



Independent Monitoring of
National Deworming Day in Madhya Pradesh
February 9, 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 aged 1-19 at *anganwadis* (preschools) and schools, including unregistered and out-of-school children.

Madhya Pradesh implemented its first round of NDD in February 2015 and performs annual treatment. On February 9, 2017 Madhya Pradesh observed the NDD round in all 51 districts 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 to assess the preparedness of *anganwadis* and schools to implement the NDD program and to perform program coverage validation post NDD to evaluate the accuracy of the reporting data and coverage estimates.

Findings from process monitoring highlighted that over 75% of targeted schools and *anganwadis* observed deworming on either on NDD or Mop-Up Day. Approximately, 89% of schools and 91% of *anganwadis* received sufficient tablets. However, only around half of schools and *anganwadis* received an integrated distribution of the NDD kits.² Coverage validation data revealed that fewer than half of schools and *anganwadis* followed the 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. In the interviews conducted, 94% of enrolled children reported they received a deworming 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 the NDD kits with timely procurement of drugs and IEC reporting materials, enhancing engagement of ASHAs, and increasing engagement of private schools.

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

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.

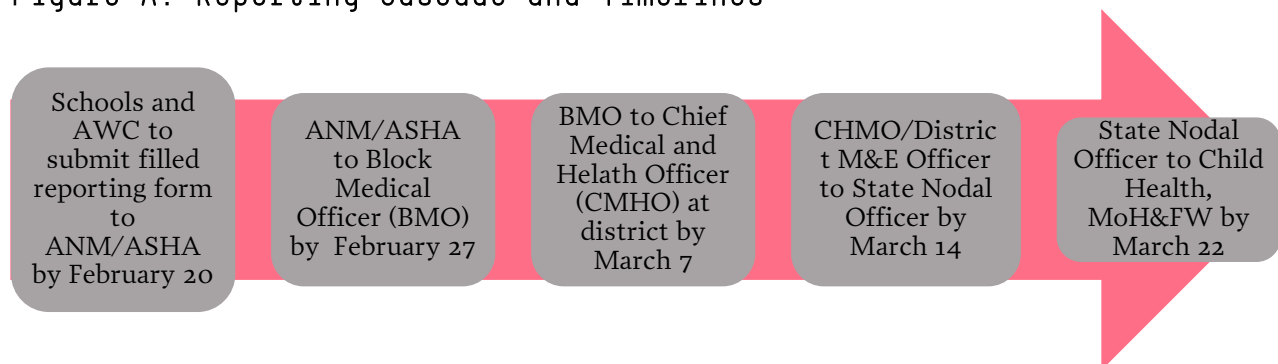
1. MONITORING AND EVALUATION

Understanding program reach and quality is a key component in determining if an NDD round was successful. Evidence Action worked intensively with the Government of Madhya Pradesh'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.

Figure A: Reporting Cascade and Timelines



Coverage validation is an ex-post check of the accuracy of the reporting data and coverage estimates. Coverage validation data was gathered through interviews with headmasters and *anganwadi* workers and three students (in three different randomly selected classes) in each sampled school, and by checking all registers and reporting forms in *anganwadis* and schools. Children in *anganwadis* did not take part in interviews. 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. Coverage reporting in the state was done using paper as well as through the NDD app. The Government of India provided the state with 365 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, the reporting cascades, and reporting 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.

1.3 Sampling and Sample Size

Evidence Action facilitated independent monitoring in all 51 implementing districts. Through a competitive process, Evidence Action hired Karvy Insights Limited, an experienced independent research agency that provided 125 monitors. Karvy Insights also conducted independent monitoring in Madhya Pradesh during the February 2016 NDD round as well. A two-stage probability sampling procedure was adopted to select schools and *anganwadis* for independent monitoring (**Table A**). A total of 249 schools and 251 *anganwadis* were covered during process monitoring on NDD and Mop-Up Day, and 625 schools and 625 *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	51	51	51	51
Total number of cluster/blocks	125	125	125	125
Total number of schools	250	249	625	625
Total no. of children interviewed in schools	NA	NA	1875	1630
Total number of <i>anganwadis</i>	250	251	625	625

1.4 Independent Monitoring Formats

To ensure comprehensive coverage and triangulation of data, three formats were administered: one combined tool for process monitoring at school and *anganwadi* on NDD and Mop-Up Day, and one for schools and *anganwadis* for coverage validation. Evidence Action designed and finalized formats with approvals from Madhya 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 letter to the schools and *anganwadis* 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 master trainers of Karvy Insights Limited, in Delhi on February 3, 2017, followed by the master trainers further conducting a two-day training of 150 monitors (including buffer monitors) during February 5-6, 2017. A refresher training of these monitors was conducted on February 18, 2017 to ensure quality data for coverage validation. The trainings 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 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, 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 schools 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 were asked to cover the next school on their list, and return to the first school at another time on a subsequent day. If the school was non-traceable or closed consistently after attempting three visits, a new school was substituted for the old one. 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 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 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 verified the photographs of schools and *anganwadis* collected during IM data collection and built in to the CAPI system for process monitoring and coverage validation to prove the location of the interview.

