



Independent Monitoring of
National Deworming Day in Chhattisgarh
February 10, 2017

REPORT
September 2017

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EXECUTIVE SUMMARY

In India an estimated 220 million¹ children or one quarter of the global burden are living with STH infection. In February 2017, the Government of India launched National Deworming Day (NDD) to deworm all children between 1-19 years. The program aims to deworm all at-risk children through the supervised administration of albendazole tablets to all children aged 1-19 at *anganwadis* (preschools) and schools, including unregistered and out-of-school children.

Chhattisgarh observed the February 2017 round of NDD in all 31 districts on February 10, 2017 followed by Mop-Up Day on February 15, 2017. Evidence Action's Deworm the World Initiative, as the technical assistance partner to the state government, engaged an independent research agency to conduct process monitoring on NDD and Mop-Up Day and to assess the preparedness of *anganwadis* and schools to implement the NDD program and followed by coverage validation to evaluate the accuracy of the reporting data and coverage estimates post NDD round.

Findings from process monitoring highlighted that nearly 95% of schools and *anganwadis* observed deworming either on NDD or Mop-Up Day. Approximately 97% of schools and 90% of *anganwadis* received sufficient tablets and 70% of schools and 66% of *anganwadis* received program posters/banners. However, roughly half of schools and *anganwadis* received an integrated distribution of NDD kits.² Seventy-six percent of school teachers and 71% of *anganwadi* workers attended a training. Coverage validation data revealed that 65% of schools and 50% of *anganwadis* followed correct protocols for recording the number of children dewormed. A substantial proportion of *anganwadi* workers did not have a list of unregistered and out-of-school children. Despite substantial compliance to recording protocols, findings exhibited an inflation of 114% (verification factor of 0.47) for children enrolled in schools. In the interviews conducted, 97% or nearly all of enrolled children reported they received an albendazole tablet.

The independent monitoring of NDD highlights opportunities to strengthen and improve program quality and coverage of the program by ensuring timely communication of training dates to schools and *anganwadis*. Other opportunities include updating the contact database of functionaries across stakeholder departments to facilitate timely information dissemination on the program, strengthening integrated distribution of NDD kits and enhancing the engagement of ASHAs and private schools.

¹Soil transmitted helminths, Number of children (Pre-SAC and SAC) requiring Preventive Chemotherapy for Soil transmitted helminths, WHO (2014)

http://apps.who.int/neglected_diseases/ntddata/sth/sth.html

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

1. MONITORING AND EVALUATION

Understanding program reach and quality is a key component in determining if a NDD round was successful. Evidence Action worked intensively with the Government of Chhattisgarh's Departments of Health, Education, and Women and Child Development to assess the quality of program planning and implementation with the objective of identifying gaps and developing recommendations for improvements in future NDD rounds. Evidence Action conducted process monitoring to understand government implementers' preparedness for NDD and their adherence to the program's prescribed processes. After NDD, we conducted coverage validation to verify government-reported treatment figures.

1.1 Process Monitoring and Coverage Validation

Process monitoring assesses the preparedness of schools, *anganwadis*, and health systems to implement NDD and the extent to which they have followed recommended processes to ensure a high quality program. Evidence Action assessed program preparedness during the pre-NDD phase and retained independent monitors to observe the processes on NDD and Mop-Up Day. Evidence Action conducted process monitoring in two ways: a) telephone monitoring and b) physical verification by visiting schools/*anganwadis* and training venues.

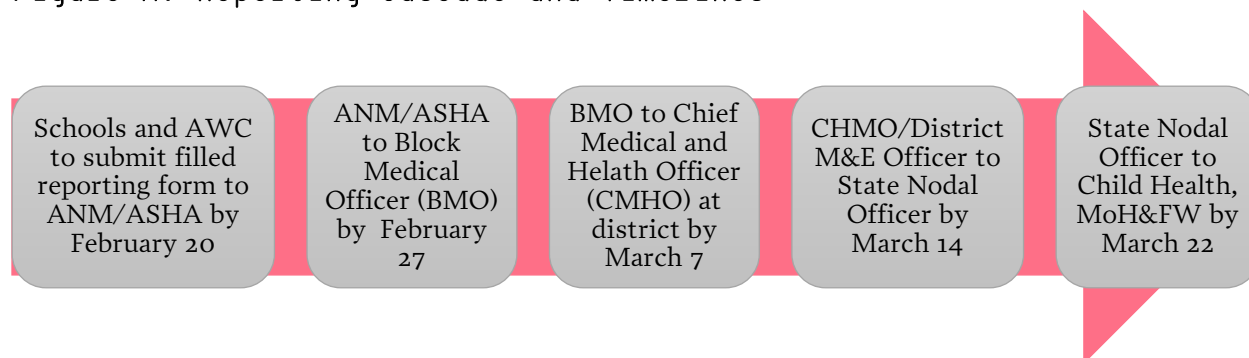
Coverage validation is an ex-post check of the accuracy of the reporting data and coverage estimates. Coverage validation data was gathered through interviews with headmasters and *anganwadi* workers and three students (in three different randomly selected classes) in each sampled school, and by checking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

1.2 Process Monitoring and Coverage Validation

Recording and reporting processes are an important means to assess the estimated number of program beneficiaries. With close support from Evidence Action's team, the Department of Health collected and compiled the coverage report for NDD within the reporting timelines. The coverage reporting in the state was done using paper as well as through the NDD app. The Government of India provided the state with 146 user IDs and passwords to all blocks and districts for the NDD mobile/web application based coverage reporting. The designated nodal government official at the block level then used the NDD application to approve NDD coverage data entered in the application by block level officials. The functionary trainings included a session on reporting protocols, cascades, and timelines (refer to **Figure A** below), and were shared with districts through state directives. To record deworming at schools and *anganwadis*, a single tick mark (✓) was required to be put next to a child's name in the attendance register if they were dewormed on NDD, and a double-tick mark (✓✓) if dewormed on Mop-Up Day. 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



1.3 Sampling and Sample Size

Evidence Action facilitated independent monitoring in all 31 implementing districts. Through a competitive process, Evidence Action hired Karvy Insights Limited, an experienced independent research agency that provided 125 monitors. Karvy Insights also implemented independent monitoring in Chhattisgarh during August NDD 2016 round as well. A two-stage probability sampling procedure was adopted to select schools and *anganwadis* for independent monitoring (**Table A**). A total of 193 schools and 191 *anganwadis* were covered during process monitoring on NDD and Mop-Up Day, and 495 schools and 495 *anganwadis* during coverage validation.

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	27	27	27	27
Total number of cluster/ <i>mandals</i>	100	100	100	100
Total number of schools	200	193	500	495
Total no. of children interviewed in schools	NA	NA	1500	1390
Total number of <i>anganwadis</i>	200	191	500	495

1.4 Independent Monitoring Formats

To ensure comprehensive coverage and triangulation of data, three formats were administered: one combined tool for process monitoring at schools and *anganwadis* on NDD and Mop-Up Day, and one each for schools and *anganwadis* for coverage validation. Evidence Action designed and finalized formats with approvals from Chhattisgarh’s Department of Health. The formats were translated into the regional language, checked to ensure that the language was concise and easy to understand, and loaded onto tablet computers.

