



Process Monitoring and Coverage Validation of
Schools and *Anganwadis* based National
Deworming Day in Chhattisgarh

REPORT
August 2016

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. MONITORING AND EVALUATION	2
1.1 Monitoring Background	2
1.2 Process Monitoring, Recording & Reporting Process and Coverage Validation	2
1.3 Sampling and Sample Size	3
1.4 Independent Monitoring Formats	3
1.5 Authorization from Government	3
1.6 Training of Trainers and Independent Monitors	3
1.7 Field Implementation	4
1.8 Data Processing and Analysis	4
1.9 Quality Control	4
2. KEY FINDINGS	4
2.1 Training	5
2.2 Integrated Distribution of Deworming Materials Including Drugs	5
2.3 Source of Information about Recent Round of Deworming	6
2.5 Adverse Events - Knowledge and Management	6
2.6 Recording Protocol	7
2.7 Coverage Validation	8
3. RECOMMENDATIONS	9
4. WAY FORWARD	10
ANNEXURE: 1	11

EXECUTIVE SUMMARY

India, with an estimated 223¹ million (one quarter of global burden) children living with soil-transmitted helminths (STH), launched National Deworming Day (NDD) in February 2015 to deworm all children between 1-19 years of age. The program is aimed at the supervised administration of albendazole tablets to all preschool and school-age children, in *anganwadis* and schools, including unregistered (1-5 years) and out-of-school (6-19 years) children.

Chhattisgarh observed the third round of NDD in 15 out of 27 districts on **August 31, 2016** followed by Mop-Up Day on **September 07, 2016**. Evidence Action's Deworm the World Initiative, as the technical assistance partner, 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 mass deworming program, followed by coverage validation to evaluate the accuracy of the reporting data and coverage estimates post deworming. While children in 15 districts were dewormed during the August round of NDD, challenges surrounding timely drug procurement and management resulted in five districts being unable to implement the round. Ensuring timely drug procurement is a priority for future rounds.

Of the districts that were dewormed, findings from process monitoring highlighted that 98% of schools and 91% of the *anganwadis* observed deworming. However, of those that could not implement the rounds, it was noted that a lack of awareness may have contributed to some *anganwadis* not being able to complete the round. Approximately 96% of schools and 83% of *anganwadis* received sufficient tablets for deworming and 82% of schools and 73% of *anganwadis* received program posters/banners. Integrated distribution of the NDD kit² occurred in 72% of schools and 64% of *anganwadis*. Seventy-five percent of schools and *anganwadis* received training for the recent round of deworming. Coverage validation data revealed that 81% of schools and 59% of *anganwadis* followed the correct protocols for recording the number of children dewormed, however, around twelve percent of schools and 27% of *anganwadis* did not adhere to any recording protocol. A substantial proportion of *anganwadi* workers did not have a list of unregistered (75%) and out-of-school children (67%). Despite substantial compliance to recording protocols, findings exhibited an inflation of 35% (verification factor of 0.74) for enrolled school-age children and 45% (verification factor of 0.69) for preschool-age children. Nevertheless, interviews indicated that 97% of all enrolled children received a deworming tablet. Estimates show that coverage lies somewhere between 67% and 86% in schools and around 54% in *anganwadis*.

The findings from NDD's independent monitoring highlights opportunities to strengthen future rounds. Quality and coverage of the program can be improved upon by ensuring timely communication of training dates to schools and *anganwadis*. The database of functionaries across all stakeholder departments needs to be regularly updated to ensure timely information dissemination to key audiences. Efforts are needed to strengthen the integrated distribution of deworming kits. Attention needs to be directed to scaling the program in private schools. During training, emphasis should be placed on organizing practical sessions on

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 deworming drugs, banner/poster and handout-reporting forms and provided to schools and AWC during the trainings at block or PHC level

recording protocol for schools and *anganwadis* to ensure proper data documentation and management. Moreover, enhanced engagement of ASHAs and AWWs is also critical for the success of the program.

1. MONITORING AND EVALUATION

1.1 Monitoring Background

Understanding program reach and quality is a key component of a successful National Deworming Day (NDD) round. In order to fulfil this need, Evidence Action worked intensively with Chhattisgarh's health, education, and women and child development departments to assess the quality of program planning and implementation with an ultimate focus on developing recommendations for improvements in future NDD rounds. Preparing systems to undertake deworming, adhering to the prescribed deworming processes, and ensuring accurate coverage reporting are key components of the supervision process. Three processes of monitoring and evaluation are included in each deworming program round: (1) process monitoring, (2) coverage reporting and (3) coverage validation.

1.2 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-deworming phase and selected independent monitors who 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.

Recording and reporting processes are an important means to assessing the estimated number of program beneficiaries, and are a crucial component to measuring success. With close support from Evidence Action's state and field teams, the Department of Health collected and compiled the coverage report for NDD within the established reporting timelines. School teachers and *anganwadi* workers had been trained on the recording and reporting protocols. These protocols, along with the reporting cascade and timelines (refer to **Figure A** below), were shared with all districts through the state's directives. In order to improve the accuracy of coverage reporting, every participating school and *anganwadi* was instructed to follow a recording protocol for deworming. Every teacher and *anganwadi* worker was required to put a single tick mark (✓) next to a child's name in the attendance register if they received albendazole on NDD, and a double-tick mark (✓✓) if received on Mop-Up Day. Headmasters and *anganwadi* workers compiled the number of dewormed children from attendance registers, filled out the summary reporting format, and submitted it to the next level