2. KEY FINDINGS

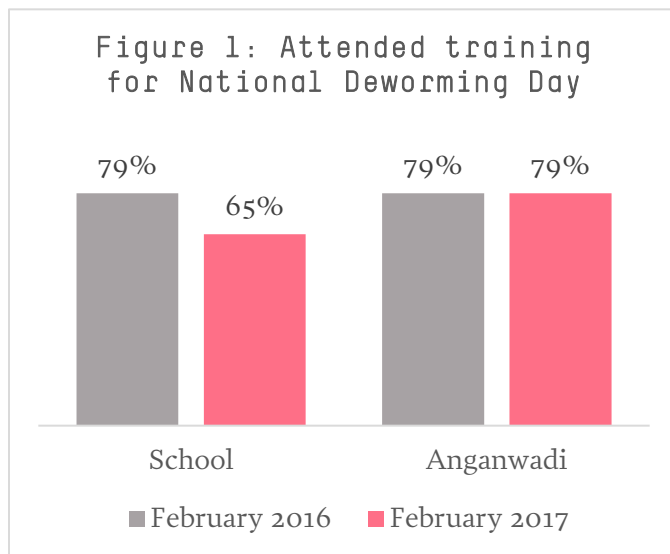
Key results³ and comparisons with the prior round from independent monitoring are provided below in sub headings, with further details shared in annexures.

2.1 Training

For effective implementation of NDD, teachers and *anganwadi* workers are trained prior to the NDD round to account for teacher/*anganwadi* worker turnover and ensure an integrated distribution of drugs and IEC (posters/banners) materials during training sessions. There was no improvement in training attendance of *anganwadi* workers from NDD 2016 to NDD 2017. The training attendance among headmaster/teachers declined from 79% in NDD 2016 to 65% in NDD 2017 (**Figure 7**). This decline could be partly attributed to the non-issuance of separate

³The 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.

training-related instructions from districts. Additional reasons for low training attendance during the February 2017 NDD round could be partly attributed to delayed block level trainings, which were postponed due to a delay in the distribution of IEC and training materials, and the change in dates of training not being communicated to participants in a timely manner. Although all school teachers and *anganwadi* workers are expected to attend training for each round (regardless of training attendance in previous rounds), the lower percentage of training of school teachers could be partly attributed to the proportion of teachers reporting having already attended NDD training in the past (23%) as a reason for not attending the NDD trainings for the 2017 round. Amongst those who did not attend training, 65% of teachers/headmasters and 57% of *anganwadi* workers reported lack of information about NDD training dates/venue as the main reason for not attending trainings. About 87% of trained teachers provided training to all 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. Approximately 68% of schools and *anganwadi* workers reported that they received 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 the SMSs to the teachers and *anganwadis* workers. NDD was recently piloted in private schools and, therefore, initial participation was low compared to government schools.



Among private schools, only 33% of private schools received NDD training. The lack of information about training dates and times was the main reason for the majority of private schools (77%) not attending the training (**Table PM6**). Private schools require further engagement to ensure information on training dates and locations is accurately communicated.

2.2 Integrated Distribution of NDD Materials Including Drugs

The NDD guidelines mandates an 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, cost-effective, and complete delivery of all

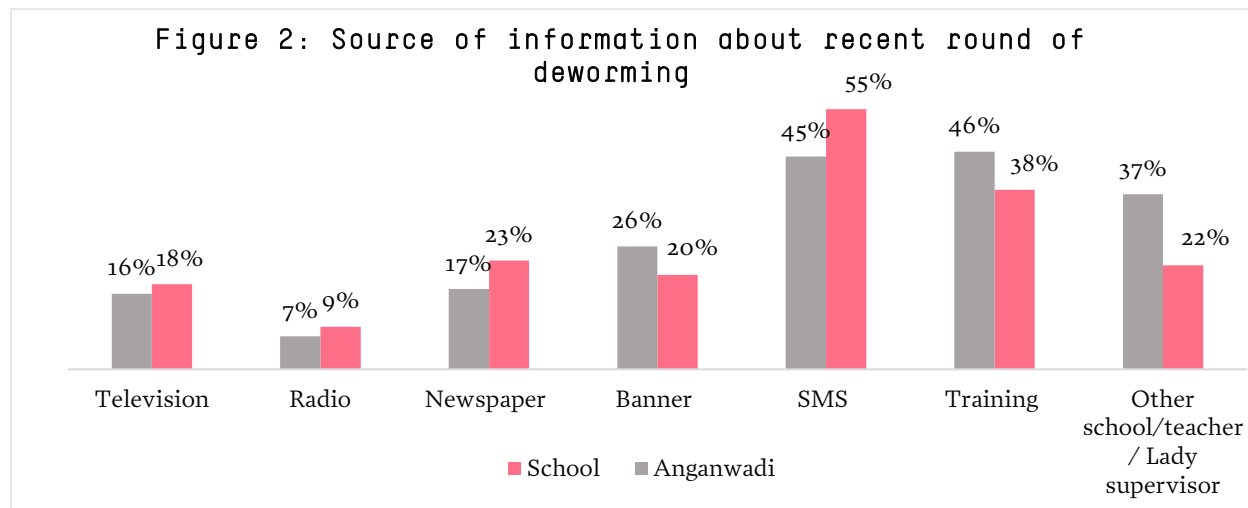
⁴National Deworming Day, operational Guidelines 2016, Ministry of Health and Family Welfare, Government of India http://nrhm.gov.in/images/pdf/NDD-2016/Guidelines/Draft_NDD_2016_Operational_Guidelines.pdf

materials. It is important to integrate the distribution of all NDD materials with trainings for a cost-effective program. Despite the well-defined distribution plan, findings showed that only 55% of schools and 54% of *anganwadis* in the state had 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 training (Table PM3). Around 87% of schools and 93% of *anganwadis* received tablets for deworming, while 70% of schools and 94% of *anganwadis* received posters/banners (Table PM3). Moreover, 89% of schools and 91% of *anganwadis* reported having received sufficient drugs for deworming (Table PM2). About 64% of schools and 71% of *anganwadis* received handouts/reporting forms (Table PM3).

