Bihar

National Deworming Day

August 2017

Evidence Action

Deworm the World Initiative

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Acronyms

ANM:	Auxiliary Nurse Midwife
AWC:	*Anganwadi* Centre
AWW:	*Anganwadi* Worker
BEPC:	Bihar Education Project Council
CRC:	Cluster resource coordinator
DCCM:	District Coordination Committee Meeting
GoI:	Government of India
Govt:	Government
ICDS:	Integrated Child Development Services
IEC:	Information, Education and Communication
MoHFW:	Ministry of Health and Family Welfare
NDD:	National Deworming Day
SHSB:	State Health Society Bihar
STH:	Soil Transmitted helminths
WCD:	Women and Child Development
WHO:	World Health Organization

Executive Summary

Contributing to the Government of India's (GoI) National Deworming Day (NDD) initiative, the state of Bihar implemented round seven of the deworming program, now called as NDD in August 2017. The NDD August round was conducted in two phases across 35[1] districts, due to delayed drug availability in select districts and severe floods in the state. NDD phase one was conducted in 24 districts[2] on August 10, followed by mop-up day on August 17. Phase two was conducted in 11 districts[3] on September 11, with a mop-up day[4] on September 14.

Table 1: Key Achievements of National Deworming Day August 2017

Indicators		Program Target as per Census*	Target as per Coverage report	Coverage**
Number of schools reporting coverage	Govt. Schools	76,835	69,621	69,003
	Private Schools		8,106	7,622
Number of *anganwadis* reporting coverage		82,737	79,219	78,370
Number of enrolled children (classes 1-12) who were administered albendazole on NDD and mop-up day	Govt. schools	2,23,95,985	2,28,35,472	2,08,15,969
	Private Schools	10,81,285	54,62,220	44,38,535
Number of registered children dewormed (1-5 years) at AWCs on NDD and mop-up day		72,76,591	86,25,810	75,34,356
Number of unregistered children dewormed (1-5 years) at AWCs on NDD and mop-up day		67,48,126	56,88,583	49,35,809
Number of out-of-school children dewormed on NDD and mop-up day		1,22,13,065	51,96,716	42,63,599
Total number of children dewormed (1-19 years)		**4,97,15,062**	**4,78,08,801**	**4,19,88,268**

*1-19 years census target is extrapolated using census 2001 and 2011 data

** Source- Coverage report submitted by state to MoHFW for August 2017 round **(Annexure A)**

[1] Three districts viz. Purnia, Samastripur and Bhojpur are LF MDA districts and were planned to undertake deworming under the said program.

[2] Out of the 24 districts scheduled to conduct mop-up day on August 17, Araria, Madhubani and Sitmarhi could not conduct the program due to the floods while it was partially hampered in five districts , Katihar, Supaul, Darbhanga, Gopalgunj and Sheohar. In Kathihar eight blocks, in Supaul two blocks, in Darbhanga 19 blocks, Gopalganj six blocks and in Seohar five blocks could not conduct mop-up day. All the mentioned districts completed mop-up day during first week of September.

[3] 11 districts viz. Banka, Kishangarh, Aurangabad, Nawada, Patna, Rohtas, Muzzafarpur,West Champaran, East Champaran, Saran and Siwan conducted NDD in second phase

[4] Out of the 11 districts scheduled for mop-up on 14th September, Siwan and East champaran completed mop-up day on 15th and 16th September respectively.

In this round, the state dewormed 4,19,88,268 children in the age group of 1-19 years. This achievement is an outcome of exemplary leadership from the State Health Society Bihar (SHSB) in coordination with Bihar Education Project Council (BEPC), and Department of Women and Child Development (WCD). Evidence Action provided key technical assistance for program planning, implementation and monitoring through funding support received from the Children Investment Fund Foundation (CIFF) and Dubai Cares.

Conducting NDD on a fixed day is crucial for high coverage to bring down the high prevalence of Soil Transmitted Helminths (STH) in the state. For the first time, the state was successful in conducting the bi- annual round in August 2017, unlike August 2016 where NDD could not be implement due to unavailability of drugs.

For a high-quality program, setting targets as per the census population and reporting coverage against the targets determined prior to the NDD round is important. The state finalised a target of 4,97,15,062 as per the census population, however the target was undermined during coverage reporting at the district level (reduction by 19 lakhs). Revision in targets continue to be an area requiring improvements for future NDD rounds

About National Deworming Day

The Government of India implemented the first NDD in February 2015, with the program achieving high coverage at scale since its inception. Based on national level STH mapping, and WHO treatment guidelines, the GoI issued a notification to states recommending the appropriate treatment frequency based on prevalence data. Bihar is required to conduct NDD twice a year due to high prevalence of 35%[5].