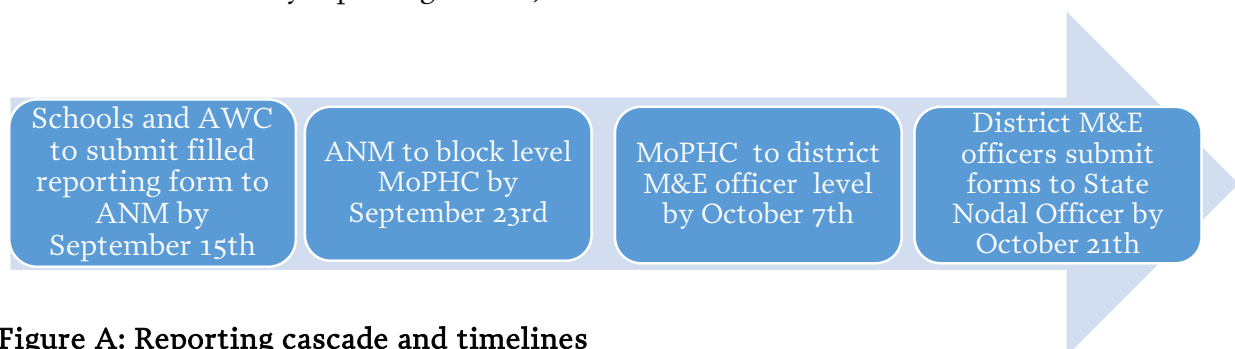


Figure A: Reporting cascade and timelines

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/AWWs and three students (in three different randomly selected classes) in each school, and by checking all registers and reporting forms. These activities provided a framework to validate coverage reported by schools and *anganwadis* and to calculate the level of inaccuracy in reported data by comparing the recounted numbers.

1.3 Sampling and Sample Size

Independent monitoring was conducted in 15 out of the total 27 districts of Chhattisgarh. To do this, Evidence Action hired “Karvy Insights Limited” an experienced independent research agency that provided 73 monitors. A two-stage probability sampling procedure was adopted to select schools and *anganwadis* for independent monitoring (**Table A**). Selected monitors covered 239 schools and 132 *anganwadis* during process monitoring on NDD and Mop-Up Day, and 337 schools and 343 *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	15	15	15	15
Total number of blocks	72	72	72	72
Total number of schools	292	259	365	337
Total no. of children interviewed in schools	NA	NA	1095	978
Total number of <i>anganwadis</i>	146	132	365	343

1.4 Independent Monitoring Formats

To ensure comprehensive coverage and triangulation of data, three formats were administered—one combined tool for process monitoring at schools and *anganwadis* on NDD and Mop-Up Day, and one each for school and *anganwadi* for coverage validation. Evidence Action designed and finalized formats in consultation with Chhattisgarh’s Department of Health. The formats were translated into the regional language, checked to ensure that the language was concise and easy to understand, and loaded onto tablet PCs. Using these formats, monitors collected information on training, availability and use of IEC material, availability and submission of reporting forms, and the management of adverse events.

1.5 Authorization from Government

Evidence Action conducted independent monitoring with prior approval from the state government and an approval letter issued by the health department. Each monitor carried a copy of the letter explaining the process of monitoring and coverage validation, and requesting participation from school and *anganwadi* staff.

1.6 Training of Trainers and Independent Monitors

A two-phase training program was organized at the state level. In the first phase, representatives from Evidence Action provided a one-day comprehensive training to five

master trainers of Karvy Insights in Raipur on August 26, 2016. These master trainers conducted a two-day training, supervised by Evidence Action, of 73 monitors in two batches on August 27-28, 2016. A total of 120 trainees participated, including 20 buffer monitors and 10 supervisors.

The training included a brief orientation on NDD, the importance of independent monitoring, and the details of the monitoring formats. Afterwards, all relevant formats were shared. Monitors received a demonstration of the tablet PCs and were briefed on the CAPI administration process and troubleshooting, including at least one practice session in the presence of the trainers and Evidence Action. At the end of the training, all participants were tested on their degree of comprehension and ability to work in the field.

1.7 Field Implementation

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

During coverage validation, if a school was closed or non-traceable, monitors were asked to cover the next school on their list and return to the first school at another time on a subsequent day. If the school was non-traceable or closed consistently after attempting three visits, a new school was substituted for the old one. 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 an agreed upon format. Evidence Action reviewed all the data sets and shared the feedback to the agency for any inconsistencies observed. All the analysis was performed using Stata version 13/14 and Excel 2013.

1.9 Quality Control

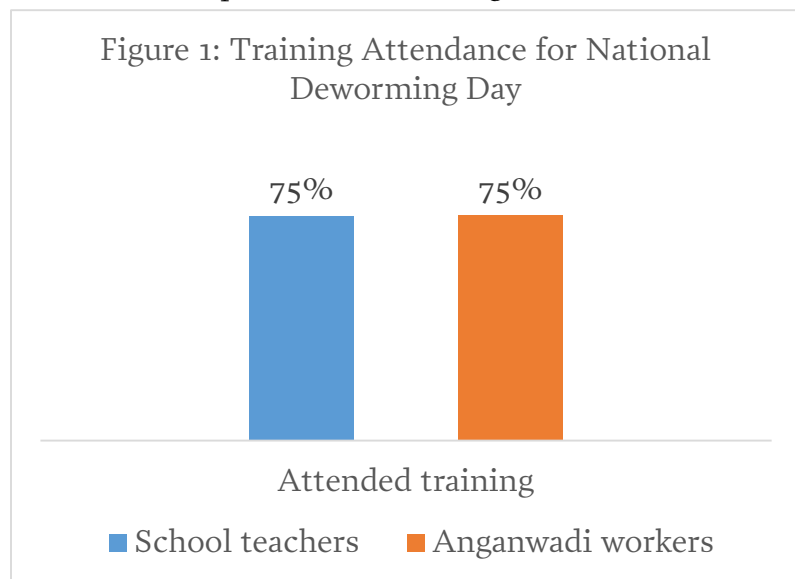
Appropriate quality control measures were taken to ensure that the data collected was accurate and comprehensive. Selected schools and *anganwadis* were contacted over the phone to confirm that they had participated in monitoring and validation, including the visits made by Evidence Action staff to select schools to spot check the monitoring processes and to verify monitoring visits. In all cases, school and *anganwadi* staff were asked to sign a participation form and provide an official stamp, verifying that the school or *anganwadi* was actually visited. Further, monitors also clicked the photographs of schools and *anganwadis* visited during process monitoring and coverage validation.

