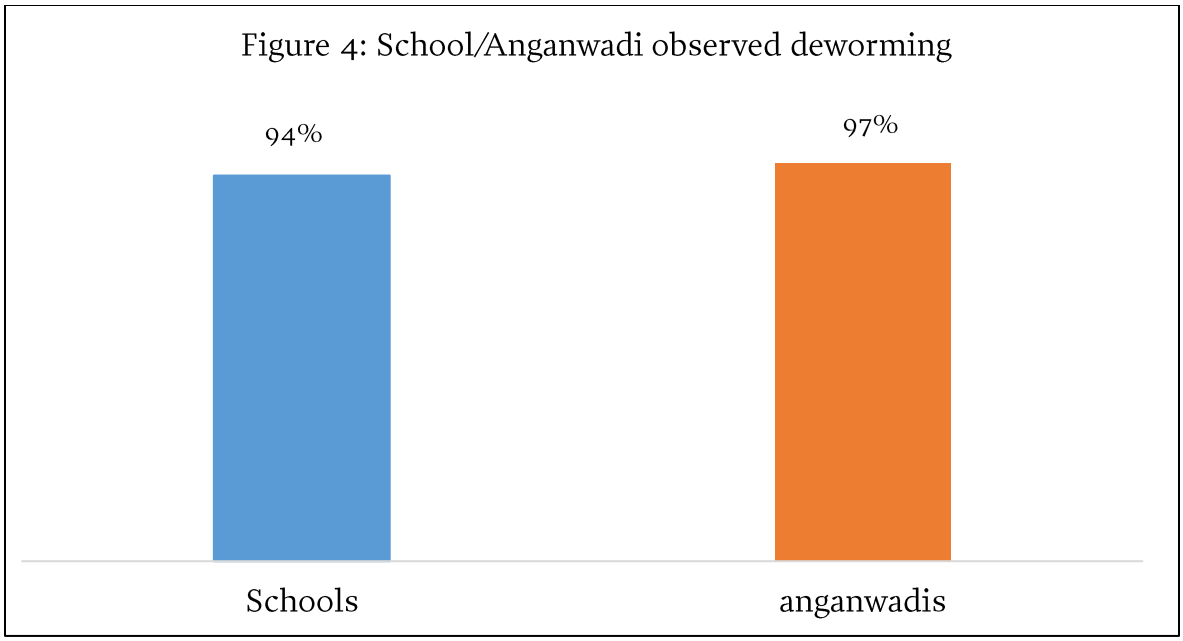
Figure 3: Source of information about recent round of deworming



3.4 Implementation of Deworming

Independent monitoring data depicted that around 86% of schools and 83% of *anganwadis* reported to conduct deworming on the day of visit; however, monitors observed ongoing deworming activity in 83% of schools and 89% of *anganwadis* respectively **(Annexure 1 – Table 1 & 3)**. Further, coverage validation demonstrated that 94% of schools and 97% of *anganwadis* had dewormed children during deworming or mop-up day **(Figure 4 & Annexure 2 – Table 1).** Out of total enrolled children who were interviewed on deworming day and mop-up day, around 94% reported receiving a tablet on one of these days. Prima facie, this suggests that deworming occurred in a large proportion of schools and *anganwadis* on one of the deworming days **(Annexure 1 – Table 5)**.

16 out of the 21 monitored private schools observed deworming on both NDD and mop-up day. During coverage validation, 20 of the 23 sampled private schools observed deworming on NDD and mop-up day.