Among private schools, around 46% received tablets for deworming. Of those that received tablets, 75% of these schools reported to have a sufficient quantity. Forty-one percent of the private schools covered during process monitoring received posters/banners and 31% of private schools reported receiving handouts/reporting forms for deworming (Table PM6).

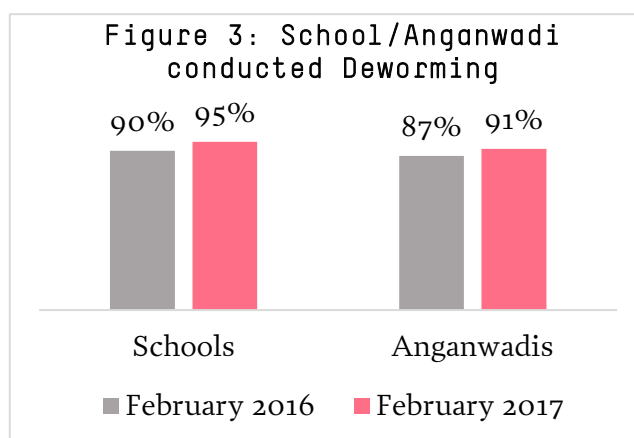
2.3 Source of Information about the Recent Round of NDD

As depicted in Figure 2, 55% of schools and 38% of *anganwadis* reported receiving information on NDD via SMS. Approximately 23% of schools and 17% of *anganwadis* also reported to have received information about NDD through the newspaper. Approximately 16% of schools and 18% of *anganwadis* reported hearing about NDD via the television. The radio was the least effective source of information about NDD for this round as only seven percent of schools and nine percent of *anganwadis* reported hearing about NDD through the radio (Figure 2) in this manner.



2.4 NDD Implementation

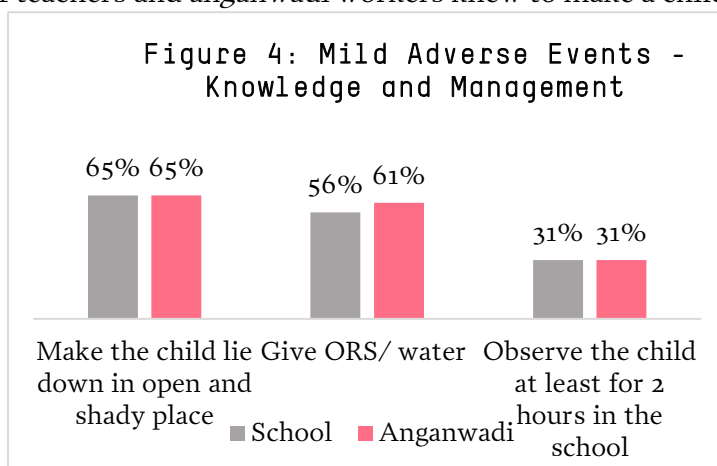
The proportion of schools and *anganwadis* that conducted deworming was high during both the August 2016 and February 2017 NDD rounds (**Figure 3**). The coverage validation data shows that around 95% of schools and 91% of *anganwadis* had dewormed children during the recent round of NDD or Mop-Up Day (**Table CV1**). Out of 214 schools and 224 *anganwadis* that implemented NDD; monitors were able to observe ongoing deworming activities in 55% of schools and 58% of *anganwadis* respectively (**Table PM4**).



2.5 Adverse Events - Knowledge and Management

Interviews with headmasters, teachers, and AWWs revealed a high degree of awareness regarding the potential adverse events due to deworming and a high level of understanding of the appropriate protocols to follow in the case of such events. Abdominal pain was listed as a symptom by 48% of principals followed by vomiting (47%), while 76% of *anganwadi* workers listed abdominal pain followed by vomiting (73%) as a symptom of an adverse event.

Around 34% of school teachers and 52% of *anganwadi* workers recognized nausea as a symptom (**Table PM5**). Further, 65% of teachers and *anganwadi* workers knew to make a child lie down in an open, shaded place in the case of any symptoms of adverse events. Out of the total, 56% of schools and 61% of *anganwadis* also knew to manage the adverse event by giving ORS/water to the children and keeping them under observation for at least for two hours (**Figure 4**). Further, 66% 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 43% of *anganwadis* followed the correct recording protocols. Around 16% of schools and 25% of *anganwadis* followed partial protocols (marking down symbols or making a list of dewormed children). However, 43% of schools and 32% of *anganwadis* did not follow any protocol to keep records of

dewormed children (**Table CV2**). As recommended in the NDD guidelines, teachers and *anganwadi* workers were supposed to retain a copy of reporting forms; however, 11% of headmasters and 10% 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 36% of schools and 23% 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 mobilizing hard to reach out-of-school 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- 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 in only 19% of out-of-school children and 17% of unregistered children in *anganwadis* respectively (**Table CV1**).

