

Independent monitoring of
National Deworming Day
in Uttar Pradesh
February 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 2015, 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 of preschool- and school-age in *anganwadis* and schools, including unregistered and out-of-school children.

Uttar Pradesh observed the third round of NDD in 57 districts in two phases due to assembly elections in the state. Forty-four districts conducted NDD on February 28 followed by Mop-Up Day on March 4 in the first phase, and in second phase, 13 districts conducted NDD on March 18 followed by Mop-Up Day on March 22. 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 to assess the preparedness of *anganwadis* and schools to implement the NDD program and to perform coverage validation post NDD to evaluate the accuracy of the reporting data and coverage estimates.

Findings from process monitoring highlighted that 74% of schools and 95% of *anganwadis* observed deworming on either NDD or Mop-Up Day. Around 91% of schools and 88% of *anganwadis* received sufficient tablets. However, only 31% of schools and 52% of *anganwadi* centers had an integrated distribution of NDD kits.² Fifty-six percent of school teachers and 83% of *anganwadi* workers attended training. Coverage validation data revealed that 41% of schools and 46% 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. Findings exhibited an inflation of 108% (verification factor of 0.48) for enrolled school children. In the interviews conducted, 98% or nearly all of enrolled children reported they received the albendazole tablet.

The independent monitoring of NDD highlights opportunities to strengthen and improve the quality and coverage of the program by ensuring timely communication of training dates to schools. Other opportunities include updating the contact database of functionaries across stakeholder departments to facilitate timely information dissemination on the program, strengthening the integrated distribution of NDD kits with timely procurement of drugs and IEC reporting materials, and encouraging engagement of ASHAs.

¹ Soil 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

² Integrated distribution of NDD kits including albendazole, banner/poster and handout-reporting forms provided to schools and AWC during the trainings at block 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 Uttar Pradesh's Departments of Health, Education, and Women Development and Child Welfare to assess the quality of program planning and implementation and identify gaps and 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 the prescribed processes. After NDD, we conducted coverage validation to verify government-reported treatment figures.

1.1 Process Monitoring, Recording and Reporting Process, 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 observed 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/*anganwadi* workers and three students (in three different randomly selected classes) in each school, and by checking all registers and reporting forms in *anganwadis* and schools. 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 Recording and Reporting Process

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 the NDD app. The Government of India provided 652 user IDs and passwords to all divisions and blocks 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 and B** below), and were shared with districts through state directives. To record deworming at schools and *anganwadi*, 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/principals 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 for phase I

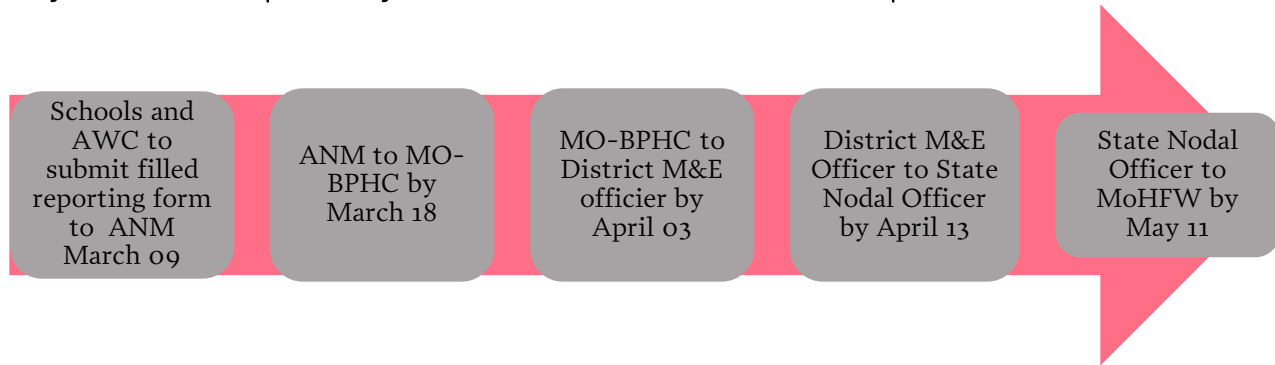
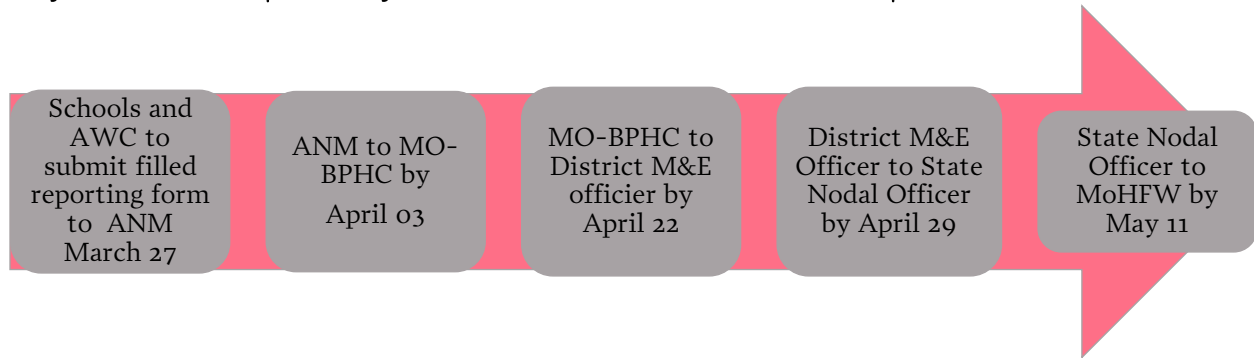


Figure B: Reporting Cascade and Timelines for phase II



1.3 Sampling and Sample Size

Evidence Action facilitated independent monitoring in 57 districts. Through a competitive process, Evidence Action hired Academy of Management Studies (AMS), an experienced independent research agency that provided 150 monitors. A two-stage probability sampling procedure was adopted to select schools and *anganwadis* for independent monitoring (**Table A**). A total of 300 schools and 300 *anganwadis* were covered during process monitoring on NDD and Mop-Up Day, and 750 schools and 750 *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	57	57	57	57
Total number of blocks	150	150	150	150
Total number of schools	300	300	750	750
Total no. of children interviewed in schools	NA	NA	2200	1713
Total number of <i>anganwadis</i>	300	300	750	750

1.4 Independent Monitoring Formats

To ensure comprehensive coverage and triangulation of data, three formats were administered: one combine tool for process monitoring at the 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 Uttar Pradesh’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 school and *anganwadi*, and explained the process of monitoring and coverage validation to 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 30 master trainers of AMS in Delhi on February 3, 2017, followed by the master trainers further conducting a two-day training of 280 monitors (including buffer monitors) during February 24-25, 2017. 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 session. 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. A refresher training of all the monitors occurred on March 16, 2017 for the second phase of monitoring.