1.5 Authorization from the Government

Evidence Action conducted independent monitoring with approval from the state government. Once the state government requested participation from each school, the monitors carried a copy of the authorization letter to the schools and *anganwadis*, and explained the process of monitoring and coverage validation to the a school headmaster or teacher or *anganwadi* worker while requesting their participation.

1.6 Training of Trainers and Independent Monitors

A two-phase training program was organized, with Evidence Action providing a one-day comprehensive training to master trainers of Karvy Insights Limited in Delhi on February 3, 2017, followed by the master trainers further conducting a two-day training of 125 monitors (including buffer monitors) during February 7-8, 2017. A refresher training of these monitors was conducted on February 18 to ensure quality data for coverage validation. The training included a brief orientation on NDD, the importance of independent monitoring, and details of the monitoring formats including computer-assisted personal interviews (CAPI) practices and practical sessions. At the end of the training, all participants were tested on their comprehension and ability to work in the field in order to qualify to participate.

1.7 Field Implementation

Each monitor was allotted a different school and *anganwadi* for process monitoring on NDD and Mop-Up Day to collect information on the availability of drugs, IEC materials, and further observations. Subsequently, each monitor was allotted five schools and five *anganwadis* for coverage validation. Monitors were provided a tablet computer, charger, printed copy of monitoring formats, and albendazole tablets for demonstration during data collection. The details of sample schools were shared with them one day before commencement of fieldwork to ensure that monitors did not contact the school and *anganwadis* in advance. If a school or *anganwadi* was found to be closed or non-traceable during process monitoring, it was replaced by another nearby site. During coverage validation, if a school was closed, monitors covered the next school on their list, and returned 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. In the absence of reporting forms, the calculation of the verification factor is restricted to the sample where the copy was found for verification.

1.8 Data Processing and Analysis

The survey agency provided data to Evidence Action in the agreed upon electronic format. Evidence Action reviewed all the data sets during pre-defined checkpoints, shared the feedback to the agency for any inconsistencies observed, and once again reviewed the data sets after the survey agency addressed any inconsistencies. All the analysis was performed using Stata version 13/14 and Microsoft Excel 2013.

1.9 Quality Control

Appropriate quality control measures were taken to ensure data collected was accurate and comprehensive. Selected schools and *anganwadis* were contacted over phone by Evidence Action representatives from the Delhi office and state teams to confirm that monitors visited sampled schools and *anganwadis*. Further, Evidence Action staff also visited select schools and *anganwadis* to spot and cross check the monitoring processes and to verify monitoring visits. In all cases, school and *anganwadi* staff were asked to sign a participation form with an official stamp to verify that the school or *anganwadi* was actually visited. Further, monitors also verified photographs of schools and *anganwadis* collected during IM data collection and built in to the CAPI process for process monitoring and coverage validation to prove the location of the interview.

2. KEY FINDINGS

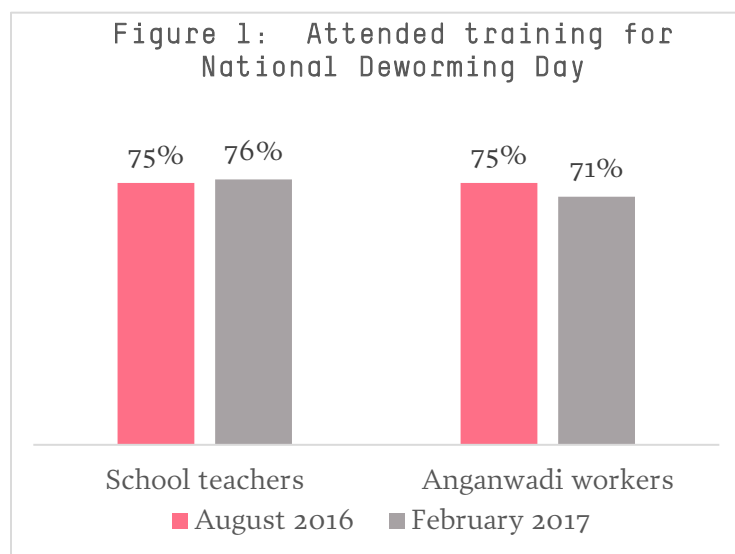
Key results³ and comparisons with the prior round from independent monitoring are provided below, with further details shared in annexures.

2.1 Training

For effective implementation of NDD, teachers and *anganwadi* workers are trained prior to the NDD round to account for teacher/*anganwadi* worker turnover and ensure an integrated distribution of drugs during training sessions. Data in **Figure 1** shows consistency in teacher and headmaster attendance in schools (with 75% of teachers/headmasters attending the training), however, attendance has declined slightly for *anganwadi* workers from 75% in the August 2016 NDD round to 71% in the February 2017 NDD round. Although all school teachers and *anganwadi* workers are expected to attend training for each round (regardless of training attendance in previous rounds), the slight decline of *anganwadi* worker training attendance could be partially attributed to the proportion of *anganwadi* workers who reported having already attended training in past rounds. Approximately one-third of teachers and one-fifth of *anganwadi* workers reported having attended NDD training in the past as a reason for not attending the NDD trainings for the February 2017 round. Only 62% of trained teachers provided training to other teachers in their schools. To ensure improved training quality and the success of the program, trained teachers should impart further training to other teachers in their schools.

³ The process monitoring and coverage validation data are based on sampled schools and *anganwadis*. Therefore, sampling weights are developed for each data set except process monitoring in *anganwadis* using selection probabilities. The sampling weights are further normalized at the state level to obtain standard state weights. All analysis tables are based on the weighted sample except *anganwadis* findings from process monitoring.

A lack of information about the date and location of NDD trainings impacted the training attendance of teachers/headmasters and *anganwadi* workers as well. Amongst those who did



not attended training, 62% of teachers/headmasters and 63% of *anganwadi* workers reported the lack of information about NDD training as the main reason for not attending trainings. Approximately 33% of schools and 54% of *anganwadis* reported that they did not receive an SMS about deworming (Table PM1). The contact database should be updated on a regular basis in line with mandated annual updates to the Unified District Information System for Education (U-DISE). The lack of

an updated contact database may have impacted the overall delivery of SMSs to the teachers and *anganwadi* workers.

Among private schools, only 24% of private schools reported receiving NDD training. Lack of information surrounding training dates and times was the reason for 100% of private schools not attending the training (Table PM6). Private schools require further engagement through ensuring information on training dates and locations is accurately communicated and encouraging private school participation.