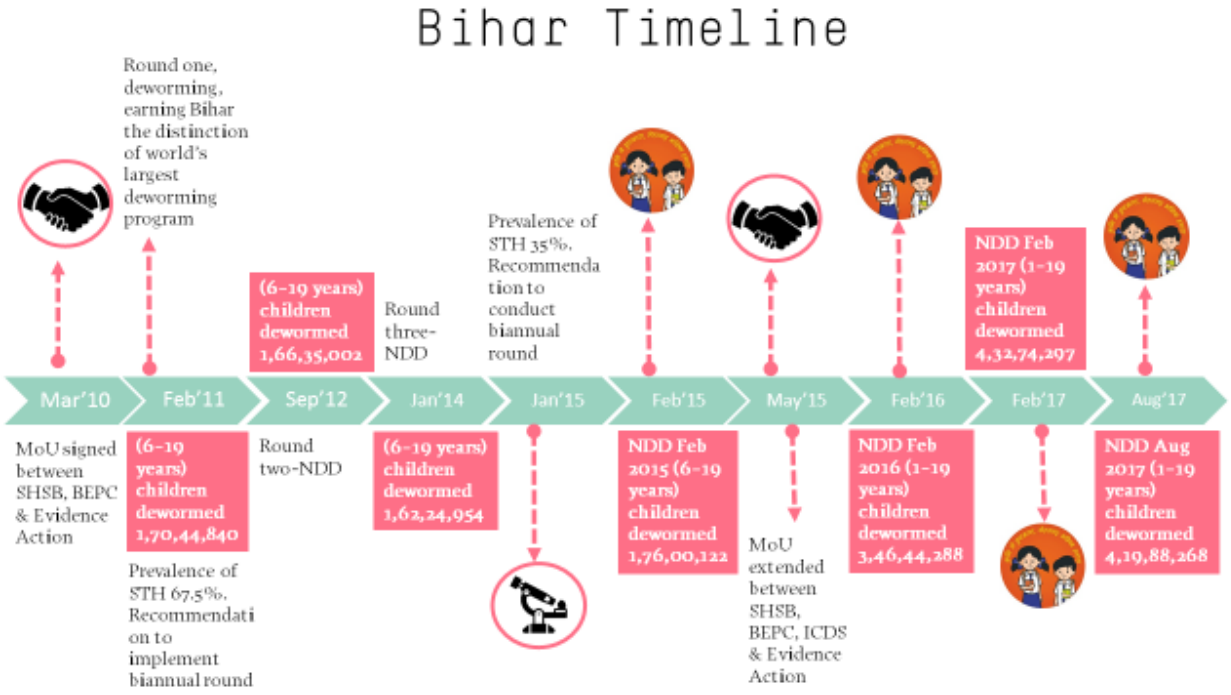
Figure 1: NDD program highlights

[5] As per the prevalence survey conducted by National Institute of Epidemiology, Chennai, Post Graduate Institute of Medical Research, Chandigarh, Regional Medical Research Center (ICMR), Dibrugarh, GfK mode and Evidence Action in January 2015

1.1 State Program Background

On March 2010, a Memorandum of Understanding was signed between SHSB, BEPC and Evidence Action to initiate school based deworming program in Bihar, for the treatment of STH. To continue technical assistance and expand program reach to all children in the age group of 1-19 years following the NDD guidelines, on June 2015, the Memorandum of Understanding was extended between SHSB, BEPC, ICDS and Evidence Action. Key milestones are stated in Figure 2 below.

Figure 2: Bihar deworming program milestones



2. State Program Implementation

2.1 Policy and Advocacy

A program of such scale requires stakeholder convergence and collaborative efforts at each administrative and implementation level, which is imperative for effective implementation. SHSB led coordination with BEPC, and WCD departments, to achieve program goals through timely planning and implementation. Some of the key highlights of inter-departmental collaboration are displayed in Figure 3 below.

Figure 3: Efforts towards Stakeholder collaboration

July 3, State steering committee meeting	July 31, National review meeting	July 25, State level Joint directives	District Coordination committee meeting	July 27, State video conference with districts[6]
- Meeting under the chairmanship of Executive Director cum Secretary SHSB – participants from stakeholder departments and MDM, Director-Navodaya Vidyalays, Nodal LF program, WHO - Decisions for NDD August round, included target finalization as per census, coordination with LF MDA, issuing Joint directives, inclusion of all (registered/unregistered) private schools and *Madrasas*	-Meeting under the chairmanship of Joint Secretary, Health -Review of NDD preparations across States -The platform was used for sharing strategies, action plans and bridging identified gaps for NDD August 2017 round	-State-level Joint Directives signed by Principal Secretaries of Health, BEPC and WCD issued to all districts and blocks	-Meetings conducted in all 35 NDD districts under the chairmanship of District Magistrates -Discussions were around alignment with line departments to ensure timely rollout of NDD district action plan and inclusion of Private schools and *Madrasas* -Participation of officials from Health, Education and ICDS department, private school association	-To assess and review preparedness for NDD in districts i.e. drug and IEC availability, District and block level training dates, DCCM updates from the districts and including adverse event management - The decision to conduct NDD in two phases in the remaining 11 districts due to delay in availability of drugs was taken

Prior to the NDD round, all 35 NDD districts conducted District Coordination Committee Meetings (DCCM) under the chairmanship of District Magistrates between July 13 to August 5. These were delayed from the decided timeline in the operational plan, which had implications on the planning and implementation of key program activities and overall delays. Since key program decisions are taken at the DCCMs, these should be planned at least four to six weeks prior to the round.