1.7 Field Implementation

Each monitor was allotted one school and one *anganwadi* for process monitoring on NDD and Mop-Up Day to collect information on the availability of drugs, IEC materials, and further observations. Subsequently, they were allotted five schools and five *anganwadis* for coverage validation. Monitors received 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 the commencement of fieldwork to ensure that the monitors did not contact schools and *anganwadis* in advance. If a school or *anganwadi* was found to be closed or non-traceable during process monitoring, monitors replaced it with 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, monitors substituted a new school 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 the phone to confirm monitors visited schools and *anganwadis*. Further, Evidence Action staff also visited selected 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 the photographs of schools and *anganwadis* using images gathered during IM data collection and built in to the CAPI for process monitoring and coverage validation to prove the location of the interview.

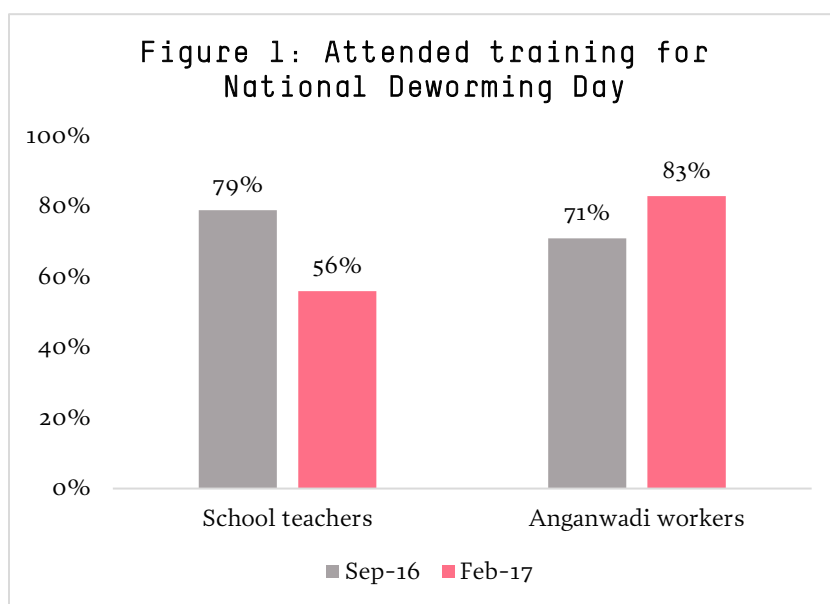
2. KEY FINDINGS

Key results³ and comparisons with the prior round from independent monitoring are provided below in sub-headings, 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 ensure adequate training, account for teacher/*anganwadi* worker turnover, and ensure an integrated distribution of drugs during training sessions. Data in **Figure 1** shows that 56% of schools and 83% of *anganwadi* workers attended training for the current 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), a sharp decline from NDD in September 2016 is visible in school teachers' attendance. This is most likely due to a lack of information about the date/venue of NDD training and teacher engagement in local election activities.

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 attend training, 87% of teachers/headmasters and 75% of *anganwadis* were not aware of the date or time of NDD trainings. Only 52% of trained teachers provided training to other teachers in their school. To ensure improved training quality and



the success of the program, trained teachers should impart further training to other teachers in their schools. Approximately 65% of schools and 54% of *anganwadis* reported that they did not receive an SMS about deworming (**Table PM1**). The lack of an updated contact database may be one of the factors that impacted the overall delivery of the SMSs to the teachers and *anganwadis* workers.

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.

Additionally, NDD included private schools for the first time in the February 2017 round for Uttar Pradesh. Therefore, initial private school participation was lower than government schools. Among private schools, only 27% of private schools reported attending NDD training. Only 12% of private schools received SMSs about deworming (**Table PM6**). Private schools require further engagement through ensuring information on training dates and locations is accurately communicated

2.2 Integrated Distribution of NDD Materials Including Drugs

The NDD guidelines mandate integrated distribution for all IEC and training materials along with deworming tablets to schools and *anganwadi* centers at block/cluster level training in the form of a NDD kit.⁴ It is important to integrate distribution of all NDD materials to ensure the timely and cost effective delivery of materials, as separate integration would increase cost and time spent. Despite the well-defined distribution plan, findings show that only 31% of schools and 52% of *anganwadis* in the state had an integrated distribution of materials. This indicates that in a large number of schools and *anganwadis* drugs and IEC materials were distributed separately from training. As a result, a significant distribution of materials happened individually in trainings (**Table PM3**). Around 74% of schools and 95% of *anganwadis* received tablets for deworming, while only half of the schools and 75% of *anganwadis* received posters/banners (**Table PM3**). Moreover, 91% of schools and 88% of *anganwadis* reported having received sufficient drugs for deworming (**Table PM2**). About 57% of schools and 75% of *anganwadis* received handouts/reporting forms (**Table PM3**).