2. KEY FINDINGS

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

2.1 Training

For effective implementation of the program, teachers and *anganwadi* workers are trained prior to NDD. Independent monitoring data demonstrated that teachers/headmasters and



anganwadi workers from 75% of schools and *anganwadi* centers received training for the current NDD round (**Figure 1**). Seventeen percent of schools and 15% of *anganwadi* workers did not attend the training because they had attended training during a past NDD round; fifty-nine percent of trained teachers provided training to other teachers in their schools. All school teachers and *anganwadi* workers are expected to attend the training regardless of training in previous rounds. Approximately

27% of schools and 49% of *anganwadis* reported that they did not receive an SMS about the deworming schedule (**Table: PM 1**). Seventy-five percent of private schools received NDD training. Unawareness about the training date and time was the main reason for the majority of private schools (80%) not attending training (**Table: PM6**).

2.2 Integrated Distribution of Deworming Materials Including Drugs

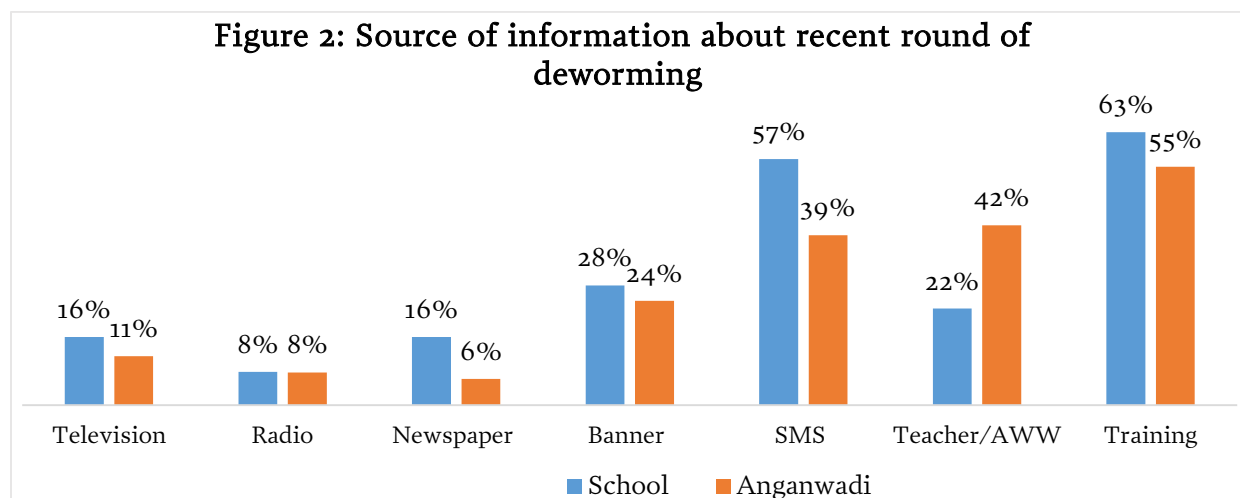
As per NDD guidelines, there should be an integrated distribution process, providing all necessary IEC and training materials along with deworming tablets to schools and *anganwadi* centers at block level training.³ It is important to integrate distribution of all NDD materials to ensure timely and cost effective delivery of materials as separate integration would increase time and cost. Findings demonstrate that 72% of schools and 64% of *anganwadis* had integrated distribution. Around 98% of schools and 94% of *anganwadis* received tablets for deworming. Eighty-two percent of schools and 73% of *anganwadis* received posters/banners (**Table: PM3**). Moreover, 96% of schools and 83% of *anganwadis* reported to have received sufficient drugs for deworming during trainings (**Table: PM1**). About 88% of schools and 80% of *anganwadis* received handouts/reporting forms (**Figure 2**).

Among private schools around 90% received tablets for deworming: eighty-nine percent of them had received tablets during training. All of them reported to have received a sufficient quantity of deworming tablets. Around half of the private schools (55%) covered during the process monitoring received banners/posters for deworming; however, eighty-two percent of them reported receiving it during training. Moreover, eighty percent of private schools reported receiving handouts/reporting forms and 86% of them received them in training (**Table: PM6**).

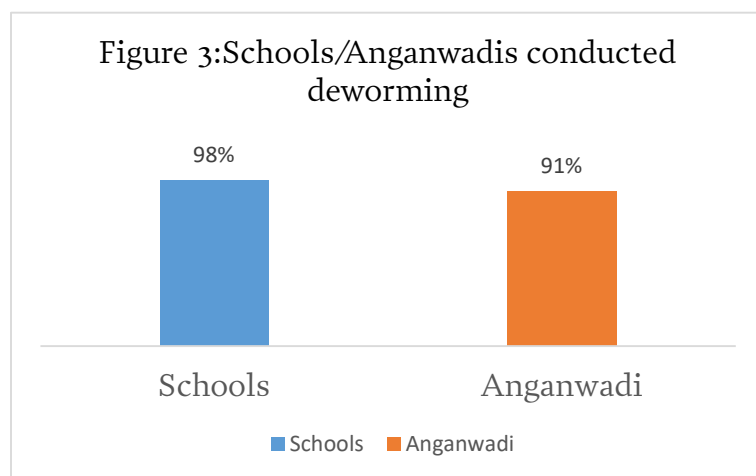
³ 'National Deworming Day, operational Guidelines 2016, Ministry of Health and Family Welfare, Government of India http://nrhm.gov.in/images/pdf/NDD-2016/Guidelines/Draft_NDD_2016_Operational_Guidelines.pdf

2.3 Source of Information about Recent Round of Deworming

Training was the major source⁴ of information for the schools (63%) and *anganwadis* (55%) for NDD, followed by SMS (57%) for schools and other *anganwadi* workers (42%) for *anganwadis* (Figure 2). Training (50%) was the primary source of information for private schools.