2.7 Coverage Validation

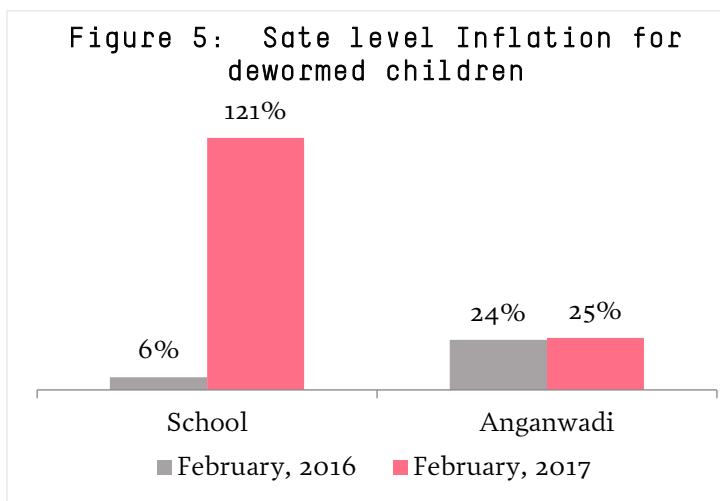
Verification factors⁵ are common indicators to measure the accuracy of reported treatment values for Neglected Tropical Disease control programs.⁶ The verification factor is a comparison of the aggregated number of ticks in school/*anganwadi* registers (indicating that children were dewormed) to the 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

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.

forms at schools and *anganwadis*. 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. The state-level verification factor for school enrolled children was 0.45, indicating that on average for every 100 dewormed children reported by the school; only forty-five were verified through available documents. This corresponds to an overall 121% inflation of reporting in the schools, meaning that reported numbers appear to be approximately 121% higher than the numbers recorded in school attendance registers. Overall state-level verification factor for children dewormed at *anganwadis* was 0.80 with an inflation of 25%. **Figure 5** presents the comparison of state-level inflation rates for schools and *anganwadis* during the February 2016 and February 2017 NDD rounds. The inflation rate has increased from six percent to 121% in the schools from the February 2016 to the February 2017 NDD round and has remained stagnant in the case of *anganwadis* (24% to 25%). The substantial increase in the inflation rate in schools can be partly attributed to the lack of proper documentation at schools, decline in training attendance, and failure to follow correct recording protocols. However, category-wise verification factors for registered (1-5 years), unregistered (1-5 years) and out-of-school (6-19 years) children were 0.85, 0.91, and 0.56 with a corresponding inflation of 17%, 9%, and 80% respectively (**Table CV2**).

The state government reported 91% coverage in both schools and *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 45% of treatment figures reported by schools and 80% for *anganwadis*. Applying this verification factor to respective



government reported coverage, we estimated that 41% (45% of 91) of children could have been dewormed in the schools and 73% (80% of 91) 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 the verification factors needs to be interpreted with caution.

Further, we also estimated NDD treatment coverage in schools considering the maximum attendance of children on NDD dates. Coverage validation data showed that 87% of schools conducted deworming on either NDD or Mop-Up Day, a maximum of 86% of children were in attendance, 94% of children received an albendazole tablet, and 96% of children reported to

consume the tablet under supervision. Taking these factors into account, 68% ($0.87 \times 0.86 \times 0.94 \times 0.96$) of enrolled children could have been dewormed in the schools. This indicates that NDD coverage in the schools lies somewhere between 41 and 68 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 employ an alternate method of estimating the coverage at *anganwadis*.

2.8 Trend Analysis

To understand the changes in selected indicators from the February 2016 to the February 2017 NDD round, indicators are presented in graphical form below (**Figures 6, 7, and 8**).

Figures 7 and 8 presents the change in selected indicators from NDD 2016 to NDD 2017 for schools and *anganwadis* respectively. **Figure 7** depicts that although NDD implementation declined marginally for both schools and *anganwadis*, its level remained high at around 90% during both NDD rounds in the state. The percentage of schools that received sufficient drugs for NDD has declined slightly, but remained high at around 90%. The percentage of schools and *anganwadis* that received posters/banners was consistent over the NDD rounds. The percentage of schools and *anganwadis* that received handouts/reporting forms increased by four percent and five percent respectively. The lower percentage of posters/banners and handouts/reporting forms might have attributed to delays in distribution of these materials at the block level. Although integrated distribution increased by almost 20 percentage points for both schools and *anganwadis* from the February 2016 to the February 2017 NDD round, its level remained low. The low integrated distribution can partly can be attributed to delays in the distribution of materials.

The percentage of schools and *anganwadis* that received SMS increased by 17 and 13 percentage points respectively. The lack of an updated contact database may have impacted the overall delivery of the SMS to the teachers who have not received SMS. The percentage of schools and *anganwadis* that followed the correct recording protocol declined from the previous NDD round. The drop in the percentage of schools and *anganwadis* that followed the correct recording protocol could be partly attributed to low training attendance of schools and merged trainings with other ongoing departmental trainings; thereby impacting the quality of the sessions being conducted.

Figure 6: Comparison of training indicators for school/*anganwadi* from NDD 2016 to NDD 2017