3.5 Adverse Events - Knowledge and Management

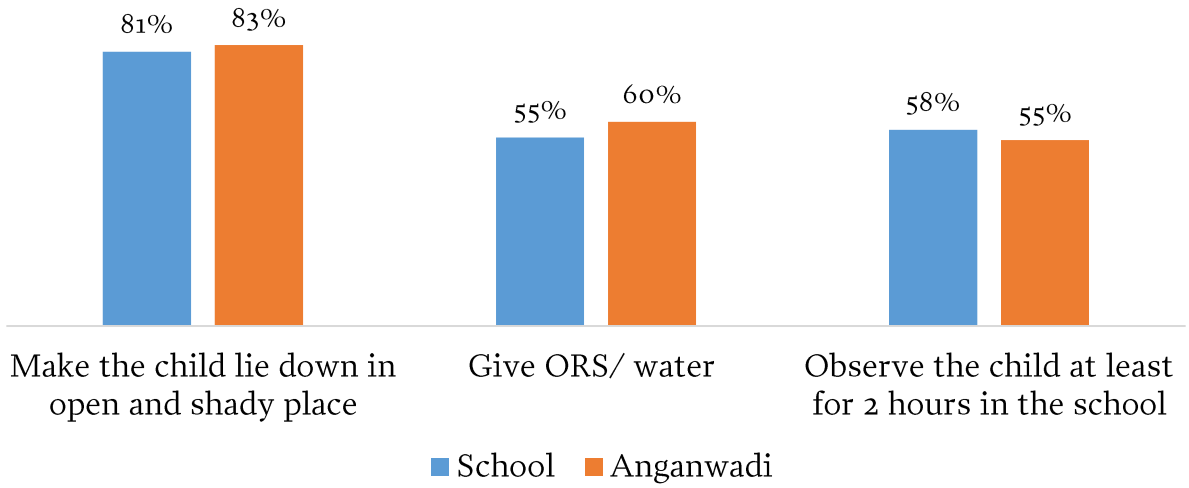
Interviews with headmasters and teachers revealed substantial awareness regarding potential adverse events, and understanding of appropriate protocols to follow in case of such events. Around 96% of schools and 95% of *anganwadi* workers asked children if they were sick before administering tablets, and 88% of schools and 92% of *anganwadi workers* did not administer tablets to a sick child **(Annexure 1 – Table 3)**. Abdominal pain was listed as a symptom by 79% of principals and 82% of *anganwadi* workers followed by vomiting (87% of principals and 61% of *anganwadi* staff). Less than 30% of school staff, and only 19% of *anganwadi* workers recognized fatigue as a symptom **(Annexure 1 – Table 1)**. Further, 81% of school teachers and 83% of *anganwadi* workers knew to have a child lie down in an open, shady place in case of any symptoms and the majority of schools and *anganwadis* knew to give ORS/water and observe for two hours (**Figure 5).** Further, 80% of schools and *anganwadis* reported the need to call a PHC doctor if symptoms persisted **(Annexure 1 – Table 1)**.

The high proportion of teachers and anganwadi workers who listed adverse event symptoms, and could describe response protocols, suggest that schools and *anganwadis* have substantial awareness about the processes to be followed. Almost all interviewed teachers listed at least one symptom and one measure to be followed in case of an adverse event. Around 15% of schools and 10% of *anganwadis* reported any case of mild adverse event **(Annexure 1 – Table 3)**.

Thirteen out of the 21 sampled private schools were aware of the possible adverse events that could be reported by children after taking the tablet and accurately mentioned at least one symptom. Vomiting and abdominal pain were the most frequently reported symptoms. Fourteen of the private schools reported to make a child lie down in an open, shady place in

case of any symptom, while 13 knew to give ORS/water. Four out of the 14 private schools reported any case of adverse event on NDD or mop-up day.

Figure 5 :Mild Adverse Events - Knowledge and Management



3.6 Recording Protocol

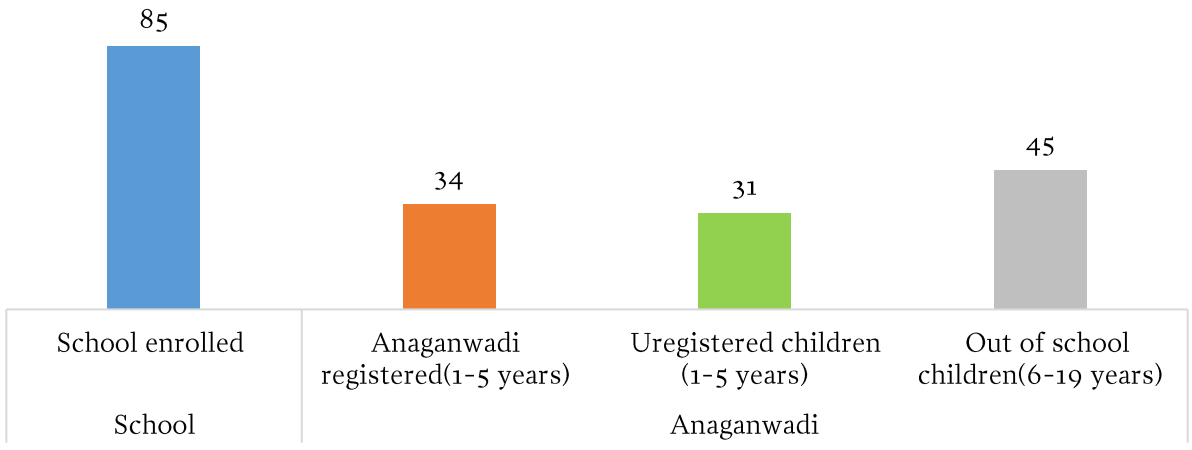
Coverage validation data **(Annexure 2 – Tables 2 & 4)** demonstrated that 65% of schools and 98% of *anganwadi*s followed correct recording protocols, while 35% percent of schools did not adhere to the protocols. Of these non-adhering schools, 20% did follow any recording protocol **(Annexure 2 – Table 2)**. During training, teachers and *anganwadi* workers were instructed to retain a copy of school/*anganwadi* reporting forms; however, 15% of headmasters and *anganwadi* workers interviewed during process monitoring were not aware of this requirement **(Annexure 1 – Table 1)**. During coverage validation, reporting forms were available in only 49% of schools/*anganwadis*. Further, as per NDD guidelines, ASHAs were required to prepare a list of the children not attending schools and *anganwadis* and submit it to *anganwadi* workers to increase coverage of these children; however, findings suggest that only 45% and 61% of *anganwadi*s had lists of out-of-school (6-19 years) and unregistered (1-5 years) children respectively **(Annexure 1 – Table 1)**. Nevertheless, 99% of schools completed the school reporting forms **(Annexure 2 – Table 2)**.