In February 2017, Bihar piloted school-level reporting for NDD via the Integrated Voice Response System (IVRS) platform of the Mid-Day Meal (MDM)[7] program in the state to receive real time information on coverage from schools participating in the MDM. For the August 2017 round, the decision was taken in the state steering committee meeting to leverage the MDM platform as done in previous round. However, the same could not be implemented due to contractual/feasibilities challenges at department of MDM with the respective vendor. MDM platform offers a great platform to be leveraged for real-time access to program coverage and thus mid-course corrections and must continue to be leveraged for the upcoming NDD rounds.

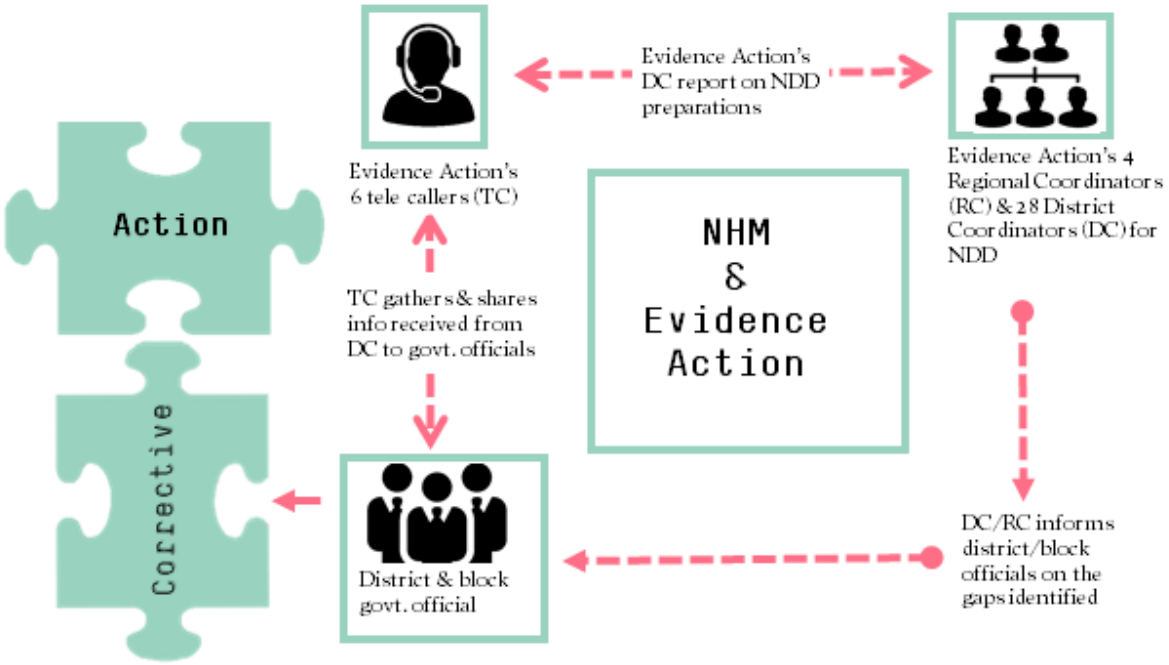
[6] The state level video-conference was only conducted with 24 districts conducting NDD in phase one

[7] The Mid Day Meal Scheme is a school meal program of the Government of India designed to improve the nutritional status of school-age children nationwide. The Mid Day Meal IVRS platform is an indigenous system that collects information on program reach through calls to headmasters on a daily basis.

2.2 Program Management

Evidence Action's extended technical assistance through a four-membered state based team, four field-based regional coordinators and short-term staff, consisting of 28 district coordinators[8] and six tele-callers (at state-level). Evidence Action drafted a detailed operational plan in discussion with state NDD nodal officer and shared further with key stakeholders on June 30 with the objective to strengthen inter-departmental and intra-departmental convergence for maximize reach to schools and *anganwadis* for increased coverage and effective implementation of program. Delay in disseminating the operational plan to stakeholder department affected timely printing of IEC and training materials which in turn impacted integrated distribution during trainings. Evidence Action's state team assisted with program planning and coordinated with stakeholder departments to share real time updates on program implementation and facilitate corrective actions with respective government departments. Figure 4 gives an overview of the information flow between the Evidence Action team and district and block level officials.

Figure 4: Evidence Action facilitates corrective action



2.3 Drug Procurement, Storage and Transportation

a) Drug Procurement: For the first time, the state procured, 5, 51, 60,724 albendazole tablets based on census population targets through state level procurement agency i.e. Bihar Medical

[8] Seven districts i.e. Muzaffarpur, Sitamadhi, Beghusarai, Sheikhpura, Gaya, Kathiyar and kaimur were supported directly through regional coordinators

Service and infrastructure Corporation Limited for all 38[9] districts by March 2017. It was a big achievement compared to August 2016 round wherein the program could not be implemented due to challenges in timely procurement of drugs. The state also released directives to districts to utilize leftover stock of 25,53,400 albendazole tablets from February 2017 round. The drugs were received for 24 districts by end July, while the availability of approximately 2 crores for 11 districts was delayed by the manufacturer. These remaining 11 districts received the drugs by end of August for which phase wise approach was decided by the state. The drugs were tested at state-approved laboratory facilities prior to distribution. Post the test result, drugs were transported to blocks for integrated distribution during block-level trainings of frontline functionaries.