2.2 Integrated Distribution of NDD Materials Including Drugs

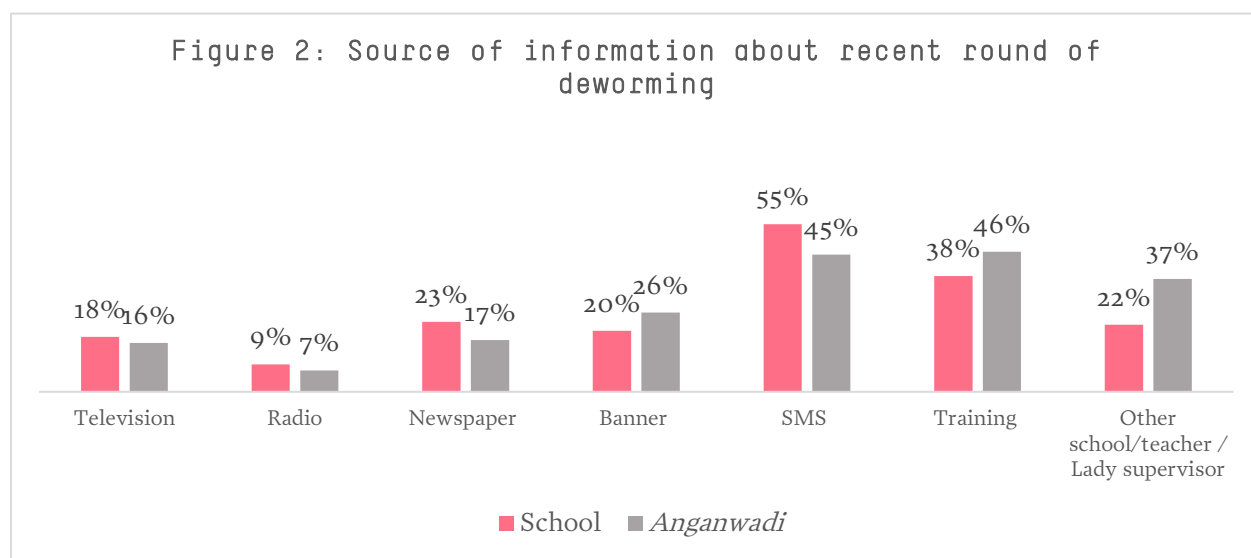
The NDD guidelines mandate integrated distribution of deworming tablets along with all IEC and training materials to schools and *anganwadi* centers at block/cluster level training in the form of a NDD kit⁴ to ensure the timely and cost effective delivery of materials. Despite the well-defined distribution plan, findings show that only 57% of schools and 50% of *anganwadis* in the state received complete NDD kits during their trainings. This indicates that in a large number of schools and *anganwadis*, drugs and IEC materials were distributed separately from the trainings. As a result, a significant distribution of materials happened individually in trainings (Table PM3). Around 95% of schools and 96% of *anganwadis* received tablets for deworming, while 70% of schools and 66% of *anganwadis* received posters/banners (Table PM3). Moreover, 97% of schools and 90% of *anganwadis* reported having received sufficient drugs for deworming (Table PM2).

⁴National 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

Among private schools, around 73% received tablets for deworming. Of those that received tablets, almost all reported having a sufficient quantity. Twenty-five percent of the private schools covered during process monitoring received banners/posters, and 60% of private schools reported receiving handouts/reporting forms for deworming (**Table PM6**).

2.3 Source of Information about the Recent Round of NDD

As depicted in **Figure 2**, 52% of schools and *anganwadis* reported receiving information on NDD via SMS. About 23% of the schools and 20% of the *anganwadis*, reported hearing about NDD via the television (**Figure 2**). Twenty-five percent of schools and 18% of *anganwadis* also reported having received information about NDD through the newspaper and 27% of schools and 21% of *anganwadis* reported receiving information through banners/posters. The radio was the least effective source of information about NDD for this round as only nine percent of schools and seven percent of *anganwadis* reported to hear about NDD through the radio.

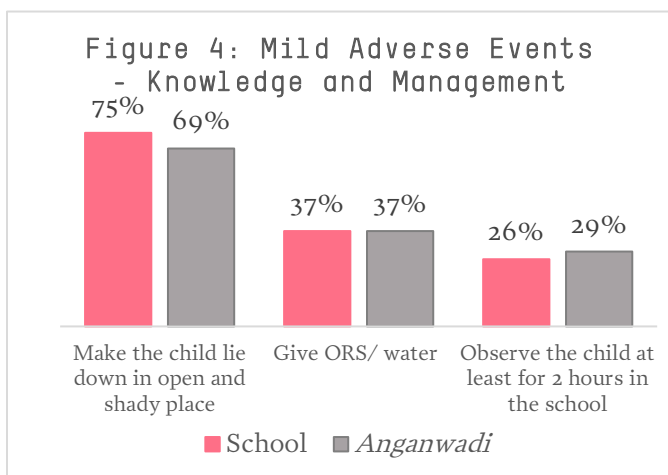
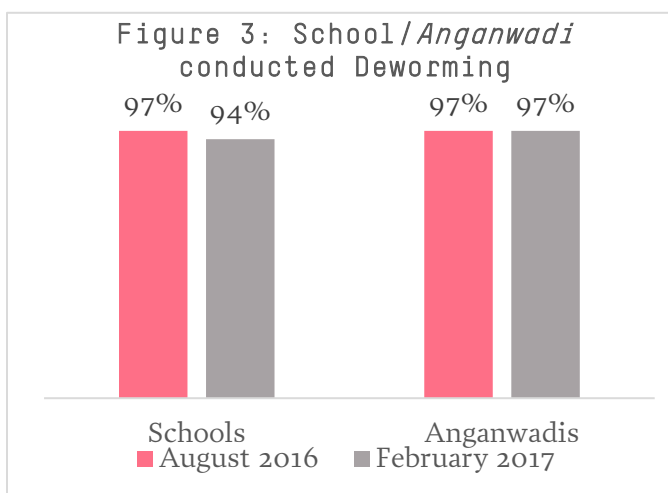


2.4 NDD Implementation

Although there was a slight decline in the percentage of schools that conducted deworming from August 2016 to February 2017, it was consistent for *anganwadis* during the same period (**Figure 3**). The coverage validation data shows that around 94% of schools and 97% of *anganwadis* had dewormed children during NDD or Mop-Up Day (**Table CV1**). Out of 177 schools and 172 *anganwadis* that implemented NDD, monitors were able to observe ongoing deworming activity in 49% of schools and 57% of *anganwadis* respectively (**Table PM4**).

2.5 Adverse Events - Knowledge and Management

Interviews with headmasters and teachers and AWWs revealed a high degree of awareness regarding potential adverse events due to deworming and understanding of the appropriate protocols to follow in the case of such events. Abdominal pain was listed as a symptom by 70% of principals followed by vomiting (60%), while 79% of *anganwadi* workers listed vomiting followed by abdominal pain (70%) as a symptom of an adverse event. Around 17% of school teachers and 33% of *anganwadi* workers recognized fatigue as a symptom (**Table PM5**). Further, 75% of teachers and 69% of *anganwadi* workers knew to make a child lie down in an open, shaded place in case of any symptoms, 37% of schools and *anganwadis* knew to give ORS/water, and 26% of schools and 29% of *anganwadis* knew to observe for two hours (**Figure 4**). Further, 70% of schools and 73% of *anganwadis* reported the need to call a PHC doctor if symptoms persisted (**Table PM5**).