3.7 Coverage Validation

In schools and *anganwadis* sampled for coverage validation, state-level verification factors were calculated. Verification factors are common indicators for Neglected Tropical Disease control programs around the world. The verification factor compares the aggregated number of ticks in school/*anganwadi* registers (indicating that children were dewormed) to the coverage reported by schools/*anganwadis* in reporting forms submitted to the state. A verification factor of 1 means the schools reported the exact same figures that they recorded on deworming day. A verification factor less than 1 indicates over-reporting, while a

verification factor greater than 1 indicates under-reporting. Thus, the verification factor was estimated on the basis of availability of a copy of reporting forms at schools and *anganwadis.* As mentioned in the previous section, only 49% of schools and 53% of *anganwadis* had a copy of the reporting form available after deworming and mop-up day. The state level verification factor for enrolled children was 0.53, indicating that for every 53 enrolled children who were recorded as dewormed in schools, the school reported that 100 enrolled children had been dewormed **(Figure 6 & Annexure 2 – Table 2)**. This corresponds to an overall 85% inflation of reporting in the state, meaning that reported numbers appear to be approximately 85% higher than the numbers recorded in attendance registers. Similarly, the state level verification factors for *anganwadi* registered children, non-registered (1-5 years) and out-of-school (6-19 years) children were 0.74, 0.76 and 0.69 with corresponding inflation of 34%, 31% and 45% respectively **(Figure 6 & Annexure 2 – Table 4)**. Training was found to increase the accuracy of reporting. However, inflation was observed significantly high among trained schools too: trained schools had 76% inflation in reporting, while untrained schools had 137% inflation in reporting **(Annexure 2 – Table 2)**.

Figure 6: State level Inflation for dewormed children



Further, attempts were made to understand the maximum number of enrolled children that could have been dewormed. Coverage validation demonstrated that 94% of schools did deworming on either of the days and attendance data showed that 92% of the total school enrolled children were in attendance **(Annexure 2 – Table 2)**. Moreover, 98% of children interviewed during coverage validation reported to have received a deworming tablet and consumed it under the supervised administration in schools **(Annexure 2 – Table 3)**. Based on deworming implementation status and attendance of enrolled children on deworming and mop-up day and children's interview, maximum 85% (98% children out of 92% present in 94% of schools conducted deworming) children could have been dewormed in the state.

4. RECOMMENDATIONS

Since the program follows a fixed-day approach and engages multiple stakeholders, it is critical that all program components are aligned for successful program implementation and to prevent gaps and delays. Of particular importance are IEC, training, drug logistics, and adverse event management related preparedness. Following are the key recommendations for program improvements that emerged from these monitoring and evaluation processes.

1. The preparatory activities leading up to NDD 2016 were conducted under a compressed time schedule. In forthcoming rounds, all stakeholder engagement for planning and preparations should be initiated in advance as per the operations plan.

2. In coordination with all the stakeholder departments, consensus on fixing target population would be helpful to assess the extent of coverage and expanding reach to children not attending schools and *anganwadis.*

3. Training is a critical component of the program. Findings about training attendance suggest that quality and coverage can be improved in future rounds by ensuring that sessions are planned earlier and that greater emphasis is placed on communicating training dates. Better attendance at trainings may also be used to capture contact details, improving the ability of the deworming program to reach out to the ultimate implementers of the program. Improving attendance at trainings will likely benefit the distribution cascade as well, since drugs and materials are intended to be distributed at the time of training.

4. As substantial proportion of school headmasters and *anganwadi* workers did not receive deworming related SMSs during NDD, the contact database of functionaries across all stakeholder department needs to be regularly updated and strengthened to ensure comprehensive information dissemination and reaching concern officials/functionaries in a timely manner.

5. Findings suggest a need for greater focus on integrated distribution to ensure that sufficient drugs and other materials reach schools before deworming day. This requires efficient planning for the integrated training and distribution cascade to ensure that it works effectively.