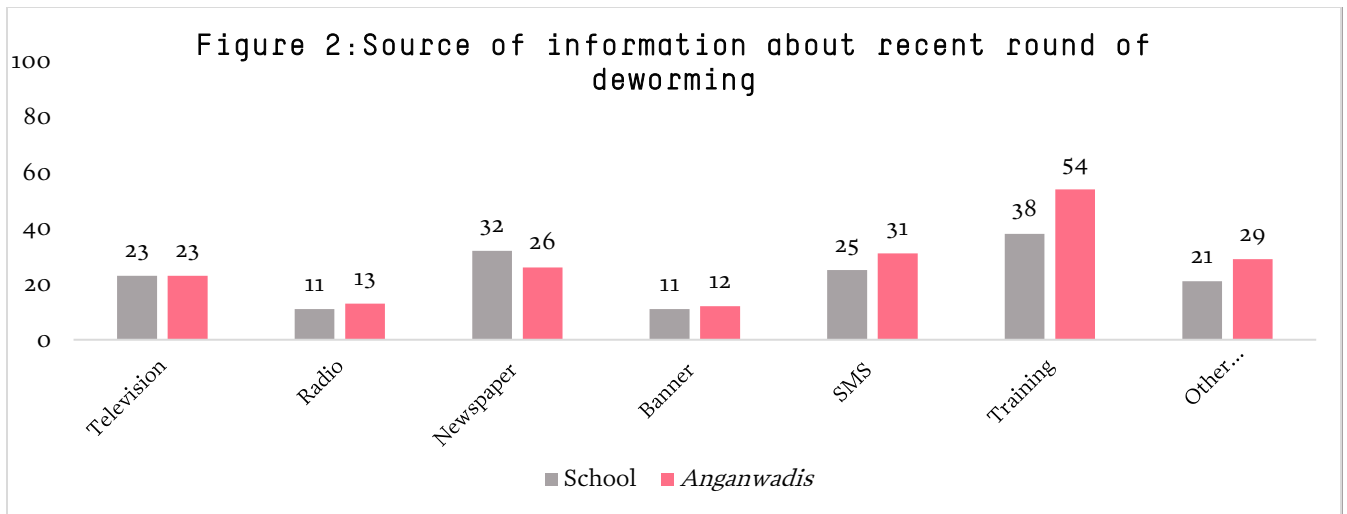
Among private schools, around 46% received tablets for deworming and 82% of them reported having a sufficient quantity. Thirty-seven percent of the private schools covered during process monitoring received banners/posters for deworming, and handouts/reporting forms (Table PM6), indicating a need for further strengthening.

2.3 Source of Information about the Recent Round of NDD

As depicted in **Figure 2**, 38 % of schools and 54% of *anganwadis* reported receiving information on NDD via training⁵ (**Figure 2**). Approximately 32% of schools and 26% of *anganwadis* also reported having received information about NDD through the newspaper. The radio and banner was the least effective source of information about NDD for this round as only 11% of schools and 12% of *anganwadis* reported to know about NDD through the radio or banner.

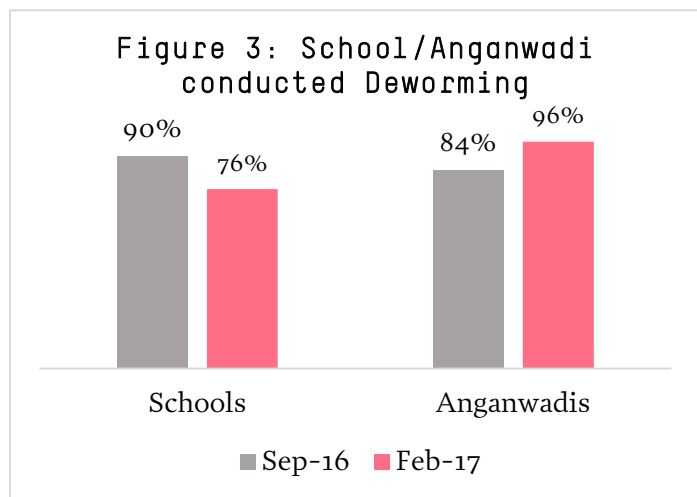
⁴ 'Deworming Day, operational Guidelines 2016, Ministry of Health and Family Welfare, Government of India
http://nrhm.gov.in/images/pdf/NDD2016/Guidelines/Draft_NDD_2016_Operational_Guidelines.pdf
National

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



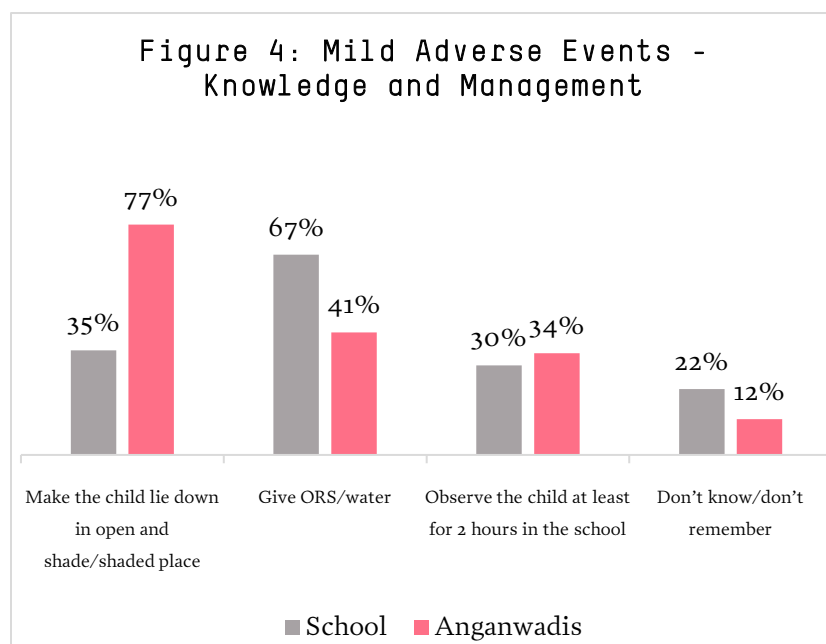
2.4 NDD Implementation

The proportion of schools and *anganwadis* that conducted deworming were high during both the September 2016 and February 2017 NDD rounds (Figure 3). The coverage validation data shows that around 76% of schools and 96% of *anganwadis* dewormed children during the February 2017 round of NDD or Mop-Up Day (Table CV1). Out of a total of 209 schools and 277 *anganwadis* that implemented NDD, monitors were able to observe deworming activities in 76% of schools and *anganwadis* (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 appropriate protocols to follow in the case of such events. Vomiting was listed as a symptom by 78% of teachers/headmaster and 80% of *anganwadi* workers followed by abdominal pain by 72% of schools and 76% of *anganwadi* workers.