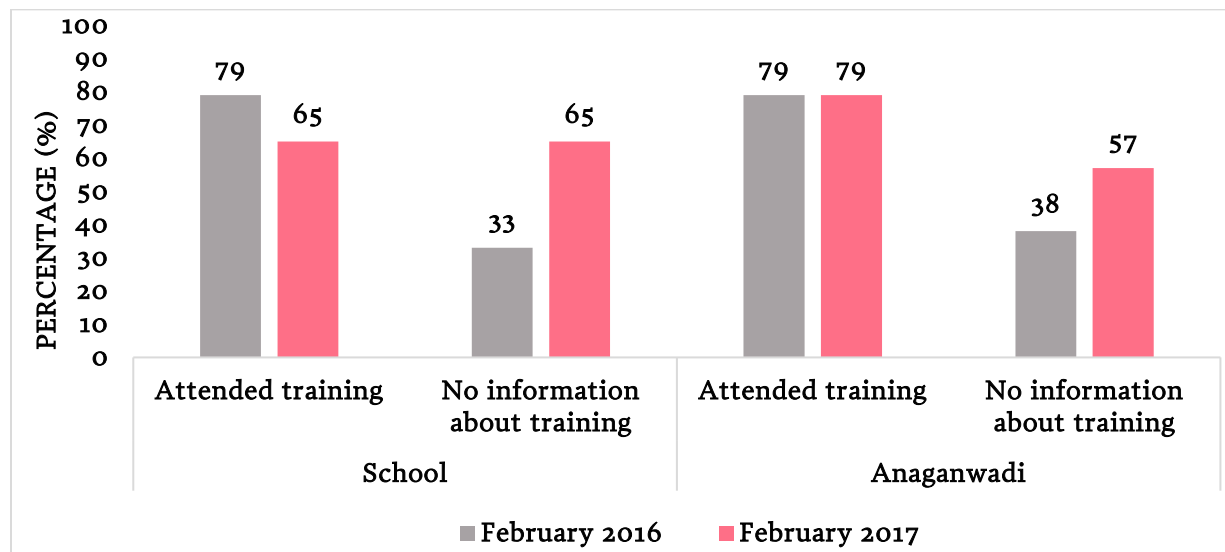


Figure 7: Trend of key indicators in schools from NDD 2016 to NDD 2017

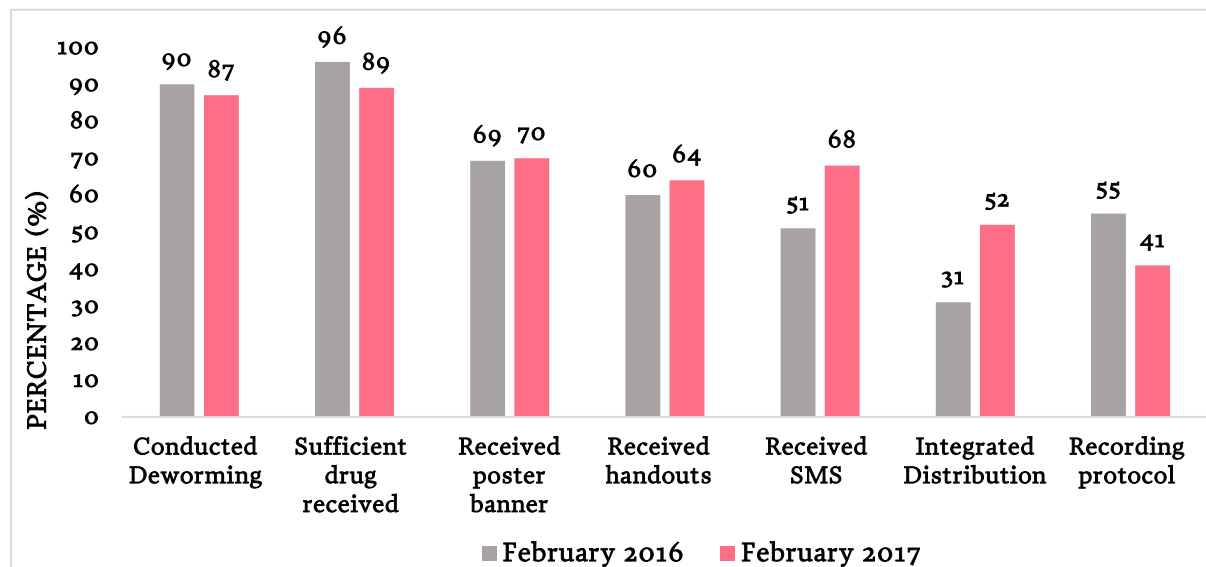
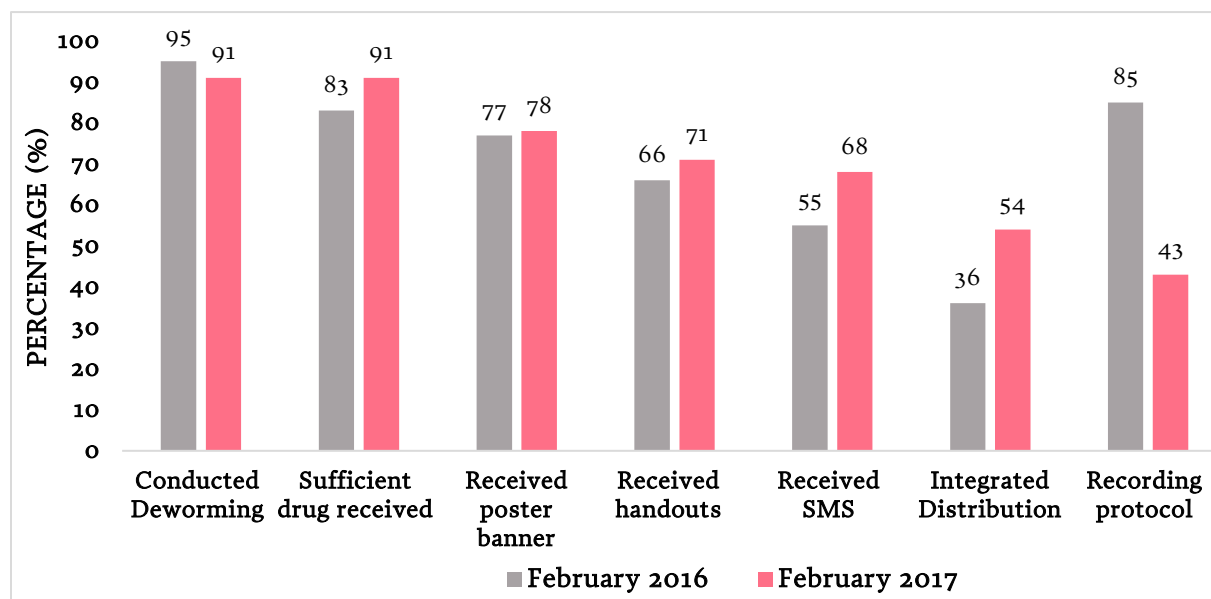


Figure 8: Trend of key indicators in *anganwadis* from NDD 2016 to NDD 2017



3. RECOMMENDATIONS

The monitoring exercise conducted during Madhya 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 evaluation exercise.