6. Intensive efforts towards generating community awareness and mobilizing children to achieve high coverage will be critical for program success. For instance, parents and siblings may be targeted with specific community mobilization activities to increase coverage of out-of-school children. More engagement of ASHAs and AWWs should be encouraged, since they conduct community meetings, mobilize children, and conduct health education activities. Providing ASHAs with incentives, as approved by the national government, will motivate them to conduct activities for community engagement. Further, as most of the *anganwadi* centers did not have the list of out-of-school and non-registered children, efforts are required to proactively engage ASHAs to prepare these lists in their communities.

7. Coverage validation data, as well as differences in reporting between trained and untrained schools, suggest that a greater emphasis on recording protocols will improve the quality of coverage data in the future rounds.

8. The high levels of reporting inflation suggest that additional efforts are needed to increase accuracy of program coverage reporting, including increased emphasis on reporting protocols in trainings, IEC materials, and reminder SMSs. Moreover, given the high inflation in reporting in both schools and *anganwadis*, it is imperative to undertake data quality assessments (DQA) to understand the administrative and reporting challenges with program data management.

5. WAY FORWARD

Telangana observed National Deworming Day for the first time in 2016. Program monitoring has provided useful insights for increasing scale and coverage in future rounds. Aligned to the NDD operational guidelines, efforts will be coordinated to support the new stakeholder more intensively in the initial phase, while drawing from experiences from this round in the state. As the program appears to have achieved significant coverage for enrolled children in schools, moving forward the strategies will focus on increasing coverage of unregistered and out-of-school children, and reaching children in private schools. Efforts will be directed on encouraging schools and *anganwadis* to follow standard recording protocols for recording dewormed children to improve the accuracy of coverage data. Further, timely implementation of a DQA will help to understand the data quality challenges and make recommendations for improvements in future rounds. With the high burden of soil transmitted helminths (STH) in Telangana, continued advocacy efforts will also help to promote program sustainability by ensuring committed resources for bi-annual deworming rounds under the state's Program Implementation Plan.

ANNEXURE 1

Table: 1 Interview with headmaster/headmistress/principal and *Anganwadi* workers

Indicators	School		*Anganwadi*	
	%	N=220	%	N=201
Type of School				
Govt./Govt. Aided schools	89.6	199	NA	NA
Private Schools	9.5	21	NA	NA
Respondent of the section				
Headmaster/Principal	77.5	172	NA	NA
Vice principal	11.7	26	NA	NA
Nodal Teacher	1.8	4	NA	NA
Any other teacher	9	20	NA	NA
Category of school				
Primary(1 to 5)	55.4	123	NA	NA
Primary with upper primary(1 to 8)	12.2	27	NA	NA
Primary with upper primary and secondary(1 to 10)	6.8	15	NA	NA
Primary with upper primary secondary and higher secondary(1 to 12)	0	0	NA	NA
Upper primary only(6 to 8)	0.5	1	NA	NA
Upper primary with secondary and higher secondary(6 to 12)	1.8	4	NA	NA
upper primary with secondary(6 to 10)	21.6	48	NA	NA
Secondary only (9 to 10)	0.5	1	NA	NA
Secondary with higher secondary(9 to 12)	0	0	NA	NA
Higher Secondary only or Jr. college(11 to 12)	1.4	3	NA	NA
Did School/*Anganwadi* worker attended training in last 2 months	64.9	144	90.5	182
Did trained teacher provide training to other teachers				
Yes, trained all other teachers	69.4	100	NA	NA
Yes, trained some other teachers	16.7	24	NA	NA
No, did not train other teachers	12.5	18	NA	NA
Don't know /don't remember	1.4	2	NA	NA
Reason for not attending official training				
Location was too far away	2.9	2	11.8	2
Did not know the date/timings	49.3	34	58.8	10
Busy in other official work	15.9	11	11.8	2
Attended deworming training in the past	2.9	2	0	0
Not Necessary	1.4	1	0	0
Source of information about recent round of deworming program				
Departmental communication	68.5	152	67.2	135