Fifty-six percent of schools and 66% of *anganwadi* workers listed nausea as a symptom of an adverse event. Only 18% of school staff and 24% of *anganwadi* workers recognized fatigue as a symptom (Table PM5). Further, 35% of teachers and 77% of *anganwadi* workers knew to make a child lie down in an open, shaded place in case of any symptoms and around 67% of schools and 41% of *anganwadis* knew to give ORS/water. Only 30% of

schools and 34% of *anganwadi* workers knew to observe for two hours (Figure 4). Further, 68% of schools and 69% of *anganwadis* reported the need to call a PHC doctor if symptoms persisted (Table: PM5).

2.6 Recording Protocol

Coverage validation data demonstrated that 41% of schools and 46% of *anganwadis* followed correct the recording protocols. For the analysis, information on recording protocol was gathered from all schools and *anganwadis* regardless of the availability of reporting forms at the site. Around 14% schools and 26% *anganwadis* followed partial protocols (marking down different symbols or making list of dewormed children), however, 45% of schools and 27% of *anganwadis* did not follow any protocol to keep records of dewormed children (Table CV2). As recommended in NDD guideline, teachers and *anganwadi* workers were supposed to retain a copy of reporting forms; however, 29% of headmasters and 13% of *anganwadi* workers were not aware of this requirement (Table PM1). Further, it was observed during coverage validation that reporting forms were available in only 37% of schools and 42% 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 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 21% of out-of-school children and 17% of unregistered children in *anganwadis* respectively (**Table CV1**).

2.7 Coverage Validation

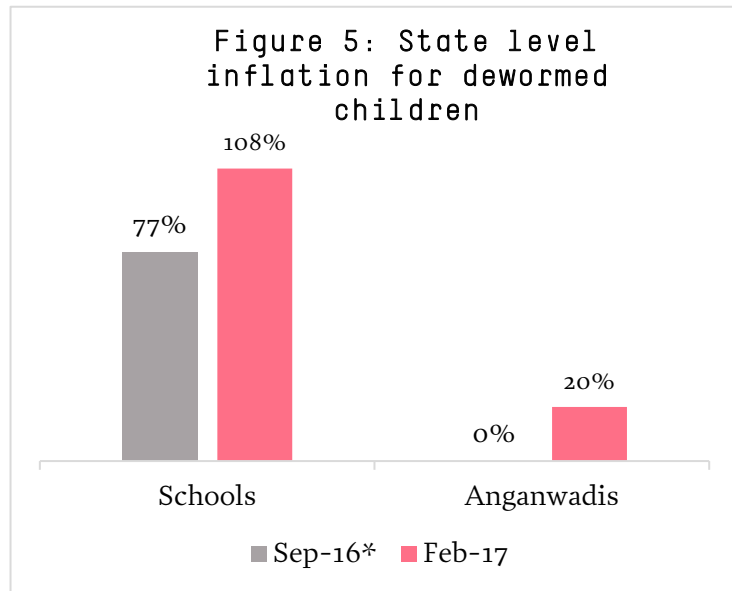
Verification factors⁶ are common indicators to measure the accuracy of reported treatment values for Neglected Tropical Disease control programs.⁷ The verification factor is a comparison of the aggregated number of ticks in school/*anganwadi* registers (indicating that children were dewormed) to the coverage report submitted by schools/*anganwadis* to the state. Thus, the verification factor was estimated on the basis of an availability of a copy of reporting forms at schools and *anganwadis*. The state level verification factor for school enrolled children was 0.48, indicating that on average, for every 100 dewormed children reported by the school; forty-eight were verified through available documents. This corresponds to an overall 108% inflation of reporting in the schools, meaning that reported numbers appear to be approximately 108% higher than the numbers recorded in school attendance registers. Similarly, overall state-level verification factors for children dewormed at *anganwadi* was 0.83 with an inflation of 20%. **Figure 5** presents the change in the state-level inflation rate for

⁶A 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.

⁷WHO (2013), Data Quality Assessment tool for Neglected Tropical Diseases: Guidelines for Implementation December 2013.

schools and *anganwadis* during the August 2016 and February 2017 NDD round. The inflation rate has increased from 77% to 108% in the schools. The increase in the inflation rate can be attributed to a lack of review of aggregated data at schools and *anganwadi* centers before submission to health officials. Further, category-wise verification factors for registered (1-5 years) and out-of-school (6-19 years) children were 0.82 and 0.62 with a corresponding inflation of 21% and 61% respectively (**Table CV2**).

The state government reported 86% coverage in schools and 83% 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 48% of treatment figures reported by schools and 83% for *anganwadis*. Applying these verification factors to the respective government reported coverage, we estimated that 41% (48% of 86%) of children could have been dewormed



in the schools and 69% (83% of 83%) in *anganwadis*. The calculation of verification factors is based on only those schools and *anganwadis* where a copy of the reporting form was 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 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 76% of schools conducted deworming on either NDD or Mop-Up Day, a maximum of 81% of children were in attendance, 98% of children received an albendazole tablet, and 94% of children reported to the tablet under supervision. Taking these factors into account, 57% ($0.76 \times 0.81 \times 0.98 \times 0.94$) of enrolled children could have been dewormed in the schools. This indicates that NDD coverage in the schools lies somewhere between 41 and 57 percent in the state, 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 at *anganwadis*.

2.8 Trend Analysis

To understand the trend of select indicators from over the NDD rounds, indicators are presented in graphical form below (Figures 6, 7, and 8). Data comparison in Figure 6 shows a substantial decline in the percentage of schools where headmasters/teachers attended training. Training attendance, however, increased marginally for *anganwadis*. While 79% of headmasters/teachers attended NDD training for the September 2016 NDD round, headmaster/teacher training declined to 56% during the February 2017 NDD round. Lack on information about NDD training was the main reason for teachers not attending trainings.