2.4 Implementation of Deworming



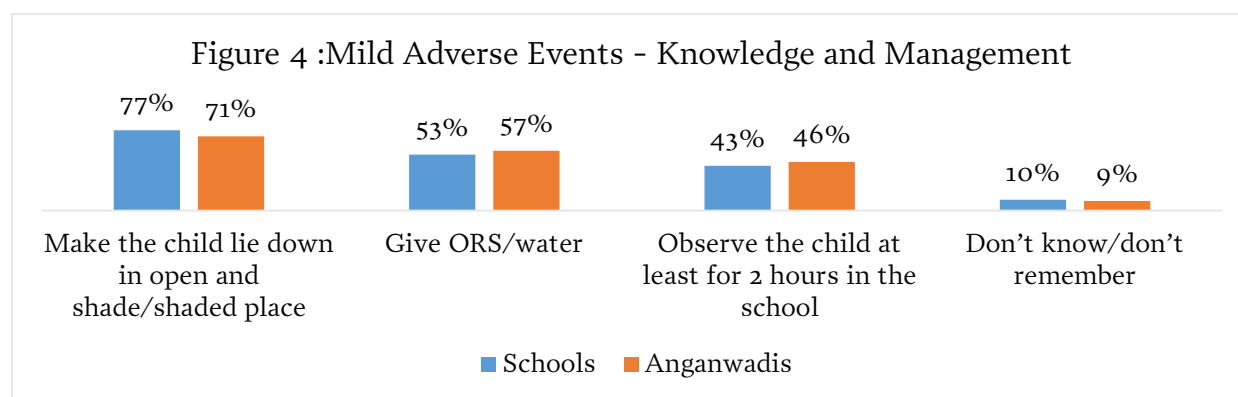
Process monitoring data depicted that around 98% of schools and 91% of *anganwadis* reported conducting deworming on the day of the monitoring visit; and monitors were able to observe ongoing deworming activity in 37% of schools and *anganwadis* respectively (Table: PM4). Further, coverage validation demonstrated that 97% of schools and *anganwadis* had dewormed children during NDD or Mop-Up Day (Figure 3).

2.5 Adverse Events - Knowledge and Management

Interviews with headmasters and teachers revealed substantial awareness regarding potential adverse events due to deworming, and a high level of understanding regarding the appropriate protocols to follow in the case of such events. However, only five percent of schools and three percent of *anganwadis* were able to report all the symptoms of an adverse event. Mild abdominal pain was listed as a symptom by 85% of principals and 88% of *anganwadi* workers, followed by vomiting, which was listed by 74% of principals and 77% of *anganwadi* workers. Sixty-one percent of principals and 53% of *anganwadi* workers listed nausea as a symptom.

⁴ Major source of information is the medium most reported by school teachers/headmaster and *anganwadi* workers

Less than 40% of school staff and *anganwadi* workers recognized fatigue and diarrhea as a symptom. Further, 77% of school teachers and 71% of *anganwadi* workers knew to have a child lie down in an open, shady place in the case of any symptoms and 53% of schools and 57% of *anganwadis* knew to give ORS/water (Figure 4). Further, 78% of schools and 74% of *anganwadis* reported the need to call a PHC doctor if symptoms persisted (Table: PM5). Almost all of the sampled private schools were aware of the possible adverse events that could be reported after children taking the tablet (Table: PM 6). Around five percent of schools and three percent of *anganwadis* reported any cases of adverse events (Table: CV1).



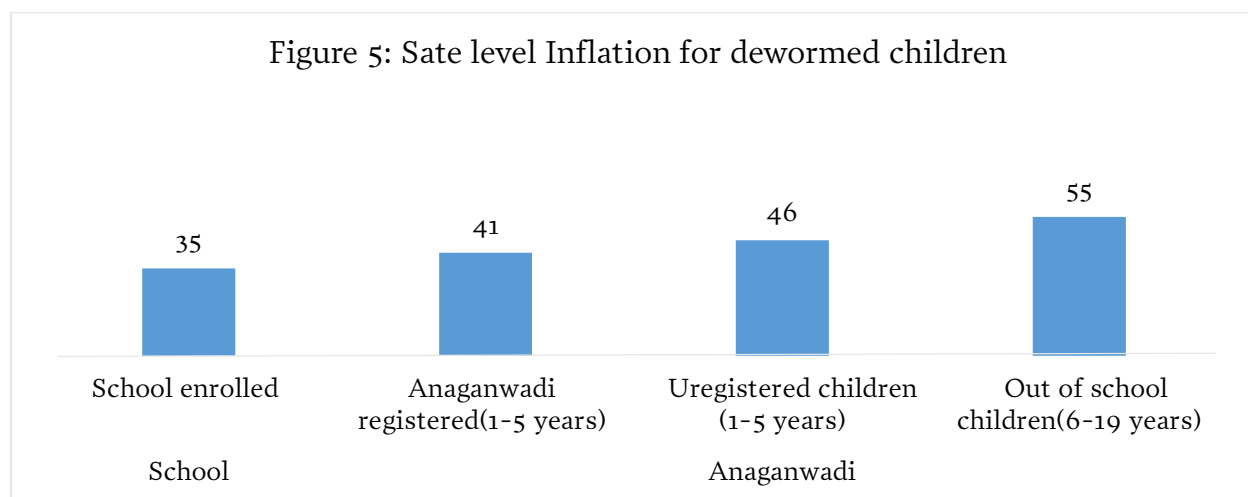
2.6 Recording Protocol

Coverage validation data demonstrated that 81% of schools and 56% of *anganwadis* followed correct recording protocols. For the analysis, information on recording protocol was gathered from each school and *anganwadi* regardless of the availability of reporting forms at the site. Around seven percent of schools and 14% of *anganwadis* followed partial protocols (marking down different symbols or making list of dewormed children), however, thirteen percent of schools and 28% 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; ninety-two percent of headmasters and 91% of *anganwadi* workers were aware of this requirement. However, it was observed during coverage validation that reporting forms were available in only 51% of schools and 35% of *anganwadis*.