2.6 Recording Protocol

Coverage validation data demonstrated that 65% of schools and 50% of *anganwadis* followed correct recording protocols. For the analysis, information on recording protocols was gathered from all schools and *anganwadis* regardless of the availability of reporting forms at the site. Around 11% of schools and 17% of *anganwadis* followed partial protocols (marking down different symbols or making a list of dewormed children), however, 24% of schools and 33% of *anganwadis* did not follow any protocol to keep records of dewormed children (**Table CV2**). Practical sessions on recording protocols for teachers and *anganwadi* workers should be organized during training PHC sessions. As recommended in the NDD guidelines, teachers and *anganwadi* workers were supposed to retain a copy of reporting forms; however, 36% of headmasters and 31% of *anganwadi* workers were not aware of this requirement (**Table PM1**). Further, during coverage validation we observed that reporting forms were available in only 41% of schools and 34% of *anganwadis*.

As per NDD guidelines, Accredited Social Health Activists (ASHAs) have a critical role to play in the success of the NDD program through generating community awareness and mobilizing out-of-school children. As part of the community mobilization and awareness campaign, ASHAs conduct village meetings with parents and disseminate information through local platforms such as *gram panchayats* and village health, sanitation, and nutrition committee (VHSNC) meetings to ensure greater coverage. ASHAs inform the community about the harmful effects of worm infestation, benefits of deworming, and behavior change practices required to reduce re-infection to beneficiaries. ASHAs are also the main point of contact for out-of-school children, who are hard to reach and more heavily infected than school going children.

ASHAs receive an orientation on NDD during monthly review meetings. During their training, ASHAs receive a resource toolkit that includes a handout focusing on their roles and responsibilities towards community mobilization. After NDD, *anganwadi* workers (AWWs) prepare a list of out-of-school school- and preschool-age children who have missed the dose due to absence or sickness and share the list with ASHAs. ASHAs then work to inform parents to have their children be present to take the missed albendazole dose on Mop-Up Day.

Further, as per NDD guidelines, ASHAs are required to prepare a separate list of the children not attending schools and *anganwadis* and submit it to *anganwadi* workers. ASHAs can then claim a payment of Rs. 100 after submission. This incentive further promotes accurate coverage reporting and is intended to support the goal that every eligible child, especially out-of-school children, is administered albendazole. However, findings suggest that lists of out-of-school (6-19 years) and unregistered (1-5 years) children were available for only 33% of out-of-school children and 22% of unregistered children in *anganwadis* respectively (**Table CV1**).

2.7 Coverage Validation

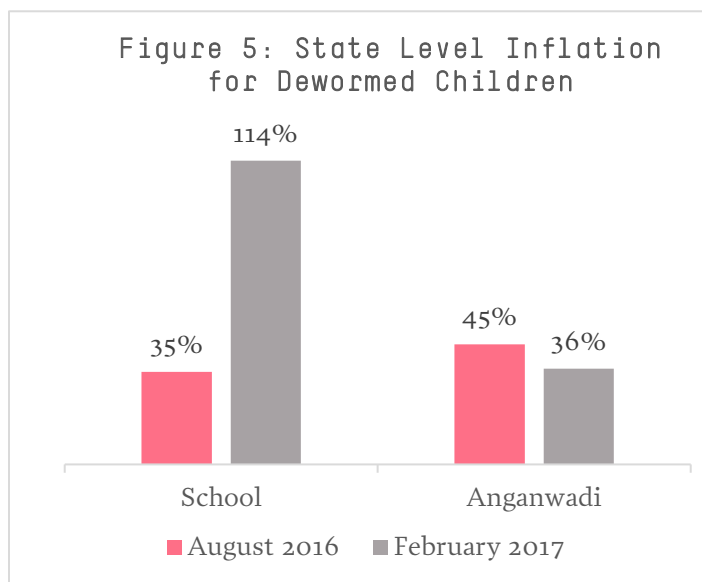
Verification factors⁵ are common indicators to measure the accuracy of reported treatment values for Neglected Tropical Disease control programs.⁶ The verification factor is a comparison of the aggregated number of ticks in school/*anganwadi* registers (indicating that children were dewormed) to the coverage report submitted by schools/*anganwadis* to the state. Thus, the verification factor was estimated on the basis of the availability of a copy of reporting forms at schools and *anganwadis*. The state-level verification factor for school enrolled children was 0.47, indicating that on average, for every 100 dewormed children reported by the school; forty-seven were verified through available documents. This corresponds to an overall 114% inflation of reporting in the schools, meaning that reported numbers are 100%

⁵A 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.

⁶WHO (2013), Data Quality Assessment tool for Neglected Tropical Diseases: Guidelines for Implementation December 2013.

higher than the numbers recorded in school attendance registers. Similarly, overall state-level verification factors for children dewormed at *anganwadis* was 0.73 with an inflation of 36%. **Figure 5** presents the trend in the state inflation rate for schools and *anganwadis* during the August 2016 to February 2017 NDD round. Over the NDD rounds, the inflation rate increased from 35% to 114% in the schools and decreased from 45% to 36% in *anganwadis*. The increase in the inflation rate in schools can be attributed to a lack of reviews of the aggregated data at school centers prior to submission to health officials. However, category-wise verification factors for registered (1-5 years) and out-of-school (6-19 years) children were 0.70 and 0.69 with a corresponding inflation of 43% and 44% respectively. Moreover, an inflation of 10% (verification factor=0.91) was observed for unregistered children at *anganwadi* centers (**Figure 5**).

The state government reported 97% coverage in schools and 94% in *anganwadis*. Through coverage validation, attempts were made to understand the maximum number of children that could have been dewormed in the schools and *anganwadis*. Coverage validation findings suggest that on average, we could verify 47% of treatment figures reported by schools and 73% by *anganwadis*. Applying these verification factors to respective government reported coverage, we estimate that 41% (47% of 97) of



children could have been dewormed in the schools and 61% (73% of 94) in *anganwadis*. The verification factors are based on only those schools and *anganwadis* where a copy of reporting forms were available for verification. Therefore, adjusted coverage in schools and *anganwadis* based on verification factors needs to be interpreted with caution.

Further, we also estimated NDD treatment coverage in schools considering maximum attendance of children on NDD dates. The coverage estimates based on attendance data provides a more robust estimate as compared to the adjusted coverage based on the verification factor, as maximum attendance is calculated from all the schools covered during coverage validation. Coverage validation data showed that 94% of schools conducted deworming on either NDD or Mop-Up Day, a maximum of 84% of children were in attendance, 97% of children received an albendazole tablet, and 100% of children reported to consume the albendazole tablet under supervision. Taking these factors into account, 74% ($0.94 \times 0.84 \times 0.97 \times 0.97$) of enrolled children could have been dewormed in the schools. This indicates that NDD coverage in the schools lies somewhere between 41 and 74 percent, below

the WHO threshold of 75% coverage (**Table CV2**). Further, unlike schools, as child interviews were not conducted during coverage validation in *anganwadis*, we could not imply an alternate method of estimating the coverage in *anganwadis*.

2.8 Trend Analysis

To understand the changes in selected indicators over the NDD rounds; indicators are presented in graphical form below. While the percentage of schools that received sufficient drugs increased over the round, a decline was observed in the percentage of schools that received posters/banners and reporting forms. Although no clear trend was observed in the case of the percentage of schools that received SMSs, performed integrated distribution, and the percentage of schools that followed the correct recording protocol, these indicators declined from the August 2016 NDD round (**Figure 6**).