Figure 6: Comparison of Training Indicators for School/*Anganwadi* February 2016, September 2016, and February 2017 Rounds

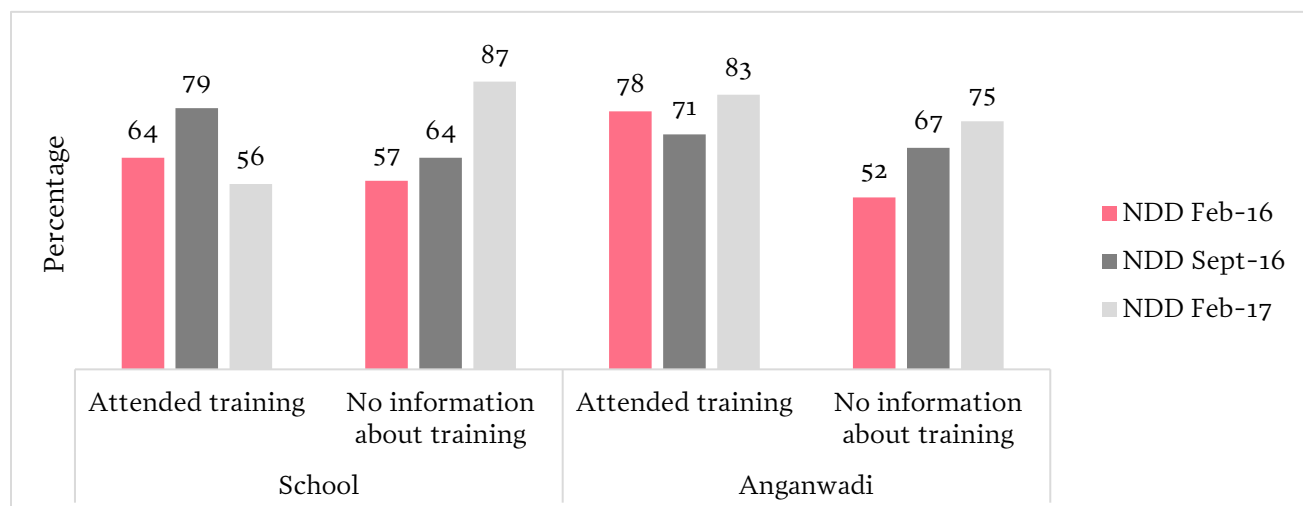


Figure 7: Comparison of Key Indicators in Schools During February 2016, September 2016, and February 2017 NDD Rounds

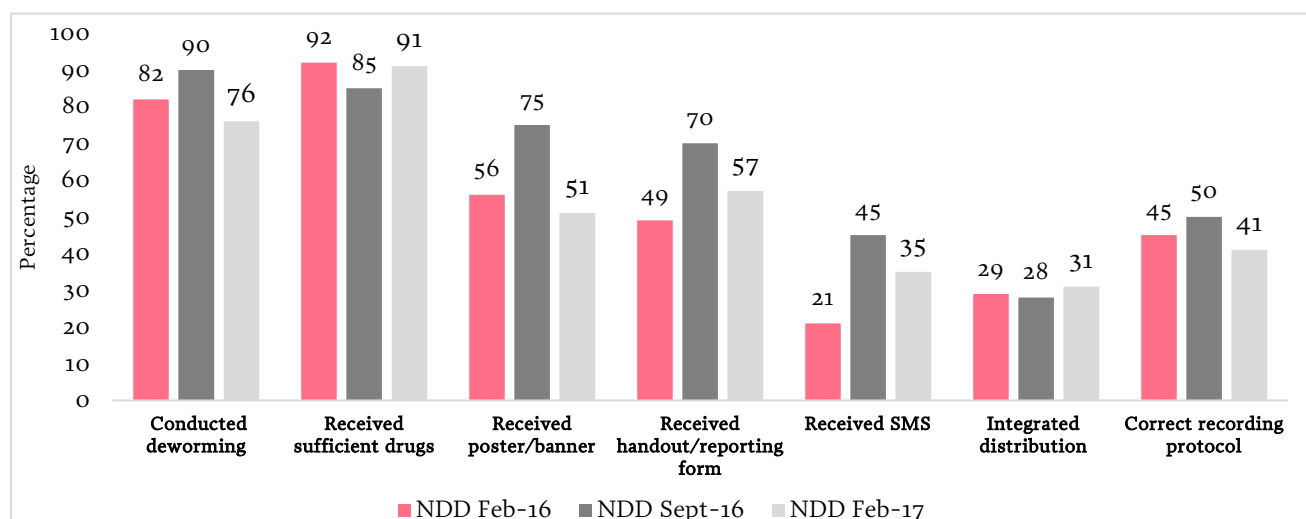
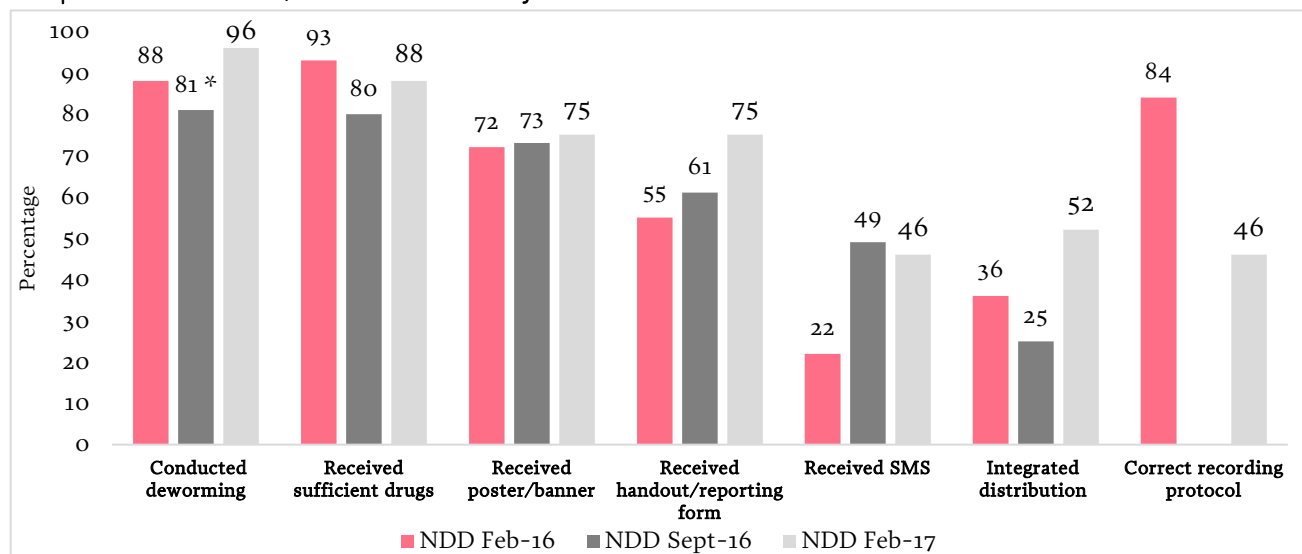