ASHA workers (ASHAs) have a critical role to play in the success of the NDD program. As part of the community mobilization and awareness campaign, ASHAs conduct village meetings with parents, mobilize out-of-school children, and disseminate information through local platforms such as *gram panchayats* and VHSNC meetings to ensure greater coverage. After NDD, 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 were required to prepare a list of the children not attending schools and *anganwadis* and submit it to *anganwadis*. However, findings suggest that only 33% of ASHAs and 25% of *anganwadis* had lists of out-of-school (6-19 years) and unregistered (1-5 years) children respectively (Table: CV1).

2.7 Coverage Validation

The verification factors⁵ are common indicators for Neglected Tropical Disease control programs around the world. It compares the aggregated number of ticks in school/*anganwadi* registers (indicating that children were dewormed) to the coverage reported by schools/*anganwadis* in reporting forms submitted to the state. Thus, the verification factor was estimated on the basis of availability of a copy of reporting forms at schools and *anganwadis*. The state level verification factor for enrolled children was 0.74, indicating that on average, for every 100 dewormed children reported by the school, 74% were verified through available documents. This corresponds to an overall 35% inflation of reporting in schools, meaning that reported numbers appear to be approximately 35% higher than the numbers recorded in school attendance registers. Similarly, overall state level verification factors for children dewormed at *anganwadis* was 0.69 with an inflation of 45%. However, category-wise verification factors for registered (1-5 years) and out-of-school (6-19 years) children were 0.71, 0.69, and 0.64 with a corresponding inflation of 41%, 46% and 55% respectively (Figure 5).



Further, attempts were also made to understand NDD coverage in schools and *anganwadis*. As per the state government coverage report, 91% of enrolled school-age children and *anganwadis* targeting preschool-age children were dewormed in the current round of NDD. Findings from school coverage validation data suggests that on average, we could verify 74% of the total dewormed numbers reported by schools. Applying this verification factor to government reported school coverage, we found that 67% of children could have been dewormed in the schools. The verification factors are based on only those schools and *anganwadis* where a copy of reporting forms was available for verification. Therefore, adjusted coverage in schools and *anganwadis* based on verification factors needs to be interpreted with caution.

Since school coverage validation covers information on attendance on NDD and Mop-Up Day and common attendance on both these days along with interviews of children, an alternate method was also used to estimate the coverage in schools. We estimated NDD treatment coverage in schools considering maximum attendance of children on NDD dates. The coverage

⁵ A verification factor of 1 means the schools reported the exact same figures that they recorded on deworming day. A verification factor less than 1 indicates over-reporting, while a verification factor greater than 1 indicates under-reporting

estimate based on attendance data provides a more robust estimate as compared to adjusted coverage based on verification factors, as maximum attendance is calculated from all the schools covered during coverage validation. Coverage validation data showed that 97% of schools conducted deworming on NDD or Mop-Up Day and a maximum of 94% of enrolled school-age children were in attendance. Moreover, 97% of children interviewed reported to have received the albendazole and 98% of them reported they consumed it under supervision. Based on these factors, a total of 86% of children could have been dewormed in schools. This indicates that NDD coverage in schools lies somewhere between 67-86% in the state.

In the case of *anganwadis*, data suggests that on average, we could verify 69% of total dewormed numbers reported by *anganwadi* workers. Applying this verification factor to government reported coverage (78%) in *anganwadis*, it is estimated that approximately 54% of children could have been dewormed in *anganwadis*. Further, unlike schools, as child interviews were not conducted during coverage validation in *anganwadis*, we could not imply the alternate method of estimating the coverage at *anganwadis* (Table: CV2).

3. RECOMMENDATIONS

The monitoring exercise conducted during Chhattisgarh's third round of NDD highlights opportunities to strengthen future rounds. As National Deworming Day is a fixed-day approach and engages multiple stakeholders, it is critical that all program components are aligned with each other for successful program implementation and to prevent gaps and delays. The following are the key recommendations for program improvements that emerged out of the monitoring and evaluation.

1. As mentioned, there were challenges with timely drug procurement and management in five districts, meaning these districts were not able to conduct deworming. We are working with the state to ensure timely drug procurement for future rounds. Additionally, clarity needs to be provided to the drug warehouses to emphasize that drugs procured for NDD should not be used for any other purpose.
2. Efforts are required to improve training attendance of teachers and *anganwadi* workers in future rounds through clear and timely communication regarding training dates and venues. This will involve updating the contact database of functionaries so that they can receive timely alerts on training schedules.
3. Since about 58% of teachers and *anganwadi* workers did not know that open defecation contributes to worm infestation, this suggests a greater need to improve the quality of training/reinforcement messages to focus on the importance of sharing prevention messages on deworming and dosage as well as administering quality assurance tools like training monitoring.
4. As a lack of awareness surrounding NDD may have contributed to some *anganwadis* not implementing this round, it is suggested that a greater emphasis needs to be made on strengthening the IEC strategy recommended under NDD operational guidelines. This will allow the state to target and reach additional *anganwadis* and community members in future rounds.
5. As findings demonstrated low performance of private schools on monitoring indicators, more attention should be given to ensure complete participation of private schools in training and facilitating drug logistics, IEC, and adverse event management preparations.