b) Drug Logistics and Distribution: Evidence Action developed district and block wise drug bundling and distribution plans to streamline integrated distribution of NDD kits at block level trainings. To align drug distribution with block level trainings, Evidence Action supported SHSB by tracking drug availability at districts and block level by tele-calling and sharing timely updates to officials for corrective actions. The NDD kits were distributed to health functionaries at the district-level for onward distribution to BEPC and ICDS functionaries at the block level trainings. With these efforts and updates, the state was able to ensure the drug availability in all districts prior to NDD.

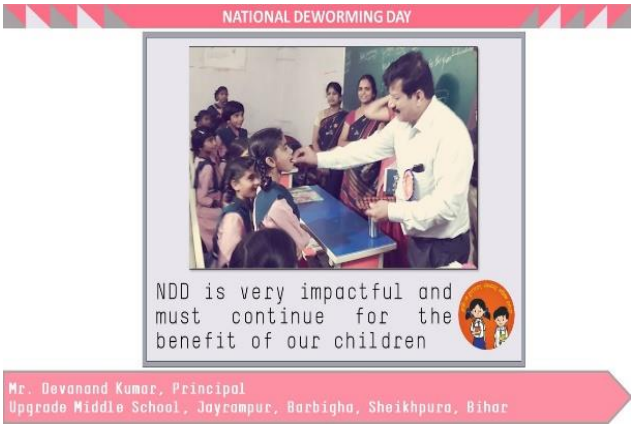
c) Adverse Event Management: The state followed the adverse event management protocol from national guidelines**.** For both NDD and mop-up day, the state set up an adverse event management system engaging *Rashtriya Bal Swasthya Karyakram* teams, to effectively manage any adverse events in the field. 102 (ambulance service), block-level emergency response teams were put on alert to facilitate appropriate emergency response action and During phase one, 12 and 5 mild adverse events were reported on NDD and mop-up day respectively, while in phase two, 4 mild adverse events were reported on NDD and no adverse event was reported on mop-up day. All adverse events were effectively managed as per protocol.

d) Drug Recall: Evidence Action with support from SHSB is in process to track leftover albendazole tablets from the round. Once completed for all 35 NDD districts, SHSB will be directing districts and blocks to use tablets available in packed strips in the upcoming February 2018 round as per drug safety recommendation. **(Annexure B)**

[9] Three districts viz. Purnia, Samastripur and Bhojpur are Lumphatic Filariasis Mass Drug Administration (LF MDA) districts and were planned to undertake deworming under the same

2.4 Public Awareness and Community Sensitization

The NDD resource kit developed by Evidence Action was uploaded on the NHM website by MoHFW. The state customized, printed and distributed to schools and *anganwadis*. As per the state operational plan, these materials it was to be received at districts by July 10. However, there was a delay in printing of IEC material at the state level which further delayed the training schedule at the district and block level in phase one. The materials were received in all phase one districts by August 1. Further, Evidence Action drafted a media plan in discussions with the IEC cell and submitted to the state, which was adapted and rolled out via TV, radio, and newspaper advertisements[10].



Testimonial from field

The SHSB organized a press meet on August 8, led by the Executive Director, SHSB. The purpose of the meeting was to inform media about the upcoming NDD round and to enhance their understanding of the benefits of deworming all children at schools and *anganwadis*. Total nine media personnel attended the meeting from leading print, electronic, and digital media houses. Evidence Action provided media kits that included NDD and STH factsheet, NDD brief and press release.

Platform	Timelines	Frequency
TV Spot	August 10 - 17	16 times (Community Spot, Doordarshan 16 Times (Teacher Ji Spot, Doordarshan)
Radio Spot and Radio Jingle	August 8 – 16	60 times (Prasar Bharti) 84 times (Radio Mirchi)
Newspaper Advertisement	August 8, 9, 10 and 17	4 (in Hindustan, Dainik Jagran and Times of India)
Press Release	August 9 – 10	1 (in Hindustan Hindi)
Wall Writing	Phase 1: August 1 – 7 Phase 2: September 4 – 9	35 times in 11 districts*
Miking (Public Service Announcement)	Phase 1: August 7 – 16 Phase 2: September 7 – 10, 12 and 13	52 times in 13 districts*
Prabhat Pheri	Phase 1: August 7, 8, 9, 15, 16 and 17 Phase 2: September 7 – 9	148 times in 27 districts*

To further boost private school engagement, Evidence Action developed a private school package which was circulated to 1,652[11]private schools in the state. This package consisted of WhatsApp, *prabhat pheri* banners, posters, children's activity book and short films for teachers and parents to support school-level awareness generation efforts. The state department circulated WhatsApp messages on key program information (designed by Evidence Action) with concerned officials[12] for reinforcement.