Figure 8: Trend of Key Indicators in *Anganwadis* during February 2016, September 2016, and February 2017 Rounds



Further, as per **Figures 7 and 8**, a comparison of selected indicators does not exhibit a clear pattern across the rounds for schools and *anganwadis*. While the percentage of schools that conducted NDD declined by 14 percentage points; it increased by almost the same percentage points for *anganwadis*. The decline in percentage points for schools could be because of their involvement in state elections and board examinations. Also, private schools implemented NDD for the first time in the state and findings revealed that they require more support in future rounds.

Integrated distribution increased marginally for schools and substantially for *anganwadis* from the September 2016 to February 2017 NDD round (**Figures 7 and 8**). Since the block level trainings were delayed from the original schedule and training for some blocks were completed a day before NDD; this could have impacted attendance and integrated distribution. In order to leave sufficient time for teachers to train other teachers in schools, mobilize the community, and spread awareness about NDD, it is crucial that all block level trainings are completed as per the schedule and at least a week in advance of the NDD date. Although training reinforcement SMSs were sent to notify teachers/*anganwadi* workers about training dates for the district and block level, the declining trend of SMSs received (**Figures 7 and 8**) indicates that further efforts are required to update the contact databases and ensure improvements in the overall delivery of SMSs.

Trends in **Figures 7 and 8** show that there was a drop in the percentage of schools and *anganwadis* that followed correct reporting protocols. The drop in the percentage of schools and *anganwadis* followed correct recording protocol could be partly attributed to delayed and rushed block level trainings, thereby impacting the quality of sessions being conducted.

3. RECOMMENDATIONS

The independent monitoring exercise conducted during Uttar Pradesh's NDD round in February 2017 identifies gaps and opportunities to improve and strengthen future rounds. NDD leverages a fixed-day approach, requiring intensive and coordinated efforts between all 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. Training participation of school teachers declined from September 2016 to February 2017. Participation of the teachers needs to be encouraged in the next round of NDD. As teachers cited not knowing about the trainings as a major reason for not attending, the pre-planning of sessions and timely communication of training dates and venues to schools and *anganwadis* will be helpful in improving training attendance. Administering quality assurance tools such as training monitoring and sending training reinforcement messages (SMS) to promote awareness about worm infection, its prevention, and adverse events management should be prioritized. School teachers and headmasters who attend training must be mandated to impart adequate training to other teachers in their schools.
2. As a very low proportion of the school teachers/headmasters (35%) and *anganwadi* workers (46%) receive deworming related SMSs, an updated contact database of functionaries across all stakeholder departments will further ensure the maximum reach of reinforcement messages among school teachers and *anganwadi* workers. This will facilitate comprehensive, effective, and timely dissemination of information to functionaries. For future rounds, all stakeholder departments should work to update the contact database for the eight districts.
3. While improvement in integrated distribution is evident, particularly in *anganwadis*, integrated distribution remained low from the September 2016 to February 2017 NDD rounds. As most schools and *anganwadis* received training and IEC materials, but had low integrated distribution rates, we presume that distribution occurred through other means. 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. Reinforcement on integrated distribution during video conferences and through SMS alerts will also be helpful in facilitating integrated distribution.
4. A very high proportion of *anganwadi* centers did not have a list of unregistered and out-of-school children. Greater emphasis should be placed on generating community awareness and mobilizing out-of-school children to achieve high treatment coverage. 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 encourage the participation of private schools in training, facilitating drug logistics, sharing IEC materials, and managing adverse events.
6. Coverage validation findings suggest low levels of adherence to correct recording protocols. This needs to be strengthened with a focused strategy in future rounds. Greater emphasis on recording protocols during training is likely to improve the quality of coverage data in the next round. Training and reinforcement messages shared through SMS need to increase the focus on 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 PHC level training.
7. The average attendance observed in schools visited on NDD was consistent from the February 2017 NDD round (81%) to the September 2016 NDD round (82%). Further emphasis on improving average attendance will be helpful for the state to meet universal coverage.
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 Uttar Pradesh has provided useful insights for opportunities to increase coverage in future rounds, while identifying gaps in program planning and implementation. Evidence Action will work with the Government of Uttar Pradesh to coordinate efficient planning for future rounds, strategies for integrated distribution, and ways to improve adherence to recording and reporting protocols. Considering that it was the first time that private schools were engaged in Uttar Pradesh's NDD round, attention needs to be directed on scaling the program in both private and government 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 1

Table PM 1: 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	300	167	56	300	249	83
Reasons for not attending NDD training (Multiple Response)						
Location was too far away	133	13	10	51	3	6
Did not know the date/timings/venue	133	115	87	51	38	75
Busy in other official/personal work	133	11	8	51	5	10
Attended deworming training in the past	133	9	7	51	15	29
Not necessary	133	3	2	0	0	0
No incentives/no financial support	133	2	2	0	0	0
Trained teacher provided training to						
All other teachers	167	86	52	NA	NA	NA
Few teachers	167	31	18	NA	NA	NA
No (himself/herself only teacher)	167	15	9	NA	NA	NA
No, did not train other teachers	167	35	21	NA	NA	NA
Awareness about the ways a child can get worm infection	300	240	79	300	264	88
Different ways a child can get worm infection(Multiple Response)						
Not using sanitary latrine	240	109	46	264	106	40
Having unclean surroundings	240	175	73	264	193	73
Consume vegetables and fruits without washing	240	137	57	264	131	50
Having uncovered food and drinking dirty water	24	149	62	264	171	65
Having long and dirty nails	240	137	57	264	147	56
Moving in bare feet	240	118	49	264	134	51
Having food without washing hands	240	140	59	264	159	60
Not washing hands after using toilets	240	110	46	264	126	48
Awareness about all the possible ways a child can get worm infection⁸	240	42	18	264	28	11

⁸Includes 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 and drinking dirty water, have long and dirty nails, moves in bare fee, have food without washing hands and not washing hands after using toilets.