1. Findings highlight that training participation among school teachers decreased from February 2016 to February 2017. Participation of the teachers needs to be encouraged and leveraged in the next round of NDD to ensure the successful implementation of a high quality NDD program. The pre-planning of sessions and timely communication of training dates and venues to schools and *anganwadis* will be helpful to improve training attendance. Emphasis should be on improving training quality and on administering quality assurance tools such as training monitoring and sending training reinforcement messages (SMSs) to promote awareness about worm infection, its prevention, and adverse events management. School teachers and headmasters who attend training should be mandated to impart adequate training to other teachers in the school.
2. Although the percentage of headmasters/teacher and *anganwadi* workers that received deworming related SMS increased from February 2016 to February 2017, 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.

3. While a significant increase in integrated distribution is evident from the February 2016 to the February 2017 NDD round, it is still low overall. Most schools and *anganwadis* received training and IEC materials, however the low integrated distribution demonstrates that materials were distributed by other means. Focused efforts on planning for drug procurement and sharing training schedules 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 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 (80%) did not have a list of unregistered and out-of-school children. Departments can increase ASHA participation and engagement to prepare these lists in their communities by highlighting the role of ASHAs in the joint directive issued by the state, encouraging ASHA 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 compared to the previous round, more efforts to encourage the participation of private schools in training, facilitating drug logistics, sharing IEC materials, and adverse events management are needed. The engagement of district collectors will be key to this effort and directives from the senior bureaucratic leadership will help to facilitate these efforts.
6. Coverage validation findings suggests an opportunity to strengthen recording protocols. Greater emphasis on recording protocols during training session is likely to improve the quality of coverage data in the next round. Training and reinforcement messages shared through SMS needs to increase the focus on the importance of following correct reporting protocols and maintaining accurate and complete documentation. Practical sessions on recording protocol for teachers and *anganwadi* workers should be organized during PHC level trainings.
7. 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 also ensure that teachers/headmasters and *anganwadi* workers understand the directive to maintain a copy of reporting forms.

4. WAY FORWARD

Program monitoring of the third round of NDD in Madhya Pradesh has provided useful insights on opportunities to increase coverage in future rounds, while identifying gaps in the program planning and implementation. Evidence Action will continue to work with the Government of Madhya Pradesh to coordinate efficient planning, strategies for integrated distribution and its supervision, and improved recording and reporting protocol in order to escalating the program coverage. To further scale up program coverage in private schools, efforts should be coordinated to increase private school training attendance and engagement.

ANNEXURE : 1

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	249	162	65	251	198	79
Reasons for not attending NDD training (Multiple response)						
Location was too far away	87	4	5	53	2	4
Did not know the date/timings/venue	87	57	65	53	30	57
Busy in other official/personal work	87	3	3	53	9	17
Attended deworming training in the past	87	20	23	53	12	23
Not necessary	87	5	5	53	3	6
No incentives/no financial support	87	2	2	53	1	2
Trained teacher provided training to						
All other teachers	162	87	54	NA	NA	NA
Few teachers	162	33	20	NA	NA	NA
No (himself/herself only teacher)	162	27	17	NA	NA	NA
No, did not train other teachers	162	14	9	NA	NA	NA
Awareness about the ways a child can get worm infection	249	194	78	251	202	81
Different ways a child can get worm infection (Multiple responses)						
Not using sanitary latrine	194	84	43	202	81	40
Having unclean surroundings	194	151	78	202	147	73
Consume vegetables and fruits without washing	194	120	62	202	115	57
Having uncovered food and drinking dirty water	194	96	50	202	92	46
Having long and dirty nails	194	97	50	202	99	49
Moving in bare feet	194	121	62	202	117	58
Having food without washing hands	194	122	63	202	132	65
Not washing hands after using toilets	194	89	46	202	103	51
Awareness about all the possible ways a child can get worm infection⁷	194	25	13	202	20	10
Perceive that health education should be provided to children	249	241	99	251	241	96
Knowledge about correct dose of albendazole tablet						