[10] TV spots and radio spots are short 30 sec advertisements that help generate awareness about NDD. One newspaper advertisement for Jharkhand NDD program was also published in Bihar Newspaper

[11] The private school database was collected through telecalling supported by Evidence Action

[12] The state department shared WhatsApp with Civil Surgeons, DIOs, DPMs, DEOs, Nodal Officers and Private School Teachers
*Miking - Begusarai , Jamui, Lakhisarai, Araria, Katihar, Kishanganj, Vaishali, Arwal, Buxar, Kaimur, Nalanda
*Wall writing - Begusarai , Jamui, Madhubani , Araria, Katihar, Kishanganj, Supaul, Saran, Arwal, Buxar, Kaimur, Nalanda, Patna
*Prabhat pheri – Begusarai, Darbhanga, Jamui, Khagaria, Lakhisarai, Madhubani, Munger, Sheikhpura, Araria, Katihar, Kishanganj, Saharsa, Supaul, Madhepura, Banka, Bhagalpur, Gopalganj, Sheohar , Vaishali, Arwal, Aurangabad, Buxar, Gaya, Jehanabad, Kaimur, Nalanda, Rohtas

2.5 Training Cascade

a) **Training and distribution Cascade:** A State-level training of trainers (ToT) district-level health officials was held on July 10 with 35 participants from each NDD implementing districts. A training cascade was implemented starting from district to block-level across all 35 NDD districts and 489 blocks. The district level training was conducted from July 14 to July 27. As per the state operational plan, all trainings till block level were to complete by July 31. However, due to lack of availability of drugs and print materials at the state, the district level trainings were completed by July 27 and block-level trainings were completed by August 9 for phase one thus impacting community mobilization. Therefore, the list of 1-5 years unregistered and out-of-school children was available only in 37 % and 25 % of *anganwadis,* thereby indicates limited engagement of ASHA in NDD program. It is crucial that all block level training are completed as per the training cascade timeline and at least a week ahead of NDD ,leaving sufficient time for frontline functionaries to spread awareness in community. Further, given the drug unavailability in 11 districts which were to conduct NDD in phase two, the block level trainings were scheduled between September 5 to September 9 to ensure availability of NDD kits in schools and *anganwadis*. Delays or rescheduling of trainings at all levels need to be avoided at all counts by effective prior planning. This would benefit the program by giving sufficient time for the trained teachers to train other teachers in the school, as well as for the teachers and *anganwadi* workers to sensitize/ mobilize community prior to the round.

b) Training Resources: The SHSB printed training resources including 84,824 handouts for teachers, 91,011 handouts for *anganwadi* workers, 88,977 leaflets for ASHAs and 495 and 985 flipcharts were printed for education and health respectively. Evidence Action supported in drafting the training and IEC material bundling plan as per block requirements, enabling materials to be efficiently transported to all districts before trainings commenced. Findings from process monitoring suggests integrated distribution of NDD resource kit was significantly low (53% at schools and 47% at *anganwadis*) in August 2017 round. This was mainly due to delayed printing of IEC and training materials at the state level. To improve this in future rounds, printing of training and IEC materials at the state level must be completed well in advance and for enabling integrated distribution at the trainings. This is integral to a high quality program.

c) Training Reinforcement: Evidence Action supported the reinforcement of key messages by delivering bulk SMS to key government officials and frontline functionaries in stakeholder departments as shown in table 3. It is important that government stakeholder departments leverage their existing platforms for sending SMS for greater program ownership, impact and sustainability. The key findings from process monitoring shows that reach of SMS has been stagnant in schools from 72% to 73% and shown improvement from 50% to 64% in *anganwadis* from the previous round. However, the reach of reinforcement messages among the stakeholder departments is not optimum, and more efforts are required for timely updating contact database with accurate numbers.

Table 3: Details on training reinforcement messages sent by Evidence Action for NDD August 2017

SMS sent by	Total SMSs sent	Target Audience
Evidence Action	42,13,230	State, district and block officials from Health, Education and ICDS department and Frontline functionaries

Further, Evidence Action created a WhatsApp group exclusively for private schools teachers/headmasters to generate awareness on NDD by disseminating key program information on benefits of deworming and NDD dates.

d) Training Support and Quality Assurance: For quality assurance of training sessions, Evidence Action administered pre-and post tests at state-level training of trainers to measure knowledge retention of key messages. The findings and observations highlighting key messages, which needed to be reinforced at district trainings, were shared by Evidence Action team with SHSB. Training monitoring of 35 NDD districts and 105 sampled blocks was conducted to assess the quality of messages imparted during trainings using a standardized training monitoring checklist by regional coordinators and district coordinators. Real-time recommendations based on these assessments were shared with stakeholders to improve remaining trainings. The key findings of state pre-post and training monitoring at district and block level below in table 2 and detailed analysis and findings for pre-post at state level in **Annexure C.**

Table 4: Key Findings of state Pre-post and training monitoring at District and Block level