6. Findings suggest scope for further improvement in integrated distribution of drugs, IEC, and reporting forms through the training cascade. The state needs to further ensure that bundling and proper distribution is done at all levels down to the blocks, where the ultimate implementers receive materials.
7. There is need for intensive efforts towards building community awareness for NDD and its benefits. For instance, targeting parents through community-based ASHAs and *anganwadi* workers will be critical for increasing coverage. As a substantial proportion of *anganwadi* centers did not have a list of unregistered and out-of-school children, greater involvement of ASHAs in mobilizing out-of-school children and spreading awareness on deworming benefits is required. This could be further strengthened by highlighting the role of ASHAs in the joint directive, encouraging their participation in training, and having direct reminders issued to them with information on the incentives of deworming.
8. Coverage validation data suggests that a 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 an increased focus on the importance of correct reporting protocols and maintaining accurate and complete documentation. Additionally, trainers should ensure that teachers and headmasters understand the directive to maintain a copy of reporting forms in schools so that data available for coverage validation is more robust.

4. WAY FORWARD

Program monitoring in Chhattisgarh has provided useful insights for increasing scale and coverage in future rounds. As mandated in the NDD operational guidelines, efforts will be coordinated to support the stakeholders intensively in the initial deworming rounds and draw from experiences from this round. As the program has achieved significant coverage for enrolled children in schools and *anganwadis*, moving forward, the strategies will focus on increasing coverage of unregistered and out-of-school children and reaching children in private schools. Efforts will be directed towards encouraging schools and *anganwadis* to follow standard recording protocols to improve the accuracy of coverage data. More engagement of ASHAs and AWWs should be encouraged to conduct community meetings, mobilize children, and conduct health education activities. With the high burden of STH in Chhattisgarh, continued advocacy efforts will also help to promote program sustainability.

ANNEXURE: 1

Table PM1: Training, awareness and source of information about National Deworming Day among respondents (teacher/headmaster/*anganwadi* worker), August 2016

Indicators	School			<i>Anganwadi</i>		
	D ⁶	N ⁷	%	D	N	%
Attended training for current round of NDD	259	194	74.9	132	99	75.0
Reasons for not attending official training						
Location was too far away	65	3	4.6	33	1	3.0
Did not know the date/timings/venue	65	35	53.9	33	18	54.6
Busy in other official/personal work	65	11	16.9	33	8	24.2
Attended deworming training in the past	65	11	16.9	33	5	15.2
Not necessary	65	5	7.7	33	2	6.1
No incentives/no financial support	65	3	4.6	33	1	3.0
Trained teacher provided training to						
All other teachers	194	115	59.2	NA	NA	NA
Few teachers	194	45	23.2	NA	NA	NA
No (himself/herself only teacher)	194	15	9.7	NA	NA	NA
No, did not train other teachers	194	19	7.7	NA	NA	NA
Awareness about the ways a child can get worm infection	259	226	87.3	132	113	85.6
Different ways a child can get worm infection						
Not using sanitary latrine	226	136	57.5	113	59	52.2
Having unclean surroundings	226	169	74.8	113	95	84.1
Consume vegetables and fruits without washing	226	170	75.2	113	75	66.4
Having uncovered food and drinking dirty water	226	155	68.6	113	81	71.7
Having long and dirty nails	226	158	69.9	113	84	74.3
Moving in bare feet	226	156	69.0	113	81	71.7
Having food without washing hands	226	175	77.4	113	86	76.1
Not washing hands after using toilets	226	137	60.6	113	69	61.1
Awareness about all the possible ways a child can get worm infection⁸	259	73	28.2	132	34	25.8
Perceive that health education should be provided to children	259	255	98.5	132	129	97.7
Knowledge about correct dose of albendazole tablet						
1-2 years of children	NA	NA	NA	132	124	93.9
6-19 years of children	259	255	98.5	132	130	98.5
Awareness about non-administration of albendazole tablet to sick child						

⁶ Denominator of indicator.⁷ Numerator of indicator.⁸ Includes 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.

Will give albendazole tablet to the child	259	4	4.3	132	124	5.3
Will not give the albendazole tablet to the child	259	247	95.7	132	130	94.7
Awareness about consuming albendazole tablet						
Chew before swallowing	259	255	98.5	132	129	97.7
Swallow it directly	259	4	1.5	132	3	2.3
Awareness about consuming albendazole in school/<i>anganwadi</i>	259	246	95.0	132	125	94.7
Awareness about the last date for submitting the reporting form	259	126	48.7	132	65	49.2
Aware that completed reporting form should be submitted to ANM	259	201	77.6	132	92	69.7
Awareness to retain a copy of the reporting form post submission	259	238	91.9	132	120	90.9
Source of information about current NDD round						
Television	259	41	15.8	132	15	11.4
Radio	259	20	7.7	132	10	7.6
Newspaper	259	41	15.8	132	8	6.1
Banner	259	72	27.8	132	32	24.2
SMS	259	148	57.1	132	52	39.4
Other school/teacher/ <i>anganwadi</i> worker	259	58	22.4	132	55	41.7
Training	259	164	63.3	132	73	55.3
Receive SMS for current NDD round	259	190	73.4	132	67	50.8

Table PM2: Deworming activity, availability of albendazole tablet and list of unregistered out-of-school children, August 2016

Indicators	School			<i>Anganwadi</i>		
	D	N	%	D	N	%
Albendazole tablet administered on the day of visit						
Yes, ongoing	259	77	29.7	132	38	28.8
Yes, already done	259	100	38.6	132	54	40.9
Yes, after sometime	259	71	27.4	132	25	18.9
No, will not administer today	259	11	4.3	132	15	11.4
Schools/ <i>anganwadis</i> conducted deworming on either of the day	259	253	97.7	132	120	90.9
Schools/ <i>anganwadis</i> conducted deworming on NDD ⁹	110	106	96.4	57	53	93.0
Schools/ <i>anganwadis</i> conducted deworming on Mop-Up Day ¹⁰	149	142	95.3	75	64	85.3
Reasons for not conducting deworming						
No information	11	1	9.1	15	6	40.0
Albendazole tablet not received	11	3	27.3	15	5	33.3

⁹Based on the samples visited on National Deworming Day.