Further, the percentage of *anganwadis* that conducted deworming increased over the rounds, the percentage of *anganwadis* that reported receiving sufficient drugs remained the same during the period, and the percentage of *anganwadis* that received posters/banners declined over the round. There was no clear trend in the percentage of *anganwadis* that received handouts/reporting forms and SMSs, performed integrated distribution, and followed correct reporting protocol. However, all these indicators declined from the August 2016 NDD round (**Figure 7**).

Figure 6: Comparison of training indicators for schools/*anganwadis*, February 2016 and February 2017 round

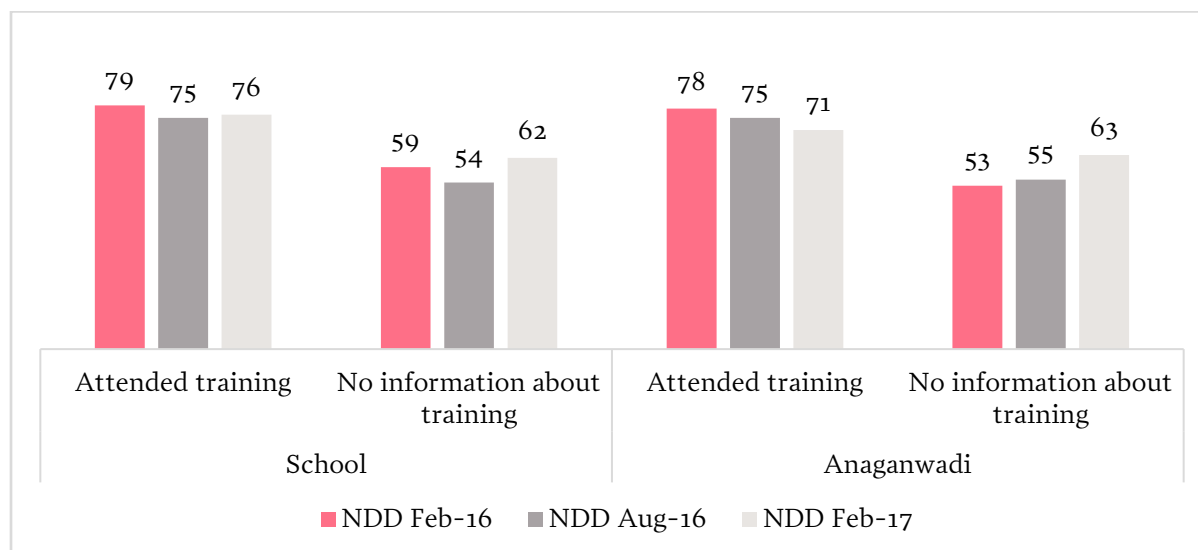


Figure 7: Trend of key indicators in schools, February 2016 and February 2017 round

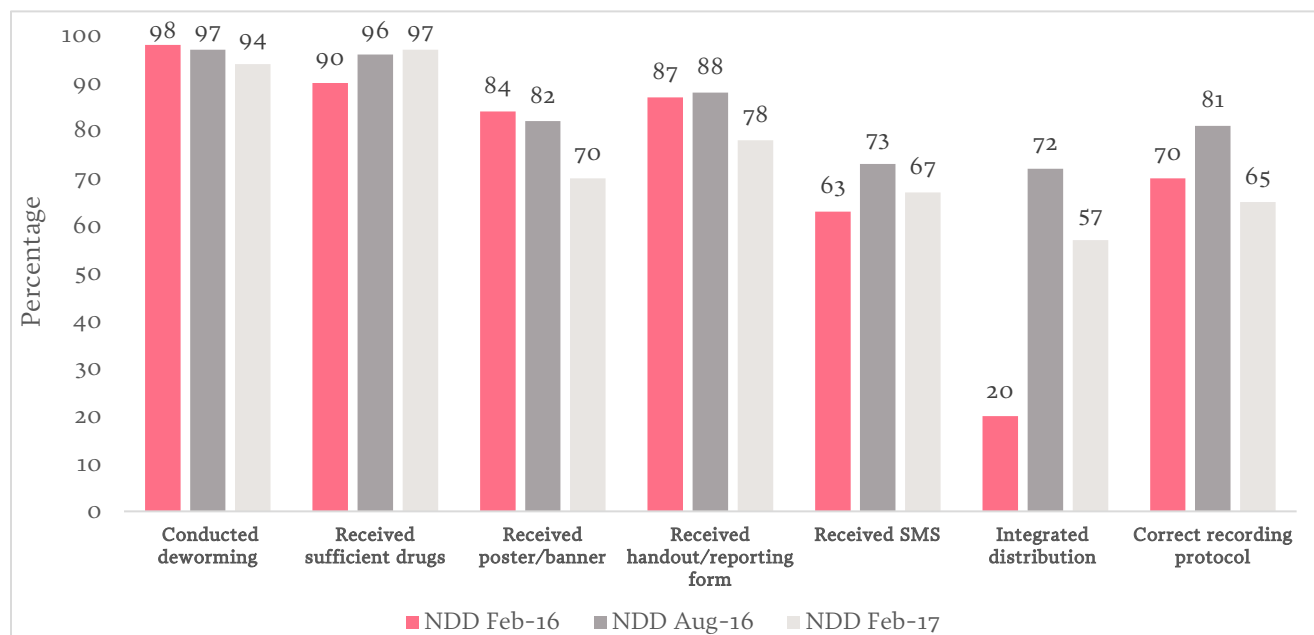
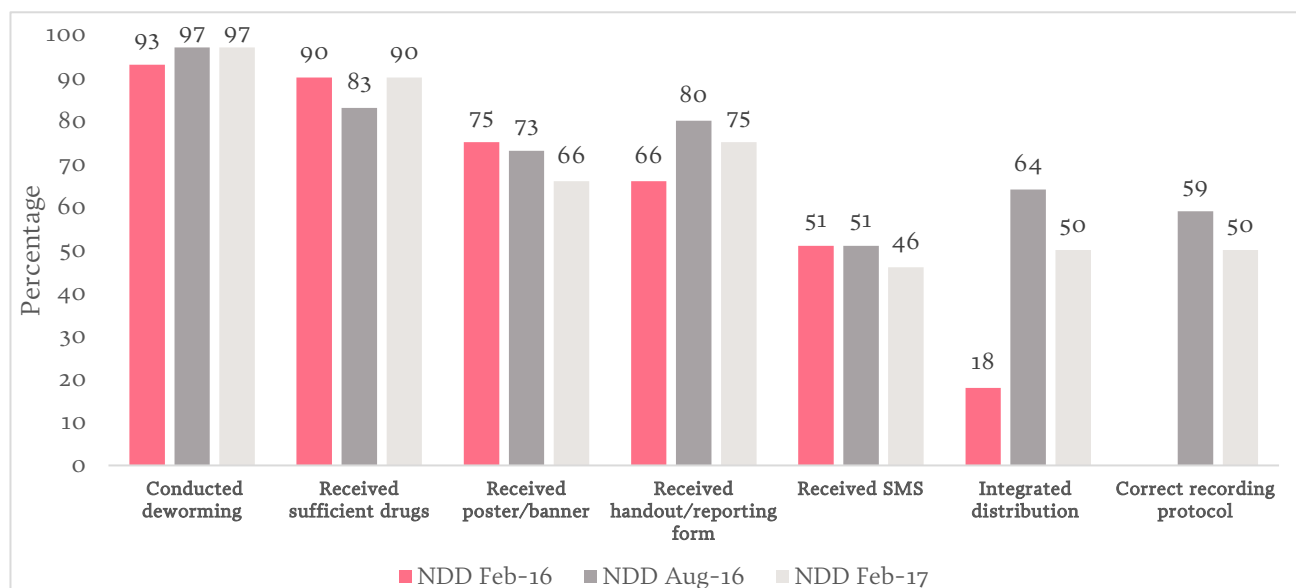