Television	21.2	47	18.9	38
Radio	9.5	21	11.4	23
Newspaper	30.6	68	21.4	43
Banner	20.3	45	18.9	38
SMS	25.7	57	22.4	45
Training	21.2	47	40.3	81
Other school/teacher	6.8	15	23.9	48
Awareness about the ways a child can get worm infection	95.5	212	99.1	200
Different ways that children can get worm infected				
Having foods without washing hands	98.6	209	98.5	198
Not washing hands after using toilets	94.3	200	95	191
Not using sanitary latrine	70.3	149	67.7	136
Moving in bare feet	76.4	162	74.1	149
Consume vegetables and fruits without washing	75.9	161	77.1	155
Having long and dirty nails	72.6	154	65.2	131
Receive SMS about the deworming program	59.5	132	58.7	118
Preference to receive the SMS				
Morning	39.6	88	39.8	80
Afternoon	18.5	41	15.4	31
Evening	19.8	44	16.9	34
Any time	47.3	105	47.8	96
Do not prefer the SMS	2.3	5	2.5	5
Having integrated distribution of Poster/Banner, handouts/reporting form in training	46.8	103	53.2	106
Visibility over the Deworming Day Poster/Banner is posted				
Clearly posted/ visible to all	78.8	141	79.8	138
Hidden in a room/partially visible.	10.0	18	12.1	21
Not posted/ not visible	11.7	21	8.1	14
Has the ASHA submitted you a list of preschool non registered Children (1-5 years) in your community	NA	NA	66.1	133
Has the ASHA submitted you a list of Out-Of-school Children(6-19 years) in your community	NA	NA	54.7	110
Are non-registered (1-5 years) children also getting deworming tablets in your *anganwadi* today	NA	NA	88	177
Are Out-Of-school Children(6-19 years)children also getting deworming tablets in your *anganwadi* today	NA	NA	96.5	194
Prescribed dose of 1-2 years of children	NA	NA	60.7	122
Prescribed dose of 2-19 years of children	98.2	218	96.5	194
Awareness about to whom to submit the completed	79.7	177	90	181

School/*Anganwadi* Reporting				
Retain a copy of the School/*Anganwadi* Reporting Form at the school after submitting one copy	86.5	192	85.1	171
Teachers/*Anganwadi* who think any adverse event can occur after taking the deworming tablets	51.4	114	43.8	88
Possible adverse events could be reported by children after taking the tablets				
Mild abdominal pain	78.9	90	81.8	72
Nausea	62.3	71	55.7	49
Vomiting	86.8	99	61.4	54
Diarrhea	29.8	34	14.8	13
Fatigue	28.1	32	19.3	17
Response in case a child complains of mild stomach ache, nausea, vomiting, and diarrhea after taking the tablets,				
Make the child lie down in open and shady place	80.6	179	82.6	166
Give ORS/ water	55.4	123	60.2	121
Observe the child at least for 2 hours in the school	57.7	128	54.7	110
Response in case the child continues to report symptoms of stomach ache, vomiting, diarrhea, etc. even after a few hours				
Call PHC or emergency number	81.1	180	79.6	160
Take the child to the hospital /call doctor to school	70.3	156	74.1	149
Don't know / don't remember	2.7	6	0	0
Deworming activity going in your school/*Anganwadi* today				
Yes, getting now	71.2	158	91	183
Yes, after few hours	14.9	33	0	0
No, will not administer today	14	31	9	18

Table: 2 Integrated Distribution of Drugs and IEC material

Items Received in training	Schools			*Anganwadi*		
	Received	Verified*	Received in training	Received	Verified*	Received in training
Tablets	95.9	86.9	62.4	96	88.1	69.4
Poster/Banner	80.6	85.5	63.7	86.1	87.9	69.9
Handouts/ Reporting form	83.3	84.9	63.2	88.1	87	67.2

Note:-The sample size for items received in schools and *anganwadis* were 220 and 201 respectively

*****The denominator for verified is the number of particular item received to schools and *anganwadis*

Table3: Observation of deworming activity in the class/*Anganwadi*

Indicators	Schools(159)*		*Anganwadi* (184)*	
	%	N	%	N
Deworming activity is taking place in the class/*Anganwadi*	79.5	159	89.6	164
Teachers/*Anganwadi* worker giving any health education related to deworming				
Yes	92.5	147	88.4	145
Could not observe as I reached late	4.4	7	2.4	4
What are being included by the teacher/*Anganwadi* worker as a part of health education to children				
Harmful effects of worms	90.5	133	86.2	125
How worms get transmitted	83.0	122	81.4	118
Benefits of deworming	77.6	114	78.6	114
Methods of worm infection prevention	53.1	78	59.3	86
Comprehensive health education to children	31.9	71	37.8	76
Teacher/ *Anganwadi* worker were asking the children if they are sick/under medication before giving the tablet	96.2	152	94.5	155
What teacher/ *Anganwadi* worker did ,If there was any sick child in the class room				
Gave Albendazole tablet to the child	11.8	18	7.7	12
Did not give the Albendazole tablet to the child	88.2	135	92.3	143
Students/children are told to chew the tablet before swallowing it	95.6	151	92.7	152
Deworming tablets were distributed by				
Teacher/headmaster	75.3	119	NA	NA
***Anganwadi* worker**	NA	NA	87.2	143
Asha/ANM	24.7	39	12.8	21
Students	0.0	0	0.0	0
Teacher/ *Anganwadi* worker asking students to take Albendazole tablets in the class/ *Anganwadi* only	100.0	159	95.7	157
Teachers/ *Anganwadi* worker following the protocol of putting single tick ✓(deworming day) or double tick ✓✓ (mop-up day) on each child's name/roll no. in the attendance register after giving them the deworming tablet	93.7	148	88.4	145
Practice followed by teacher, if the ticking/double ticking protocol did not followed				
Prepare the separate list for dewormed child	10.0	1	42.1	8
Put different symbols	10.0	1	21.1	4
Nothing was done	50.0	5	36.8	7
Any child not given the prescribed dose of Albendazole tablet				
Yes, less than the prescribed dose	1.9	3	4.9	8