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

Apprehension of adverse events	11	0	0.0	15	0	0.0
Already dewormed all children on deworming day ¹¹	11	5	45.5	15	4	26.7
Others ¹²	11	2	18.2	15	0	0.0
Anganwadis having list of unregistered/out-of-school children	NA	NA	NA	132	57	43.2
Out-of-school children given albendazole tablet	NA	NA	NA	117	90	76.9
Unregistered children given albendazole tablet	NA	NA	NA	117	85	72.7
Sufficient quantity of albendazole tablet¹³	253	244	96.4	124	103	83.1

Table PM3: Integrated distribution of albendazole tablets and IEC materials, August 2016

Items	Schools				<i>Anganwadi</i>			
	Received (N=259)	D*	Received in training	Verified	Received (N=132)	D*	Received in training	Verified
Albendazole tablet	97.7 (253)	253	92.9 (235)	99.6 (252)	93.9 (124)	124	96.0 (119)	100.0 (124)
Poster/banner	81.9 (212)	212	93.9 (199)	98.1 (208)	72.7 (96)	96	93.8 (90)	96.9 (93)
Handouts/reporting form	87.6 (227)	227	94.7 (215)	96.9 (220)	79.6 (105)	105	93.3 (98)	98.1 (103)
Others ¹⁴	5.0 (13)	13	92.3 (12)	100.0 (13)	4.6 (6)	6	83.3 (5)	66.7 (4)
Received all material	78.0 (202)	202	92.6 (202)	96.0 (202)	67.4 (89)	89	94.4 (84)	98.9 (88)
Integrated distribution¹⁵	72.2 (187)				63.6 (84)			

Note: The denominator for item “Received” is 259 for schools and 132 for *anganwadis*.

Numerators for “Received in training” and “Verified” are given in parentheses.

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

¹¹Based on the samples that did not conduct deworming on Mop-Up Day.

¹²School will administer the tablet after mid-day meal and one private school waiting for the verification of MO on albendazole tablet.

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

¹⁴Includes pamphlet

¹⁵ Integrated distribution of NDD kits includes albendazole tablet, banner/poster and handout-reporting forms and provided to schools and AWC during the trainings at block or PHC level

Table PM4: Implementation of deworming activity and observation of monitor's, August 2016

Indicators	Schools			<i>Anganwadi</i>		
	D	N	%	D	N	%
Deworming activity was taking place	259	96	37.1	132	49	37.1
Albendazole tablet were administered by						
Teacher/headmaster	77	72	93.5	NA	NA	NA
<i>Anganwadi</i> worker	77	1	1.3	38	33	86.8
Mitanin	77	1	1.3	38	1	2.6
ANM	77	3	3.9	38	1	2.6
Followed any recording protocol	177	161	91.0	92	67	72.8
Protocol followed						
Putting single/double tick	161	133	82.6	67	50	74.6
Put different symbols	161	5	3.1	67	4	6.0
Prepare the separate list for dewormed	161	23	14.3	67	13	19.4
Visibility of poster/banner during NDD/MUD	212	157	74.1	96	68	70.8

Table PM5: Adverse event knowledge and management among respondents, August 2016

Indicators	Schools			<i>Anganwadi</i>		
	D	N	%	D	N	%
Opinion of occurrence of an adverse event after taking albendazole tablet	259	81	31.3	132	34	25.8
Opinion of occurrence of possible adverse events						
Mild abdominal pain	81	69	85.2	34	30	88.2
Nausea	81	49	60.5	34	18	52.9
Vomiting	81	60	74.1	34	26	76.5
Diarrhea	81	24	29.6	34	13	38.2
Fatigue	81	26	32.1	34	9	26.5
All possible adverse event ¹⁶	259	13	5.0	132	6	4.6
Awareness about mild adverse event management						
Make the child lie down in open and shade/shaded place	259	198	76.5	132	93	70.5
Give ORS/water	259	138	53.3	132	75	56.8
Observe the child at least for 2 hours in the school	259	110	42.5	132	61	46.2
Don't know/don't remember	259	27	10.4	132	12	9.1
Awareness about sever adverse event management						
Call PHC or emergency number	259	201	77.6	132	97	73.5
Take the child to the hospital /call doctor to school	259	160	61.8	132	82	62.1

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

Don't know/don't remember	259	3	1.2	132	5	3.8
Occurrence of cases of any adverse event	177	19	10.7	92	10	10.9
Available contact numbers of the nearest ANM or MO-PHC	259	198	76.5	132	111	84.1

Table PM6: Selected Indicators of Process Monitoring in Private Schools, August 2016

Indicators ¹⁷	D	N	%
Attended training for current round of NDD	20	15	75.0
Received albendazole tablet	20	18	90.0
Sufficient quantity of albendazole tablet	18	18	100.0
Received poster/banner	20	11	55.0
Received handouts/ reporting form	20	16	80.0
Received SMS for current NDD round	20	8	40.0
Albendazole administered to children	20	16	80.0
Reasons for not conducting deworming			
No information	4	1	25.0
Albendazole tablet not received	4	1	25.0
Already dewormed all children on deworming day(based on Mop-Up Day sample)	4	1	25.0
Others ¹⁸	4	1	25.0
Albendazole tablet administered to children by teacher/headmaster ¹⁹	4	4	100.0
Perceive that health education should be provided to children	20	20	100.0
Knowledge about correct dose of albendazole tablet	20	20	100.0
Awareness about non-administration of albendazole tablet to sick child	20	17	85.0
Opinion of occurrence of an adverse event after taking albendazole tablet	20	4	20.0
Opinion of occurrence of possible adverse events			
Mild abdominal pain	4	4	100.0
Nausea	4	2	50.0
Vomiting	4	3	75.0
Diarrhea	4	1	25.0
Fatigue	4	2	50.0
Occurrence of cases of any adverse event	20	2	20.0
Awareness about mild adverse event management			
Let the child rest in an open and shaded place	20	13	65.0
Provide clean water to drink/ORS	20	4	20.0
Contact the ANM/nearby PHC	20	8	40.0

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

¹⁸School informed that they will administer albendazole tablet on September 7, 2016 after the verification with MO.