State Pre-post	District Training Monitoring	Block Training Monitoring
There was increase in knowledge about various health benefits of deworming among the participants but was relatively low in terms of improvement in attendance (61%, N=18) learning capacity (67%, N=22) and work potential and livelihood of the child (67%, N=22)	Officials from all the three stakeholder departments i.e. Health, Education, and ICDS attended NDD training in each district.	Integrated distribution of drug & IEC took place in 98% of trainings except in block level trainings of Sadar Khagariya in Khagariya district and Rajoun in Banka district (N-104)
21% (N=7) participants were not able to mention correctly about retaining the counterfoil of school and anganwadi reporting format after submitting to ANM.	In the training of Patna, Nalanda and Rohtas participants were not informed about using NDD App for coverage reporting	Training material i.e. Flipchart was not used in 15 block level training as per NDD guidelines

2.6 Coverage Reporting

The NDD coverage reporting was completed using the NDD mobile/web application. The state was provided with 525 user IDs and passwords to all blocks for data entry and districts for approval in the NDD App/web page.

As per the coverage report, 4,19,88,268 children were dewormed against a target of 4,78,08,801. While reporting coverage, the state revised its target from 4,97,15,062 (determined prior to the NDD round) to 4,78,08,801 post NDD round. Major deviation observed is in the category of out-of-school children and unregistered children. In the out-of-school category, the target was reduced from its target of 1,22,13,065 to 51,96,716 children and in the unregistered category, the target was reduced from 67,48,126 to 56,88,583 children. This issue has continued from the previous NDD round when the targets were revised. Revisions in the targets at the time of coverage reporting reflects that it is important to continue strengthening the program around target setting as per census and coverage reporting. Further, some of the demonstrated best practices like NDD coverage reporting through Mid-Day Meal platform needs to be incorporated in upcoming NDD round for real-time reporting and mid-course programmatic corrections.

3. Monitoring and Evaluation

Monitoring, learning and evaluation is a key component of Evidence Action's technical assistance to the government and enables an understanding of the extent to which schools, *anganwadis* and the health system are prepared to implement the NDD. This includes assessing the extent to which processes are being followed, the extent to which coverage has occurred as planned and to make mid-course correction to improve program performance.

3.1 Process Monitoring

Evidence Action conducts process monitoring through telephone monitoring and physical verification through field visits by its staff and trained independent monitors.

Tele-calling and Follow-up Actions: Evidence Action assessed program preparedness prior to NDD through tele-callers who track the status of training, delivery and availability of drugs and IEC materials at the district, block, school and *anganwadi* levels. The tele-callers used pre-designed and standardized tracking sheets to capture the gaps in field implementation, as gathered from the telephonic follow-ups. Evidence action also piloted automated web-based application for tele calling in Bihar with the technology partner with an objective to increase the efficiency of the tele-calling process. The compiled tele-calling sheets were shared with the state government on a daily basis to enable them to take rapid corrective actions as necessary, such as issuing departmental directives, reiterating at a video conference to coordinate with officials, or sending reinforcement messages through SMS. Evidence Action's district and regional coordinators made field visits to facilitate some of these corrective actions at the district and block level.

Out of 38,991 phone calls, 29,584 calls (76%) were successful from June 14 to October 13, 2017. The rate of successful calls reduced in comparison to 81% for February 2017 round due to floods which might have affected the connectivity while the quality of existing contact database continues to be a challenge.

Monitoring by Independent Agency: Evidence Action with approvals from the state government assessed the processes and performance of the program by hiring an independent survey agency- Karvy Insights Ltd, which provided trained monitors to observe

implementation on NDD and mop-up day. The findings were shared real-time with state government officials on the day of visits to enable immediate corrective actions.

Monitoring visits by Evidence Action: In total, 826 visits were made by Evidence Action team at government schools, private schools and *anganwadis* on NDD and mop-up day. The detail note is placed in **Annexure D.**

Snapshot of M&E activities
I. Telephone Monitoring and Cross Verification
· Tele-calling conducted across 489 blocks and 35 NDD districts of the state · 38,991successful calls made during June,2017-October, 2017 · 12,715calls to health functionaries including district and block level officials and ANMs · 4,685 calls to ICDS department (district, block level officials, Lady Supervisor, and *anganwadi* worker) · 12,184 calls to education department (district, block level officials, government and private schools)
II. Training Quality Assessment
· Pre-post test administered during master trainer's training at state-level in which 35 district level officials from health department were trained · A total of 35 districts, 105 block level training quality assessment was conducted
III. Field Monitoring Visits
· Total 826 monitoring visits by Evidence Action team were made in select schools and *anganwadis* · NDD monitoring checklist provided in given in NDD Operational guideline was administered · Real-time findings on key indicators were shared with stakeholders on NDD and mop-up day
IV. Process Monitoring by Independent Monitors
· Process monitoring was conducted in 24 districts[13] on NDD and mop-up day · 76 trained independent monitors from the independent research agency, visited 131 schools and 133 *anganwadis* · Data was collected electronically using CAPI as per tools developed by Evidence Action · Real time findings on key indicators were shared with stakeholders on NDD and mop-up day
V. Coverage Validation by Independent Monitors
· Coverage Validation was conducted in 24 districts[14] post mop-up day during August 23- September 8 · 70 trained independent monitors from the survey agency, visited 693 schools and 693 *anganwadis*

3.2 Assessing treatment coverage

The Monitoring and Evaluation activities carried out during NDD August 2017 round in Bihar, included coverage validation in each NDD district to gauge the accuracy of reported treatment coverage.