Yes ,more than the prescribed dose	2.5	4	1.2	2
No, the prescribed dose is being given	95.6	151	93.9	154
Any adverse event observed (nausea, vomiting, stomach-pain diarrohea, etc.) after taking the tablet	15.2	24	10.4	17
Is there a single tick (deworming day) in front of the children present on that day Anganwadi				
Yes to every children	78.8	82	69.1	67
Yes, but in few children	14.4	15	21.7	21
No	4.8	5	9.3	12
Are there names which do not have a single tick on deworming day AND they also do not have a double tick on mop-up day	59.8	52	60.0	39
Reason of not putting single tick or double tick in front of the name of all/some children				
They did not get deworming drugs as they were feeling unwell	59.5	44	69.2	27
AWW did not follow the recording protocol correctly	14.9	11	15.4	6
The parents of those children have refused to get their children dewormed	12.2	9	2.6	1
Children refused to take the drug	14.9	11	2.6	1
Others	29.7	22	0.0	0

*Deworming activity was observed by monitors in 159 schools and 184 *anganwadis*

Table: 4 Interview with school teacher

Indicators	%	N
Attended any official training for deworming program in the past 2 months	52.3	116
Received training for deworming		
At official level training	65.5	76
By Headmaster/ teacher	31.9	37
Others (specify)'	2.6	3
Awareness about the ways a child can get worm infection	93.2	207
Different ways that children can get worm infected		
Having foods without washing hands	99.5	206
Not washing hands after using toilets	94.2	195
Not using sanitary latrine	70.5	146

Moving in bare feet	74.4	154
Consume vegetables and fruits without washing	81.6	169
Having long and dirty nails	72.0	149
If child unwell, albendazole can't be given	7.2	16
Awareness about prescribed dose of albendazole		
One	98.6	219
More than one	0.5	1
Less than one	0.9	2
Teachers who think any adverse event can occur after taking the deworming tablets	46.4	103
Possible adverse events could be reported by children after taking the tablets		
Mild abdominal pain	86.4	89
Nausea	70.9	73
Vomiting	83.5	86
Diarrhea	41.7	43
Fatigue	38.8	40
In case a child complains of mild stomach ache ,nausea, vomiting, and diarrhea after taking the tablets, Your response should be		
Make the child lie down in open and shady place	85.1	189
Give ORS/ water	58.6	130
Observe the child at least for 2 hours in the school	59.5	132
Don't know / don't remember	4.5	10
Other	4.5	10
If the child continues to report symptoms of stomach ache, vomiting, diarrhea, etc. even after a few hours, Your response should be		
Call PHC or emergency number	79.7	177
Take the child to the hospital /call doctor to school	72.5	161

Note: - Interviews were conducted from 222 school teachers

Table: 5 Interview with school child

Indicators	%	N
Child got a white tablet in school today	94.2	180
Child was feeling sick before taking the tablet in the school today	11.7	21
Child got tablet by		
By Teacher / headmaster	78.9	142
By ASHA/ANM	21.1	38
By Other student	0	0
Other	0	0
Child consumed tablet	98.9	178
Reason to not consume tablet		
Was feeling sick	100	2
I'm afraid of taking the tablet	0	0

Parents told me not to have it	0	0
Don't have worms so don't need it	0	0
Did not like the taste	0	0
Had difficulty swallowing	0	0
Taking home	0	0
Other, specify	0	0
Awareness of child that, how to consume the tablet		
Chewed tablet before swallowing	88.9	160
Swallowed tablet directly	11.1	20
Other, specify	0	0
Awareness of child that, why tablet is provided		
Deworming	96.1	173
Any other answer(unrelated to deworming)	0	0
Child was aware about deworming activity	42.9	3
Source of information about deworming activity		
Teacher / school	97.7	173
Television	19.2	34
Radio	6.8	12
Newspaper	19.2	34
Poster/Banner	31.1	55
Parents/siblings	8.5	15
Friends/Neighbors	6.2	11