Figure 8: Trend of key indicators in *anganwadis*, February 2016 and February 2017 round



3. RECOMMENDATIONS

The independent monitoring exercise conducted during Chhattisgarh’s NDD round in February 2017 identifies gaps and opportunities to improve and strengthen future NDD rounds. NDD leverages a fixed-day approach, requiring intensive and coordinated efforts between

stakeholders to successfully implement the program and to prevent gaps and delays. The following are the key recommendations for program improvements that emerged from the process monitoring and coverage validation exercise.

1. School teachers' participation in trainings has remained at 75% from the August 2016 to the February 2017 rounds; participation of teachers can be further encouraged in the next round of NDD to ensure the successful implementation of a high quality program. Additionally, private school participation will need to be further strengthened in future round. The pre-planning of sessions and timely communication of training dates and venues to public and private schools and *anganwadis* will be helpful to improve training attendance. Quality assurance tools should be utilized, including training monitoring and sending training reinforcement messages (SMS) to promote awareness about worm infections, its prevention, dose administration, and adverse events management. School teachers who attend training must be mandated to impart adequate training to other teachers in the school.
2. Although more than half of the school headmasters and more than four-fifths of the *anganwadi* workers received deworming related SMSs, the updated contact database of functionaries across all stakeholder departments will further ensure the maximum reach of reinforcement messages among the school teachers and *anganwadi* workers. This will facilitate comprehensive, effective, and timely dissemination of information to functionaries. For future rounds, all stakeholder departments will be encouraged to follow a systematic mechanism to restructure the database as per the administrative allotment of 27 districts.
3. While a significant increase in integrated distribution is evident from the August 2016 to February 2017 NDD round, it can be further strengthened with a focused approach. Most schools and *anganwadis* received training and IEC materials outside of training sessions, revealing poorly integrated distribution. Focused efforts are required to align the distribution cascade (NDD kits) to be handed over to the teachers/headmasters and *anganwadi* workers at the time of training. To effectively facilitate distribution at block level trainings, efficient planning for timely drug procurement and dissemination of training schedules is required. Reinforcement on integrated distribution during video conferences and through SMS alerts will also be helpful in facilitating an integrated distribution.
4. Greater emphasis should be placed on generating community awareness and mobilizing out-of-school children to achieve high treatment coverage. As a substantial proportion of *anganwadi* centers did not have a list of unregistered and out-of-school children, greater involvement of ASHAs in mobilizing out-of-school children and spreading awareness on deworming benefits is needed. Efforts are required to increase ASHA participation and engage ASHAs to prepare these lists in their communities. ASHA

participation could be further strengthened by highlighting the role of ASHAs in the joint directive, encouraging their participation in training sessions, and sending reminder SMSs to them with information on incentives.

5. As findings revealed a decreased performance of private schools on monitoring indicators, efforts should be given to encourage the participation of private schools in training, facilitating drug logistics, sharing IEC materials, and managing adverse events.
6. Coverage validation data demonstrated that 65% of schools and 50% of *anganwadis* followed correct recording protocols, which directly affects the evaluation of reported coverage data. Greater emphasis on recording protocols during training is likely to improve the quality of coverage data in the next round. Training and SMS reinforcement messages should highlight the importance of following correct reporting protocols and maintaining accurate and complete documentation. Practical sessions on recording protocols for teachers and *anganwadi* workers should be organized during primary health center (PHC) level training sessions.
7. The maximum attendance observed in schools decreased from 94% in August 2016 to 84% in February 2017; thus, in order to achieve high NDD coverage in the state, emphasis should be placed on increasing the attendance in the schools on NDD and Mop-Up Day.
8. Coverage validation findings revealed a lesser availability of a copy of reporting forms at schools and *anganwadis*, which directly affects the evaluation of reported coverage data. Along with providing two copies of reporting forms during training, trainers should ensure that teachers/headmasters and *anganwadi* workers understand the directive to maintain a copy of reporting forms.

4. WAY FORWARD

Program monitoring of the February 2017 round of NDD in Chhattisgarh has provided useful insights on opportunities to increase coverage in future NDD rounds, while also identifying gaps in program planning and implementation. Evidence Action will continue to work with the Government of Chhattisgarh to coordinate efficient planning for future rounds, strategies for integrated distribution and its supervision, and ways to improve adherence to recording and reporting protocol. Additionally, attention needs to be directed on scaling the program in private schools. ASHAs and *anganwadi* workers must be further engaged and encouraged to conduct community meetings, mobilize out-of-school children, and facilitate health education activities.

ANNEXURE :

Table PM1: Training, awareness and source of information about NDD among teachers/headmasters and *anganwadi* workers, February 2017

Indicators	School			<i>Anganwadi</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Attended training for current round of NDD	193	117	76	191	136	71
Reasons for not attending NDD training (Multiple Response)						
Location was too far away	76	3	4	55	3	5
Did not know the date/timings/venue	76	47	62	55	35	63
Busy in other official/personal work	76	10	13	55	10	18
Attended deworming training in the past	76	25	33	55	12	22
Not necessary	76	4	5	55	5	9
No incentives/no financial support	76	4	5	55	0	0
Trained teacher provided training to:						
All other teachers	117	73	62	NA	NA	NA
Few teachers	117	25	21	NA	NA	NA
No (himself/herself only teacher)	117	9	7	NA	NA	NA
No, did not train other teachers	117	10	8	NA	NA	NA
Awareness about the ways a child can get worm infection	193	167	87	191	158	87
Different ways a child can get worm infection (Multiple Response)						
Not using sanitary latrine	167	61	37	158	64	41
Having unclean surroundings	167	123	73	158	118	75
Consume vegetables and fruits without washing	167	103	62	158	100	63
Having uncovered food and drinking dirty water	167	99	59	158	90	57
Having long and dirty nails	167	101	60	158	94	60
Moving in bare feet	167	102	61	158	75	48
Having food without washing hands	167	122	73	158	104	66
Not washing hands after using toilets	167	99	59	158	87	55
Awareness about all the possible ways a child can get a worm infection⁷	167	20	12	158	23	15