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 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	%
1-2 years of children	NA	NA	NA	251	237	94
6-19 years of children	249	240	96	251	248	99
Awareness about non-administration of albendazole tablet to sick child						
Will administer albendazole tablet to sick child	249	15	6	251	21	8
Will not administer albendazole tablet to sick child	249	234	94	251	230	92
Awareness about consuming albendazole tablet						
Chew the tablet	249	237	95	251	247	98
Swallow the tablet directly	249	12	5	251	4	2
Awareness about supervised administration of albendazole	249	244	98	251	249	99
Awareness about the last date for submitting the reporting form	249	122	49	251	93	37
Aware that completed reporting form should be submitted to ANM	249	94	38	251	120	48
Awareness about retaining a copy of the reporting form post submission	249	221	89	251	226	90
Source of information about current NDD round						
Television	249	46	18	251	41	16
Radio	249	23	9	251	18	7
Newspaper	249	58	23	251	42	17
Banner	249	51	20	251	64	26
SMS	249	136	55	251	112	45
Other school/teacher/ <i>anganwadi</i> worker	249	55	22	251	92	37
Training	249	94	38	251	115	46
Received SMS for current NDD round	249	170	68	251	171	68
ASHA present in <i>Anganwadi</i>	NA	NA	NA	251	152	61
ASHA aware to report number of dewormed children through SMS	NA	NA	NA	152	108	71
Source of information about SMS reporting						
Training	NA	NA	NA	108	71	66
Monthly meetings	NA	NA	NA	108	28	26
Others	NA	NA	NA	108	9	8
Mode of collecting information about dewormed children from School/<i>Anganwadi</i>						
Will contact school	NA	NA	NA	108	71	66
From the list of children	NA	NA	NA	108	31	29
Other	NA	NA	NA	108	6	6

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	249	108	44	251	120	48
Yes, already done	249	68	27	251	76	30
Yes, after sometime	249	38	15	251	28	11
No, will not administer today	249	35	14	251	27	11
Schools/<i>anganwadis</i> conducted deworming on either of the day⁸	249	219	88	251	230	92
Schools/<i>anganwadis</i> conducted deworming on NDD⁹	121	106	87	125	113	90
Schools/<i>anganwadis</i> conducted deworming on Mop-Up Day¹⁰	128	108	85	126	111	88
Attendance on NDD	11059 (121)	7334	66	NA	NA	NA
Attendance on Mop-Up Day	17265 (128)	10929	63	NA	NA	NA
Reasons for not conducting deworming						
No information	30	10	31	21	5	24
Albendazole tablet not received	30	14	45	21	11	52
Apprehension of adverse events	30	0	0.0	21	0	0
Others ¹¹	30	6	21	21	5	24
<i>Anganwadis</i> having list of unregistered/out-of-school children	NA	NA	NA	251	103	41
Albendazole was administered to out-of-school children	NA	NA	NA	224	162	72
Albendazole was administered to unregistered children	NA	NA	NA	224	175	78
Sufficient quantity of albendazole tablets¹²	217	193	89	234	213	91

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

⁹Based on the samples visited on NDD only.

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 festival.

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

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

Items	Schools				Anganwadi			
	Received (N=249)	Denominator *	Received in training	Verified	Received (N=251)	Denominator *	Received in training	Verified
Albendazole tablet	87 (217)	217	92 (198)	93 (201)	93 (234)	234	92 (215)	94 (221)
Poster/banner	70 (173)	173	95 (165)	94 (162)	78 (196)	196	93 (182)	91 (178)
Handouts/reporting form	64 (160)	160	92 (148)	93 (148)	71 (177)	177	90 (159)	87 (154)
Received all materials	57 (141)	141	91 (129)	92 (130)	61 (152)	152	90 (136)	84 (128)
Integrated distribution¹³	55 (129)				54 (136)			

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	214	117	55	224	130	58
Albendazole tablets were administered by						
Teacher/headmaster	108	102	94	NA	NA	NA
Anganwadi worker	NA	NA	NA	120	89	74
ASHA	NA	NA	NA	120	21	18
ANM	NA	NA	NA	120	3	3
Followed any recording protocol¹⁴	176	141	80	196	158	81
Protocol followed						
Putting single/double tick	141	105	75	158	106	67
Put different symbols	141	4	3	158	14	9
Prepare the separate list for dewormed	141	32	23	158	38	24
Visibility of poster/banner during visits	173	138	80	196	154	79

¹³Integrated 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.

¹⁴Any 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 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 taking albendazole tablet	249	65	26	251	67	27
Knowledge of possible adverse events						
Mild abdominal pain	65	48	73	67	51	76
Nausea	65	34	52	67	35	52
Vomiting	65	47	72	67	49	73
Diarrhea	65	21	32	67	10	15
Fatigue	65	17	27	67	13	20
All possible adverse event ¹⁵	65	2	3	67	1	2
Awareness about mild adverse events management						
Make the child lie down in open and shade/shaded place	249	162	65	251	164	65
Give ORS/water	249	140	56	251	154	61
Observe the child at least for 2 hours in the school	249	76	31	251	77	31
Don't know/don't remember	249	28	11	251	18	7
Awareness about severe adverse events management						
Call PHC or emergency number	249	165	66	251	172	69
Take the child to the hospital /call doctor to school	249	151	61	251	147	59
Don't know/don't remember	249	22	9	251	16	6
Occurrence of cases of any adverse event	176	18	10	196	22	11
Available contact numbers of the nearest ANM or MO-PHC	249	167	67	251	210	84

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	29	10	33
Received albendazole tablets	29	13	46
Sufficient quantity of albendazole tablets	13	10	75
Received poster/banner	29	12	41
Received handouts/ reporting form	29	9	31
Received SMS for current NDD round	29	11	37
Albendazole administered to children	29	14	49
Reasons for not conducting deworming			
No information	15	8	49
Albendazole tablets not received	15	3	22
Already dewormed all children on deworming day ¹⁷	15	0	0.0
Others ¹⁸	15	4	28
Albendazole tablet administered to children by teacher/headmaster¹⁹	8	7	92
Perception that health education should be provided to children	29	24	81
Knowledge about correct doses of albendazole tablet	29	28	95
Awareness about non-administration of albendazole tablet to sick child	29	6	19
Opinion of occurrence of an adverse event after taking albendazole tablet	29	7	23
Opinion of occurrence of possible adverse events			
Mild abdominal pain	7	3	48
Nausea	7	4	59
Vomiting	7	3	37
Diarrhea	7	3	40
Fatigue	7	1	12
Occurrence of cases of any adverse event	14	3	18
Awareness about mild adverse event management			
Let the child rest in an open and shaded place	29	17	59
Provide clean water to drink/ORS	29	9	30
Observe the child at least for 2 hours in the school	29	2	6
Awareness about severe adverse event management Contact the ANM/nearby PHC	29	13	45
Available contact numbers of the nearest ANM or MO-PHC	29	15	52
Followed correct²⁰ recording protocol	8	5	60

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.