Note: - Interviews were conducted from 181 school enrolled children

ANNEXURE 2

Table 1: Findings from School/*Anganwadi* Coverage Validation data

Table:1 Coverage Validation Indicators	School Number=301		*Anganwadi* Number=293	
Indicators	**%**	**N**	**%**	**N**
Attended training for deworming program*	63.1	202	89.4	269
For schools/*Anganwadi* that didn't attend training, reasons were:				
Location of training was far away	1.9	2	10.3	3
Was not aware of the date/ timing of training	49.5	51	51.7	15
Busy in other official work	5.8	6	13.8	4
Attended deworming training in the past	6.8	7	24.1	7

Not necessary	1.9	2	0	0
Other reasons	45.6	47	17.2	5
Schools/*Anganwadis* observed deworming	94.1	301	97.3	293
Schools/*Anganwadis* received the followings				
Tablets	95	304	99.3	299
Poster	80.9	259	89	268
Handouts/Reporting form	79.4	254	88	265
Received SMS about deworming program	50.9	163	53.3.	162
Schools/*Anganwadis* had the sufficient drugs for deworming	93.6	277	94.2	275
Schools/*Anganwadis* where copy of school reporting form was available	44.8	135	49.6	128
For schools/*Anganwadis* that didn't have copy of school reporting form, reasons were:				
Did not received	10.84	18	5.4	7
Submitted to ANM	81.33	135	92.3	120
Unable to locate	3.01	5	0.8	1
Anganwadis having list of non-registered(1-5) children	NA	NA	61.09	179
Anganwadis having list of out of school(6-19) children	NA	NA	45.39	133

*This was asked to 320 and 301 anganwadis visited for coverage validation

Table: 2 School Coverage Validation Indicators

Indicators	%
Schools where all the classes followed the correct recording protocol	64.5
Schools where one or more of the classes followed the correct recording protocol	69.7
Schools where none of the classes followed the correct reporting protocol	30.2
Schools where one or more of the classes followed the correct recording protocol	69.7
Schools where one or more of the classes followed other recording protocol	12.9
Schools where no reporting protocol was followed	19.6
State level verification factor (in numbers)	0.053
State inflation rate (which measures the extent to which the recording in school reporting forms exceeds records at schools)	85.5

Attendance on Deworming Day	83.9
Attendance on Mop-up day	66
Children who attended on both Deworming Day and Mop-up day	58
Maximum attendance of children on Deworming Day and Mop-Up Day	91.9
Schools had surplus storage of drugs after deworming	63.5
Schools had complete school reporting form	99.2
Schools reported serious adverse event after taking the medicine	8
Average number of adverse events reported per school	0.8
State level inflation rate among trained schools (which measures how much the coverage reported in reporting forms exceeded school records in registers for schools that received training)	76.5
State level inflation rate among untrained schools (which measures how much coverage reported in reporting forms exceeded school records in registers for schools that were not trained)	137.1
School level inflation rate for schools that followed the correct recording protocol (measures how much coverage reported in reporting forms exceeded school records in registers, for schools that were following recording protocols, i.e., ticking).	71.5