Coverage Validation: Coverage validation is an ex-post check of the accuracy of the reporting data and coverage estimates. The data was gathered through interviews with *anganwadi*

[13] Process monitoring and coverage validation was carried out in districts implementing phase one
[14] Process monitoring and coverage validation was carried out in districts implementing phase one

workers, headmasters/school teachers, and a sample of three students from three randomly selected classes in each of 693 sampled schools visited. The data was gathered by checking registers and reporting forms at schools and *anganwadis*. This activity provided a framework to validate coverage reported by schools and *anganwadis* and to estimate the level of accuracy in the data by comparing the recounted numbers (based on the documentation available in schools and *anganwadis*) with numbers in reporting forms.

3.3 Key Findings

Process Monitoring findings highlight that 81% schools and 83% *anganwadis* visited have received training for the NDD Aug 2017 round and around 92% of schools and 96% of *anganwadis* conducted deworming either on NDD or mop-up day. Findings from coverage validation reflect that 92% of schools and 97% of *anganwadis* dewormed children during NDD or mop-up day.

Around 69%schools visited and 65% *anganwadis* received NDD posters and banners. However, integrated distribution of NDD kits [1] was comparatively lower for both schools (55%) and *anganwadis* (47%). This shows that little more than half of the schools and *anganwadis* received all materials (albendazole, banner/poster and handout/reporting forms) at trainings which clearly indicates limited integrated distribution at trainings. The materials were distributed individually and through cluster resource coordinator (CRC), and ASHAs, to remaining schools and *anganwadis*, thus increasing the program costs incurred on logistics and posing a risk on the availability of materials prior to the round. Awareness on the causes of worm infection was high among teachers and *anganwadi* workers **(Annexure E-Table 2)**. However, only 44% of teachers and 50% of *anganwadi* workers reported the possibility of any adverse event among children after administration of albendazole tablets.

Private School Engagement Around 45% of sampled private schools (N=11) reported being trained for NDD. Among private schools, 100% had sufficient drugs for deworming, however, only 45% of the private schools administered albendazole to children. This shows that while drugs were made available to a majority of schools, more than half of the private schools did not attend trainings and participated in NDD, which is crucial for developing program understanding, for receiving necessary knowledge and materials through integrated distribution. 36% received a banner/poster, and similar percentage received handouts and reporting forms. Further, SMS related to NDD were received by 64% of private schools teachers/headmasters. Thus, for the upcoming round, efforts need to be made to enhance private school engagement by issuing a directive from state to all District Magistrates seeking their active support in the program must be sent to all districts prior to start of district level trainings. It is also crucial to initiate a state-level orientation for private schools for generating awareness and increasing acceptability of the program.

Table 5: Key Findings from Process Monitoring and Coverage Validation

Indicator	School		*Anganwadi*	
	(%)	N	(%)	N
Received SMS for current NDD round	73	131	64	133
Attended training for NDD	81	131	83	133

Integrated Distribution of albendazole tablets and IEC materials[15]	53	131	47	133
Schools/*anganwadis* conducting deworming	92	693	97	693
Children consumed tablet	100	1,878	NA	NA
Followed correct recording protocol	70	640	683	65
Copy of reporting form was available for verification	71	640	683	67
State-Level verification factor[16]	0.76	1,08,999	0.97	22,317
Estimated NDD coverage[17][18]	70	NA	84	NA

Findings from Coverage validation: The data revealed that 70% of schools and 65% of *anganwadis* followed correct protocols for recording the number of children dewormed. A substantial proportion of *anganwadi* workers did not have list of unregistered preschool-age children (52%) and out-of-school children (47%). Only 71% of schools and 67% of *anganwadis* had a copy of their reporting form post submission, though they were instructed to retain a copy as per NDD guidelines and covered at trainings. Findings from coverage validation revealed that, 82% ASHAs responded to conduct meetings with parents to inform about NDD, efforts should be made to enhance community mobilization activities. **(Annexure F)**

Further, interviews with children (N-1920) at schools indicate that 98% of them received albendazole tablet and 96% of these children who received the tablet reported to consume the tablets under supervision of teachers. This indicating that despite challenges in reporting and documentation of coverage data, almost all the children present on NDD or mop-up day received an albendazole tablet.

The state government reported 86% coverage in school and 87% for 1-5 years registered children in *anganwadis*. Through coverage validation, attempts were made to understand the maximum number of children that could have been dewormed in the schools and *anganwadis*. NDD treatment coverage is estimated in schools considering maximum attendance of children on NDD and mop-up day. Coverage validation data showed that 92% of schools conducted deworming on either NDD or mop-up day, maximum of 81% of children were in attendance, 98% of children received albendazole tablet out of which 96% reported to consume albendazole tablet under supervision. Taking these factors into account, 70% (0.92*0.81*0.98*0.96) of enrolled children could have been dewormed in the schools. Since no child interview is conducted in *anganwadis*, verification factor of 1-5 years registered children from coverage validation data on government reported coverage for the same category. It was

[15] Integrated distribution of NDD kits includes albendazole, banner/poster and handout/reporting forms and provided to schools and AWC during the trainings.
[16] Ratio of recounted value of the dewormed children to the reported value. This calculation is based on only those schools (n=267) and *anganwadis*(n=276) where deworming was conducted and copy of reporting form was available for verification
[17] For Schools: 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*
[18] For *anganwadis:* This was estimated by implying state-level verification factor on government reported coverage for AWC.

estimated that around 84% (0.97*0.87) of registered children in *anganwadis* could have been dewormed.