Indicators	School			<i>Anganwadi</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Perception that health education should be provided to children	300	281	94	300	291	97
Knowledge about correct dose of albendazole tablet						
1-2 years of children	NA	NA	NA	300	287	96
6-19 years of children	300	281	94	300	290	97
Awareness about non-administration of albendazole tablet to sick child						
Will administer albendazole tablet to sick child	300	7	2	300	3	1
Will not administer albendazole tablet to sick child	300	293	98	300	297	99
Awareness about consuming albendazole tablet						
Chew the tablet	300	270	90	300	289	96
Swallow the tablet directly	300	30	10	300	11	4
Awareness about consuming albendazole in school/<i>anganwadi</i>	300	270	90	300	292	97
Awareness about the last date for submitting the reporting form	300	31	11	300	51	17
Aware that completed reporting form should be submitted to ANM	300	160	53	300	181	60
Awareness about retaining a copy of the reporting form post submission	300	212	71	300	262	87
Source of information about current NDD round						
Television	300	69	23	300	69	23
Radio	300	34	11	300	39	13
Newspaper	300	96	32	300	79	26
Banner	300	34	11	300	35	12
SMS	300	74	25	300	94	31
Other school/teacher/ <i>anganwadi</i> worker	300	64	21	300	86	29
Training	300	113	38	300	162	54
Received SMS for current NDD round	300	105	35	300	139	46

Table PM 2: Deworming activity, availability of albendazole tablets, and list of unregistered out-of-school children, February 2017

Indicators	School			Anganwadi		
	Denominator	Numerator	%	Denominator	Numerator	%
Albendazole tablet administered on the day of visit						
Yes, ongoing	300	160	53	300	222	74
Yes, already done	300	26	9	300	41	14
Yes, after sometime	300	22	7	300	14	5
No, will not administer today	300	91	30	300	23	8
Schools/anganwadis conducted deworming on either of the day⁹	300	215	72	300	284	95
Schools/anganwadis conducted deworming on NDD¹⁰	150	111	74	150	139	93
Schools/anganwadis conducted deworming on Mop-Up Day¹¹	150	98	66	150	138	92
Attendance on NDD	27447	15184	55	NA	NA	NA
Attendance on Mop-Up Day	32529	21462	66	NA	NA	NA
Reasons for not conducting deworming						
No information	85	68	81	16	9	56
Albendazole tablet not received	85	8	97	16	3	19
Apprehension of adverse events	85	6	74	16	1	6
Others ¹²	85	2	25	16	3	19
Anganwadis having list of unregistered/out-of-school children	NA	NA	NA	300	118	39
Albendazole was administered to out-of-school children	NA	NA	NA	277	224	81
Albendazole was administered to unregistered children	NA	NA	NA	277	235	85
Sufficient quantity of albendazole tablets¹³	223	202	91	286	252	88

⁹Schools/anganwadis administered albendazole tablet to children either on NDD or Mop-Up Day

¹⁰Based on the samples visited on NDD.

¹¹Based on the samples visited on Mop-Up Day only.

¹²School administer the albendazole tablet to children a day before holiday, children/student absent, postponed due to festival.

¹³This indicator is based on the sample that received albendazole tablet.

Table PM 3: Integrated distribution of albendazole tablets and IEC materials, February 2017

Items	Schools				Anganwadi			
	Received (N=300)	Denominator*	Received in training	Verified	Received (N=300)	Denominator*	Received in training	Verified
Albendazole tablet	74(223)	223	67(150)	95(211)	95(286)	286	78(224)	96(275)
Poster/banner	51(154)	154	70(107)	96(148)	75(226)	226	80(180)	94(213)
Handouts/reporting form	57(171)	171	71(121)	94(161)	75(224)	224	81(181)	97(218)
Adverse event reporting form	17(50)	50	69(35)	91(46)	NA	NA	NA	NA
Received all materials	45(136)	136	68(92)	92(125)	67(200)	200	79(157)	94(188)
Integrated distribution¹⁴	31(92)				52(157)			

Table PM 4: Implementation of deworming activity and observation of monitor's, February 2017

Indicators	Schools			Anganwadi		
	Denominator	Numerator	%	Denominator	Numerator	%
Deworming activity was taking place	209	159	76	277	210	76
Albendazole tablets were administered by						
Teacher/headmaster	160	158	98	NA	NA	NA
Anganwadi worker	160	1	1	222	216	97
ASHA	NA	NA	NA	222	5	2
ANM	NA	NA	NA	0	0	0
Students	160	1	1	0	0	0
Followed any recording protocol¹⁵	186	158	85	263	226	86
Protocol followed						
Putting single/double tick	158	123	78	226	160	71
Put different symbols	158	30	19	226	8	4
Prepare the separate list for dewormed	158	5	3	226	58	26
Visibility of poster/banner during visits	154	114	74	226	180	80

¹⁴Integrated 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.

¹⁵Any 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.

Table PM 5: 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	300	90	30	300	85	28
Knowledge of possible adverse events (Multiple Response)						
Mild abdominal pain	90	65	72	85	65	76
Nausea	90	52	56	85	56	66
Vomiting	90	70	78	85	68	80
Diarrhea	90	17	19	85	17	20
Fatigue	90	16	18	85	20	24
All possible adverse event ¹⁶	90	6	7	85	8	9
Awareness about mild adverse event management						
Make the child lie down in open and shade/shaded place	300	104	35	300	232	77
Give ORS/water	300	200	67	300	122	41
Observe the child at least for 2 hours in the school	300	90	30	300	103	34
Don't know/don't remember	300	67	22	300	35	12
Awareness about severe adverse event management						
Call PHC or emergency number	300	203	68	300	208	69
Take the child to the hospital /call doctor to school	300	153	51	300	185	62
Don't know/don't remember	300	39	13	300	9	3
Occurrence of cases of any adverse event	300	17	9	263	14	5
Available contact numbers of the nearest ANM or MO-PHC	300	172	58	300	261	87