⁷Includes those who were aware that a child can get worm infection if she/he does not use sanitary latrine, have unclean surroundings, consume vegetable and fruits without washing, have uncovered food

Indicators	School			Anganwadi		
	Denominator	Numerator	%	Denominator	Numerator	%
Perception that health education should be provided to children	193	189	98	191	184	96
Knowledge about correct dose of albendazole tablet						
1-2 years of children	NA	NA	NA	191	184	96
6-19 years of children	193	187	97	191	182	95
Awareness about non-administration of albendazole tablet to sick child						
Will administer albendazole tablet to sick child	193	10	5	191	7	4
Will not administer Albendazole tablet to sick child	193	183	95	191	184	96
Awareness about consuming albendazole tablet						
Chew the tablet	193	198	98	191	185	97
Swallow the tablet directly	193	4	2	191	6	3
Awareness about supervised administration of albendazole	193	180	93	191	183	96
Awareness about the last date for submitting the reporting form	193	57	30	191	44	23
Aware that completed reporting form should be submitted to ANM	193	124	64	191	131	69
Awareness about retaining a copy of the reporting form post submission	193	165	86	191	163	85
Source of information about current NDD round (Multiple Response)						
Television	193	44	23	191	39	20
Radio	193	19	9	191	15	8
Newspaper	193	48	25	191	35	18
Banner	193	53	27	191	40	21
SMS	193	101	52	191	45	24
Other school/teacher/ <i>anganwadi</i> worker	193	92	48	191	64	34
Training	193	47	25	191	100	52
Received SMS for current NDD round	193	130	67	191	87	46

and drinking dirty water, have long and dirty nails, moves in bare feet, have food without washing hands and not washing hands after using toilets.

Table PM2: Deworming activity, availability of albendazole tablets, and list of unregistered-out-of-school children, February 2017

Indicators	School			<i>Anganwadi</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Albendazole tablet administered on the day of visit						
Yes, ongoing	193	65	34	191	90	47
Yes, already done	193	65	34	191	58	30
Yes, after sometime	193	47	24	191	24	12
No, will not administer today	193	16	8	191	19	9
Schools/<i>anganwadis</i> conducted deworming on either of the day⁸	193	182	94	191	179	93
Schools/<i>anganwadis</i> conducted deworming on NDD⁹	96	90	94	96	90	94
Schools/<i>anganwadis</i> conducted deworming on Mop-Up Day¹⁰	97	87	90	95	82	86
Attendance on NDD	12312	7547	61	NA	NA	NA
Attendance on Mop-Up Day	10065	7069	70	NA	NA	NA
Reasons for not conducting deworming						
No information	12	8	67	12	3	25
Albendazole tablet not received	12	2	24	12	5	42
Apprehension of adverse events	12	1	9	12	1	8
Others ¹¹	12	0	0	12	0	0
<i>Anganwadis</i> having list of unregistered/out-of-school children	NA	NA	NA	191	93	49
Albendazole was administered to out-of-school children	NA	NA	NA	172	126	73
Albendazole was administered to	NA	NA	NA	172	116	67

⁸ Schools/*anganwadis* administered albendazole tablet to children either on NDD or Mop-Up Day

⁹Based on the samples visited on NDD.

¹⁰Based on the samples visited on Mop-Up Day only.

¹¹School administer the albendazole tablet to children a day before holiday, children/student absent, postponed due to festivals.

unregistered children						
Sufficient quantity of albendazole tablets ¹²	183	187	97	183	164	90

Table PM3: Integrated distribution of albendazole tablets and IEC materials, February 2017

Items	Schools				Anganwadi			
	Received (N= 193)	Denominator *	Received in training	Verified	Received (N= 250)	Denominator *	Received in training	Verified
Albendazole tablet	95% (183)	183	97% (177)	97%(178)	96% (183)	183	94% (172)	96% (176)
Poster/banner	70%(135)	135	96% (130)	96%(130)	66% (126)	126	93% (117)	98% (123)
Handouts/reporting form	78% (151)	151	93% (140)	94% (142)	75% (143)	143	87% (125)	93% (133)
Received all materials	63%(121)	121	91% (11)	89%(107)	58% (110)	110	87% (96)	91% (100)
Integrated distribution¹³	57% (110/193)				50% (96/191)			

Note: N is the denominator for item “Received” for schools and *anganwadis*. Numerators for “Received in training” and “Verified” are given in parentheses.

*Indicates common denominator for “Received in training” and “Verified”

Table PM4: Implementation of deworming activity and observation of monitor's, February 2017

Indicators	Schools			Anganwadi		
	Denominator	Numerator	%	Denominator	Numerator	%
Deworming activity was taking place	177	86	49	172	98	57
Albendazole tablets were administered by						
Teacher/headmaster	65	62	95	NA	NA	NA
Anganwadi worker	65	1	1	90	76	84
ASHA	65	1	1	90	7	8
ANM	65	2	3	90	5	8
Followed recording protocol¹⁴	130	113	87	148	124	84
Protocol followed						
Putting single/double tick	94	113	83	124	89	72
Put different symbols	16	113	14	124	9	7
Prepare the separate list for dewormed	4	113	33	124	26	21

¹² This indicator is based on the sample that received albendazole tablet.

¹³ Integrated distribution of NDD kits includes albendazole tablet, banner/poster and handout-reporting forms and provided to schools and AWCs during the trainings at block or PHC level.

¹⁴ Any recording protocol implies putting single tick (✓), double tick (✓✓), any other symbol or preparing separate list for all those children administered albendazole tablets on NDD or Mop-Up Day.

Visibility of poster/banner during visits	135	91	67	126	85	68
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Table PM5: Knowledge of Adverse events and Its Management, February 2017

Indicators	Schools			<i>Anganwadi</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Opinion of occurrence of an adverse event after administering albendazole tablet	193	43	22	191	33	17
Knowledge of possible adverse events (Multiple Response)						
Mild abdominal pain	43	30	70	33	23	70
Nausea	43	21	49	33	19	58
Vomiting	43	26	60	33	26	79
Diarrhea	43	7	16	33	10	30
Fatigue	43	7	17	33	11	33
All possible adverse event ¹⁵	43	3	7	33	3	9
Awareness about mild adverse event management						
Make the child lie down in open and shade/shaded place	193	144	75	191	131	69
Give ORS/water	193	65	37	191	70	37
Observe the child at least for 2 hours in the school	193	51	26	191	56	29
Don't know/don't remember	193	17	8	191	24	13
Awareness about severe adverse event management						
Call PHC or emergency number	193	135	70	191	140	73
Take the child to the hospital /call doctor to school	193	117	61	191	113	59
Don't know/don't remember	193	7	3	191	7	4
Occurrence of cases of any adverse event	130	10	7	148	10	7
Available contact numbers of the nearest ANM or MO-PHC	193	149	77	191	168	88

¹⁵Includes those who have knowledge that a mild abdominal pain and nausea and vomiting and diarrhea and fatigue can be reported by a child after taking albendazole tablet.