Table: 3 Interview of children during Coverage validation

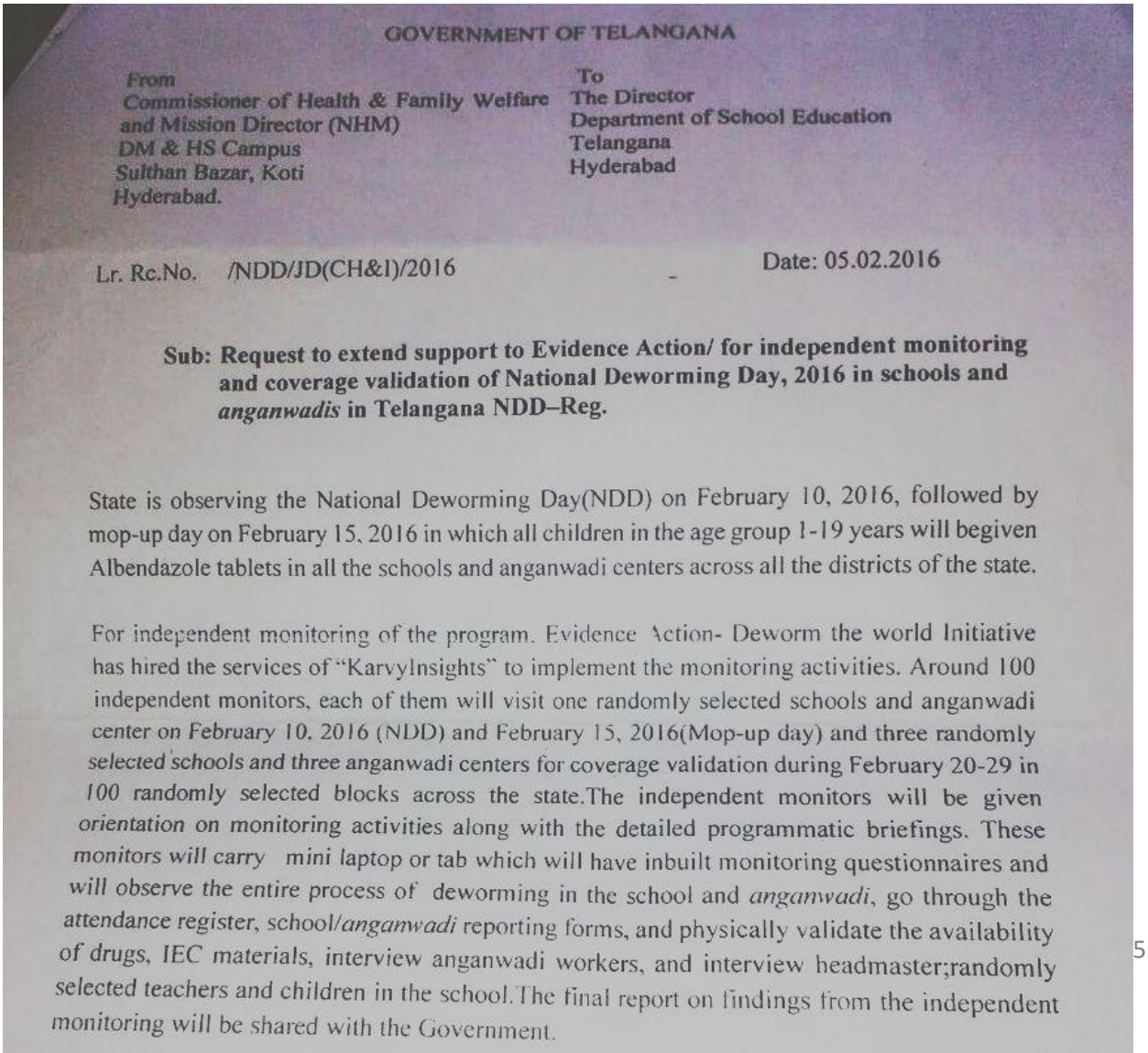
Indicators	%	N
Children received deworming tablets	98.7	892
Supervised Administration of tablets	98	875
Children consumed tablet	98.6	883
Children aware about the deworming tablets	92.9	829
Way children consumed the tablet		
Chewed tablet before swallowing	93.8	828
Swallowed tablet directly	6.2	55

Note:- Three children were interviewed from all those schools(301) who reported to observe deworming during NDD and mop-up day out of total 320 schools visited during coverage validation

Table: 4 *Anganwadi* Coverage Validation Indicators

Indicators	Values
Anganwadi that followed recording protocol	97.5
State level verification factor for Registered children(1-5 years)	0.73
State level verification factor for non- registered children(1-5 years)	0.78
State level verification factor for out of school children(6-19	0.69

years)	
State inflation rate (1-5 years)	34.5
State inflation rate for non- registered children (1-5 years)	27.8
State inflation rate for out of school children(6-19 years)	44.7



GOVERNMENT OF TELANGANA

From
Commissioner of Health & Family Welfare
and Mission Director (NHM)
DM & HS Campus
Sulthan Bazar, Koti
Hyderabad.

To
The Director
Department of School Education
Telangana
Hyderabad

Lr. Rc.No. /NDD/JD(CH&I)/2016 Date: 05.02.2016

Sub: Request to extend support to Evidence Action/ for independent monitoring and coverage validation of National Deworming Day, 2016 in schools and *anganwadis* in Telangana NDD–Reg.

State is observing the National Deworming Day(NDD) on February 10, 2016, followed by mop-up day on February 15, 2016 in which all children in the age group 1-19 years will begiven Albendazole tablets in all the schools and anganwadi centers across all the districts of the state.

For independent monitoring of the program, Evidence Action- Deworm the world Initiative has hired the services of "KarvyInsights" to implement the monitoring activities. Around 100 independent monitors, each of them will visit one randomly selected schools and anganwadi center on February 10, 2016 (NDD) and February 15, 2016(Mop-up day) and three randomly selected schools and three anganwadi centers for coverage validation during February 20-29 in 100 randomly selected blocks across the state.The independent monitors will be given orientation on monitoring activities along with the detailed programmatic briefings. These monitors will carry mini laptop or tab which will have inbuilt monitoring questionnaires and will observe the entire process of deworming in the school and *anganwadi*, go through the attendance register, school/*anganwadi* reporting forms, and physically validate the availability of drugs, IEC materials, interview anganwadi workers, and interview headmaster;randomly selected teachers and children in the school.The final report on findings from the independent monitoring will be shared with the Government.