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

Available contact numbers of the nearest ANM or MO-PHC	20	15	75.0
Followed correct reporting protocol	9	9	77.8

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

Indicators ²⁰	School			<i>Anganwadi</i>		
	D	N	%	D	N	%
Conducted deworming ²¹	337	325	96.5	343	332	96.7
Day of albendazole administration ²²						
National Deworming Day	326	308	94.6	331	299	90.2
Mop-Up Day	326	239	73.3	331	226	68.3
Between NDD and Mop-Up Day	326	13	4.0	331	16	4.7
Reasons for not conducting deworming						
No information	11	9	81.8	12	7	64.2
Drugs not received	11	2	18.2	12	3	23.1
Apprehension of adverse events	11	0	0.0	12	1	12.7
Albendazole left after deworming	326	196	60.2	331	163	49.2
Number of albendazole left						
Less than 50	199	182	91.4	167	161	96.3
50-100	199	14	7.2	167	5	3.3
More than 100	199	3	1.4	167	1	0.4
Copy of reporting form was available for verification	326	163	50.0	331	117	35.2
Reasons for non-availability of copy of reporting form						
Did not received	167	15	8.8	222	29	13.0
Submitted to ANM	167	138	82.8	222	173	78.0
Unable to locate	167	3	2.0	222	7	3.0
Others ²³	167	11	6.5	222	13	5.9
<i>Anganwadis</i> having list of unregistered children	NA	NA	NA	331	83	24.9
<i>Anganwadis</i> having list of out-of-school children	NA	NA	NA	331	107	32.5
Reported cases of adverse event	326	15	4.6	331	9	2.6

²⁰ Weighted percentages and numbers are presented against each indicator in all the coverage validation tables. In some indicators denominators may vary because of this.

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

²² Total percentage may add to more than 100 as multiple responses are allowed.

²³ Others include headmaster was not available at school and teacher were not aware about reporting form, submitted to senior school, no information and AWW submitted to respective supervisors.

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

Indicators	Schools			<i>Anganwadis</i>		
	D	N	(%)	D	N	(%)
Followed correct ²⁴ recording protocol	326	263	80.6	331	194	58.5
Followed partial ²⁵ recording protocol	326	23	6.9	331	48	14.4
Followed no ²⁶ recording protocol	326	41	12.5	331	90	27.2
State level verification factor ²⁷	19,033	14,110	0.74	8,477	5,842	0.69
<i>Anganwadi</i> registered children	NA	NA	NA	4,746	3,362	0.71
<i>Anganwadi</i> unregistered children	NA	NA	NA	1,842	1,262	0.69
Out-of-school children	NA	NA	NA	1,890	1,218	0.64
Distribution of schools by verification factor						
State level inflation rate ²⁸	14,110	4,924	34.8	5,842	2,635	45.1
<i>Anganwadi</i> registered children	NA	NA	NA	3,362	1,384	41.1
<i>Anganwadi</i> unregistered children	NA	NA	NA	1,262	580	45.9
Out-of-school children	NA	NA	NA	1,218	672	55.2
Attendance on pre-NDD ²⁹	24,662	20,066	81.4	NA	NA	NA
Average attendance on NDD	24,662	21,274	86.3	NA	NA	NA
Average attendance on Mop-Up Day	24,662	20,008	81.1	NA	NA	NA
Average common attendance (Children who attended on both NDD and Mop-Up Day)	24,662	18,181	73.7	NA	NA	NA
Maximum average attendance of children on NDD and Mop-Up Day	24,662	23,101	93.7	NA	NA	NA
School level inflation rate for schools that followed the correct recording protocol	13,613	3,232	23.7	NA	NA	NA
Estimated NDD coverage ³⁰	67-86			54		

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=159) and *anganwadis* (n=109) where a copy of reporting forms was available for verification.

²⁸ Proportion of over reported dewormed children against total verified children in schools and *anganwadis*.

²⁹This is attendance of previous day of NDD.

³⁰ Coverage was estimated by implying state level verification factor on government reported coverage for schools and AWC. To provide additional insight, school coverage was also estimated on the basis of NDD implementation

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

Indicators	D	N	%
Children received deworming tablets	978	951	97.3
Children consumed tablet	954	945	99.1
Children aware about the deworming tablets	954	845	88.5
Source of information for deworming			
Teacher / school	854	847	99.2
Television	854	58	6.8
Radio	854	54	6.3
Newspaper	854	53	6.2
Poster/Banner	854	154	18
Parents/siblings	854	39	4.6
Friends / neighbors	854	20	2.3
Way children consumed the tablet			
-Chewed tablet before swallowing	948	924	97.5
-Swallowed tablet directly	948	24	2.5
Supervised administration of tablets	948	931	98.2

Note: Three children were interviewed from all those schools (326) who reported to observe deworming during NDD and Mop-Up Day out of total 337 schools visited during coverage validation.

status, attendance and supervised administration in the school. We assume that same level of documentation and accuracy in coverage data reporting is prevalent in the schools and AWCs where copy of reporting forms was not available for verification. Further, estimated coverage based on attendance data in schools includes attendance on only NDD and Mop-Up Day.