Table PM6: Selected Indicators of Process Monitoring in Private Schools, February 2017

Indicators ¹⁶	Denominator	Numerator	%
Attended training for current round of NDD	27	7	24
Received albendazole tablets	27	20	73
Sufficient quantity of albendazole tablets	20	19	98
Received poster/banner	27	7	25
Received handouts/ reporting form	27	16	60
Received SMS for current NDD round	27	10	36
Albendazole administered to children	27	20	98
Reasons for not conducting deworming			
No information	7	7	100
Albendazole tablets not received	7	0	NA
Already dewormed all children on deworming day ¹⁷	7	0	NA
Others ¹⁸	7	0	NA
Albendazole tablet administered to children by teacher/headmaster ¹⁹	10	10	100
Perceive that health education should be provided to children	27	27	100
Knowledge about correct doses of albendazole tablet	27	23	85
Awareness about non-administration of albendazole tablet to sick child	27	21	79
Opinion of occurrence of an adverse event after taking albendazole tablet	27	7	28
Opinion of occurrence of possible adverse events (Multiple choice)			
Mild abdominal pain	7	6	89
Nausea	7	2	28
Vomiting	7	2	28
Diarrhea	7	1	14
Fatigue	7	1	14
Occurrence of cases of any adverse event	12	0	0
Awareness about mild adverse event management			
Let the child rest in an open and shaded place	27	20	76
Provide clean water to drink/ORS	27	2	8
Contact the ANM/nearby PHC	27	7	25
Available contact numbers of the nearest ANM or MO-PHC	27	22	82
Followed correct ²⁰ recording protocol	10	4	35

¹⁶These indicators are based on small samples; therefore, precautions should be taken while interpreting the results as these are not representative of all private schools in the state

¹⁷Based on the samples that did not conduct deworming on Mop-Up Day.

¹⁸School administer the albendazole tablet to children a day before holiday, children/student absent, postponed due to festival

¹⁹This indicator is based on samples where deworming was ongoing.

²⁰ Correct recording protocol implies putting single tick (✓) on NDD and double tick (✓✓) for all those children administered albendazole tablets.

Table CV1: Findings from Schools and *Anganwadis* Coverage Validation Data

Indicators	Schools			<i>Anganwadis</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Conducted deworming²¹	495	463	94	495	481	97
Day of albendazole administration (Multiple Response)						
National Deworming Day	463	449	97	481	461	96
Mop-Up Day	463	365	79	481	321	67
Between NDD and Mop-Up Day	463	25	5	481	29	6
Reasons for not conducting deworming						
No information	32	25	78	14	7	49
Drugs not received	32	5	15	14	4	25
Apprehension of adverse events	32	0	0	14	2	17
Others ²²	32	2	7	14	1	9
Albendazole left after deworming	463	301	65	481	249	52
Number of albendazole left						
Less than 50 tablets	301	275	91	249	232	93
50-100 tablets	301	14	5	249	14	6
More than 100 tablets	301	12	4	249	3	1
Copy of reporting form was available for verification	463	189	41	481	166	34
Reasons for non-availability of copy of reporting form						
Did not received	274	33	12	316	30	10
Submitted to ANM	274	198	72	316	242	77
Unable to locate	274	9	3	316	21	6
Other ²³	274	34	13	316	22	7
<i>Anganwadis</i> having list of unregistered children	NA	NA	NA	481	106	22
<i>Anganwadis</i> having list of out-of-school children	NA	NA	NA	481	161	33

²¹ Schools and *anganwadis* that conducted deworming on NDD or Mop-Up Day.

²² Other includes mainly, ongoing examinations in school, absence of *anganwadi* workers.

²³ Other includes mainly no information and availability of blank form.

Table CV2: Recording protocol, verification, inflation and attendance in schools and *anganwadis*

Indicators	Schools/Children			<i>Anganwadis/Children</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Followed correct²⁴ recording protocol	463	303	65	481	238	50
Followed partial²⁵ recording protocol	463	51	11	481	84	17
Followed no²⁶ recording protocol	463	109	24	481	160	33
State level verification factor²⁷	18601	8684	0.47	11416	8380	0.73
<i>Anganwadi</i> registered children	NA	NA	NA	7988	5583	0.70
<i>Anganwadi</i> unregistered children	NA	NA	NA	1948	1772	0.91
Out-of-school children	NA	NA	NA	1480	1025	0.69
State level inflation rate²⁸	8684	9917	114	8380	3036	36
<i>Anganwadi</i> registered children	NA	NA	NA	5583	2405	43
<i>Anganwadi</i> unregistered children	NA	NA	NA	1772	175	10
Out-of-school children	NA	NA	NA	1025	455	44
Attendance on previous day of NDD	49484	36575	74	NA	NA	NA
Attendance on NDD	49484	36022	73	NA	NA	NA
Attendance on Mop-Up Day	49484	36230	73	NA	NA	NA
Children who attended on both NDD and Mop-Up Day	49484	30629	62	NA	NA	NA
Maximum attendance of children on Deworming Day and Mop-Up Day²⁹	49484	41624	84	NA	NA	NA
School level inflation rate for schools followed the correct recording protocol	7815	6293	81	NA	NA	NA

²⁴ Correct recording protocol includes schools where all the classes put single tick (✓) on NDD and double tick (✓✓) on Mop-Up Day to record the information of dewormed children.

²⁵ Partial recording protocol includes schools where all the classes did not follow correct protocol, put different symbols and prepared separate list to record the information of dewormed children.

²⁶ No protocol includes all those schools where none of the classes followed any protocol to record the information of dewormed children.

²⁷ Ratio of recounted value of the dewormed children to the reported value. This calculation is based on only those schools (n=189) and *anganwadis* (n=166) where deworming was conducted and copy of reporting form was available for verification.

²⁸ Proportion of over reported dewormed children against total verified children in schools and *anganwadis*. For *anganwadi* unregistered children total no of verified children are higher than the reported which imply that numbers are under-reported against verified children. Also for the same group of children inflation rate is negative, which indicates deflation due to under-reported children against verified children.

²⁹ Maximum attendance refers to the total attendance of children who were exclusively present in school either on NDD or Mop-Up Day and children who attended school on both days.

Estimated NDD coverage based on government coverage data ³⁰	41	61
Estimated NDD coverage based on school attendance ³¹ (School)	74	NA

Table CV3: Indicators based on interview of children during coverage validation in schools

Indicators	Denominator	Numerator	%
Children received Albendazole tablets	1390	1349	97
Children consumed Albendazole tablet	1349	1348	100
Children aware about the Albendazole tablets	1349	1150	85
Source of information about NDD round			
Teacher/school	1150	1130	98
Television	1150	113	10
Radio	1150	43	4
Newspaper	1150	85	7
Poster/Banner	1150	206	18
Parents/siblings	1150	70	6
Friends/neighbors	1150	43	4
Way children consumed the tablet			
Chew the tablet	1348	1263	94
Swallow tablet directly	1348	85	6
Supervised administration of tablets	1348	1309	97

³⁰ This was estimated by implying state level verification factor on government reported coverage for schools and AWC.

³¹ This was estimated on the basis of NDD implementation status, attendance on NDD and Mop-Up Day, whether child received albendazole and its supervised administration. Since no child interview is conducted at *anganwadis*, this has not been estimated for *anganwadis*.