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 Schools and *Anganwadis* Coverage Validation Data

Indicators	Schools			<i>Anganwadis</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Conducted deworming²¹	625	543	87	625	568	91
Day of albendazole administration (Multiple Response)						
National Deworming Day	543	509	94	568	511	90
Mop-Up Day	543	432	80	568	433	76
Between NDD and Mop-Up Day	543	72	13	568	114	20
Reasons for not conducting deworming						
No information	82	37	45	57	30	53
Drugs not received	82	43	53	57	23	41
Apprehension of adverse events	82	2	2	57	1	2
Others ²²	82	0	0	57	3	4
Albendazole left after deworming	543	287	53	568	308	54
Number of albendazole left						
Less than 50 tablets	287	252	88	308	273	89
50-100 tablets	287	27	9	308	25	8
More than 100 tablets	287	8	3	308	10	3
Copy of reporting form was available for verification	543	197	36	568	131	23
Reasons for non-availability of copy of reporting form						
Did not received	346	95	27	437	127	29
Submitted to ANM	346	209	60	437	263	60
Unable to locate	346	19	5	437	31	7
Other ²³	346	23	7	437	16	4
<i>Anganwadis</i> having list of unregistered children	NA	NA	NA	568	98	17
<i>Anganwadis</i> having list of out-of-school children	NA	NA	NA	568	109	19
ASHA present in <i>Anganwadis</i>	NA	NA	NA	568	207	36
ASHA reported no of dewormed children in her community through SMS	NA	NA	NA	207	113	54
ASHA reported dewormed children through SMS on						
NDD	NA	NA	NA	113	61	54
Mop-Up Day	NA	NA	NA	113	10	9
Both days	NA	NA	NA	113	42	37
Reasons for not doing SMS reporting						
No information	NA	NA	NA	94	73	78

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

²² Other includes mainly, absence of headmaster/teacher and unavailability of drugs.

²³ Other includes mainly submitted to mpw in and availability of blank form.

SMS charge is costly	NA	NA	NA	94	1	1
School/ <i>Anganwadi</i> did not provide data	NA	NA	NA	94	3	3
Others ²⁴	NA	NA	NA	94	16	18

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

Indicators	School			<i>Anganwadis</i>		
	Denominator	Numerator	%	Denominator	Numerator	%
Followed correct²⁵ recording protocol	543	224	41	568	244	43
Followed partial²⁶ recording protocol	543	86	16	568	143	25
Followed no²⁷ recording protocol	543	233	43	568	181	32
State level verification factor²⁸	17804	8061	0.45	11723	9390	0.80
<i>Anganwadi</i> registered children	NA	NA	NA	8398	7149	0.85
<i>Anganwadi</i> unregistered children	NA	NA	NA	1096	1003	0.91
Out-of-school children	NA	NA	NA	2229	1238	0.56
State level inflation rate²⁹	8061	9743	121	9390	2333	25
<i>Anganwadi</i> registered children	NA	NA	NA	7149	1249	17
<i>Anganwadi</i> unregistered children	NA	NA	NA	1003	93	9
Out-of-school children	NA	NA	NA	1238	991	80
Attendance on previous day of NDD	17638	12644	72	NA	NA	NA
Attendance on NDD	17638	12519	71	NA	NA	NA
Attendance on Mop-Up Day	17638	12050	68	NA	NA	NA
Children who attended on both NDD and Mop-Up Day	17638	9469	54	NA	NA	NA
Maximum attendance of children on Deworming Day and Mop-Up Day³⁰	17638	15101	86	NA	NA	NA
School level inflation rate for schools followed the correct recording protocol	6536	2443	37	NA	NA	NA

²⁴ Other includes don't have mobile and did not know to do the SMS through mobile

²⁵ 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.

²⁶ 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.

²⁷ No protocol includes all those schools where none of the classes followed any protocol to record the information of dewormed children.

²⁸ Ratio of recounted value of the dewormed children to the reported value. This calculation is based on only those schools (n=197) and *anganwadis* (n=131) where deworming was conducted and copy of reporting form was available for verification.

²⁹ Proportion of over reported dewormed children against total verified children in schools and *anganwadis*.

³⁰ 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 ³¹	41	73
Estimated NDD coverage based on school attendance ³²	68	NA

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

Indicators	Denominator	Numerator	%
Children received Albendazole tablets	1630	1533	94
Children consumed Albendazole tablet	1533	1518	99
Children aware about the Albendazole tablets	1533	1245	81
Source of information about NDD round			
Teacher/school	1245	1201	96
Television	1245	105	8
Radio	1245	48	4
Newspaper	1245	47	4
Poster/Banner	1245	243	19
Parents/siblings	1245	53	4
Friends/neighbors	1245	98	8
Way children consumed the tablet			
Chew the tablet	1518	1460	96
Swallow tablet directly	1518	58	4
Supervised administration of tablets	1518	1463	96

³¹ This was estimated by implying state level verification factor on government reported coverage for schools and AWC.

³² 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*.