¹⁶Includes 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 PM 6: Selected Indicators of Process Monitoring in Private Schools, February 2017

Indicators ¹⁷	Denominator	Numerator	%
Attended training for current round of NDD	87	24	27
Received albendazole tablets	87	40	46
Sufficient quantity of albendazole tablets	40	33	82
Received poster/banner	87	32	37
Received handouts/ reporting form	87	32	37
Received SMS for current NDD round	87	10	12
Albendazole administered to children	87	32	37
Reasons for not conducting deworming			
No information	55	42	78
Albendazole tablets not received	55	5	9
Already dewormed all children on deworming day ¹⁸	55	5	9
Albendazole tablet administered to children by teacher/headmaster ¹⁹	24	24	100
Perceive that health education should be provided to children	87	78	89
Knowledge about correct doses of albendazole tablet	87	79	92
Awareness about non-administration of albendazole tablet to sick child	87	83	95
Opinion of occurrence of an adverse event after taking albendazole tablet	87	24	28
Opinion of occurrence of possible adverse events			
Mild abdominal pain	24	20	81
Nausea	24	14	58
Vomiting	24	20	82
Diarrhea	24	7	3
Fatigue	24	2	8
Occurrence of cases of any adverse event	30	1	5
Awareness about mild adverse event management			
Let the child rest in an open and shaded place	87	41	47
Provide clean water to drink/ORS	87	25	29
Contact the ANM/nearby PHC	87	61	71
Available contact numbers of the nearest ANM or MO-PHC	87	30	34
Followed correct ²⁰ recording protocol	22	12	56

¹⁷These 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

¹⁸Based on the samples that did not conduct deworming on Mop-Up Day.

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

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

Table CV1: Findings from School and *Anganwadi* Coverage Validation Data

S.No	Indicators	Schools			<i>Anganwadis</i>		
		Denominator	Numerator	%	Denominator	Numerator	%
1	Conducted deworming²¹	750	571	76	750	721	96
1a	Day of albendazole administration (Multiple Response)						
	a. National Deworming Day	571	547	96	721	605	98
	b. Mop-Up day	571	460	81	721	628	87
	c. Between NDD and Mop-Up Day	571	29	5	721	20	3
1b	Reasons for not conducting deworming						
	a. No information	179	148	83	29	14	48
	b. Drugs not received	179	22	12	29	12	41
	c. Apprehension of adverse events	179	4	2	29	0	0
	d. Others ²²	179	5	3	29	3	11
2	Albendazole left after deworming	571	337	59	721	346	48
2a	Number of albendazole left						
	a. Less than 50 tablets	337	242	72	346	251	72
	b. 50-100 tablets	337	44	13	346	66	19
	c. More than 100 tablets	337	51	15	346	30	9
3	Copy of reporting form was available for verification	571	209	37	721	302	42
3a	Reasons for non-availability of copy of reporting form						
	a. Did not received	362	110	31	419	112	27
	b. Submitted to ANM	362	141	39	419	246	59
	c. Unable to locate	362	26	7	419	20	5
	d. Other ²³	362	84	2	419	42	10
4	<i>Anganwadis</i> having list of unregistered children	NA			721	121	17
5	<i>Anganwadis</i> having list of out-of-school children	NA			721	153	21

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

²² Other includes mainly exams of children and school was closed.

²³ Other includes mainly submitted to BRC/NPRC/CDPO and availability of blank form.

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

S.No	Indicators	Schools/Children			<i>Anganwadis/Children</i>		
		Denominator	Numerator	%	Denominator	Numerator	%
1	Followed correct ²⁴ recording protocol(School)	571	234	41	721	335	46
2	Followed partial ²⁵ recording protocol (School)	571	82	14	721	189	26
3	Followed no ²⁶ recording protocol (School)	571	254	45	721	197	27
4	State level verification factor ²⁷ (Children enrolled)	24360	11691	0.48	43723	36308	0.83
	a. <i>Anganwadi</i> registered children	NA			28286	23402	0.82
	b. <i>Anganwadi</i> unregistered children	NA			4395	6030	1.4
	c. Out-of-school children	NA			11041	6876	0.62
5	State level inflation rate ²⁸ (Children enrolled)	12670	11691	92	36308	7414	20
	a. <i>Anganwadi</i> registered children	NA			23402	4885	21
	b. <i>Anganwadi</i> unregistered children	NA			6030	-1635	-27
	c. Out-of-school children	NA			6876	4165	61
6	Attendance on previous day of NDD (Children enrolled)	121927	81752	67	NA		
7	Attendance on NDD (Children enrolled)	121927	81252	67	NA		
8	Attendance on Mop-Up Day (Children enrolled)	121927	79091	65	NA		
9	Children who attended on both NDD and Mop-Up Day (Children enrolled)	121927	62059	51	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=209) and *anganwadis* (n=302) 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*.

10	Maximum attendance of children on Deworming Day and Mop-Up Day ²⁹ (Children enrolled)	121927	98284	81	NA		
11	School level inflation rate for schools followed the correct recording protocol (Children enrolled)	8666	1798	21	NA	NA	NA
12	Estimated NDD coverage based on government coverage data ³⁰ (School)	NA			NA		
13	Estimated NDD coverage based on school attendance ³¹ (School)	57			NA		

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

S.No	Indicators	Denominator	Numerator	%
1	Children received Albendazole tablets	1713	1679	98
2	Children consumed Albendazole tablet	1679	1662	99
3	Children aware about the Albendazole tablets	1679	1417	84
4	Source of information about NDD round			
	a. Teacher/school	1417	1409	99
	b. Television	1417	69	5
	c. Radio	1417	24	2
	d. Newspaper	1417	37	3
	e. Poster/Banner	1417	75	5
	f. Parents/siblings	1417	50	4
	g. Friends/neighbors	1417	40	3
5	Way children consumed the tablet			
	a. Chew the tablet	1662	1494	90
	b. Swallow tablet directly	1662	167	10
6	Supervised administration of tablets	1662	1550	94

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.

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*.