3.4 Trend of key indicators over the round

To understand the changes in selected indicators over NDD rounds, selected key indicators are presented in graphical form below. Data comparison in figure 5, shows slight increase in percentage of schools and *anganwadis* where headmaster/teacher/ *anganwadi* worker attended training. In February 2017 round, while 77% of headmaster/ teacher attended NDD training, in August 2017 round this increased to 81% and percentage of *anganwadi* workers increased from 72% to 83% during the same period. Lack of information about NDD training schedules continues to be the main reason for teachers/*anganwadi* workers not attending NDD trainings.

Also, program insights highlights that block level trainings continued till one day prior to NDD, it is crucial that all block level trainings are completed as per the pre-determined schedules and complete at a minimum of a week in advance to the NDD date (if delayed from training schedule) leaving sufficient time for the teachers to train other teachers in the schools and also for teachers and *anganwadi* workers to mobilise community and spread awareness on the program in the community.

Figure 5: Comparison of training indicators for school/*anganwadi* over NDD rounds

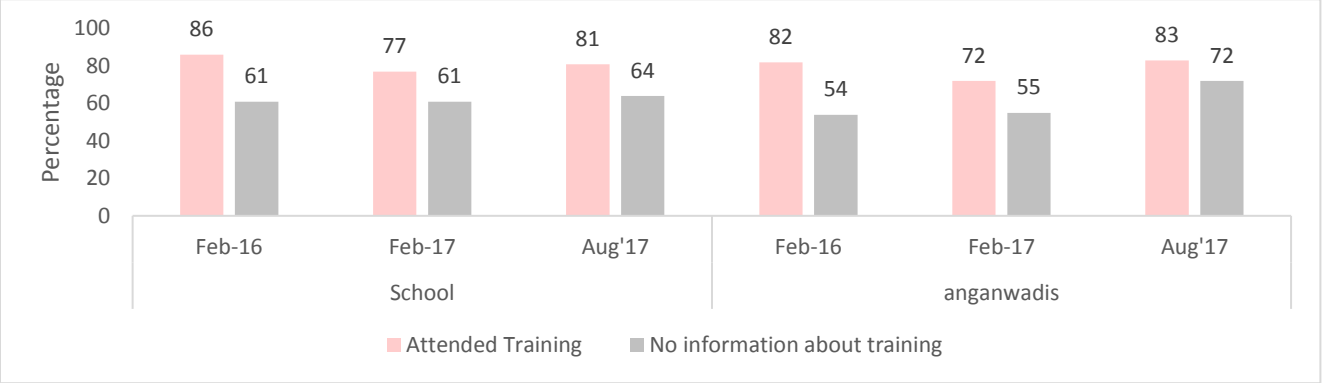
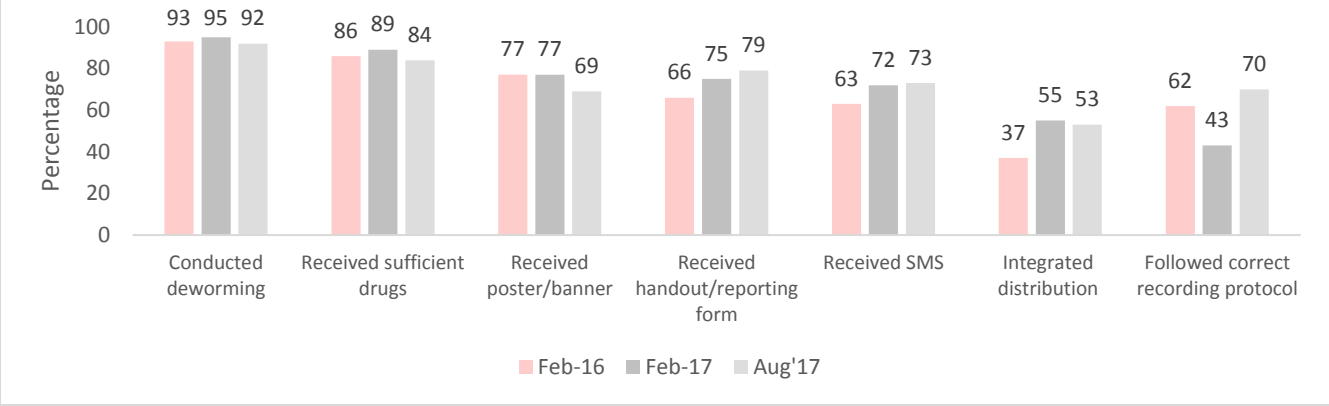


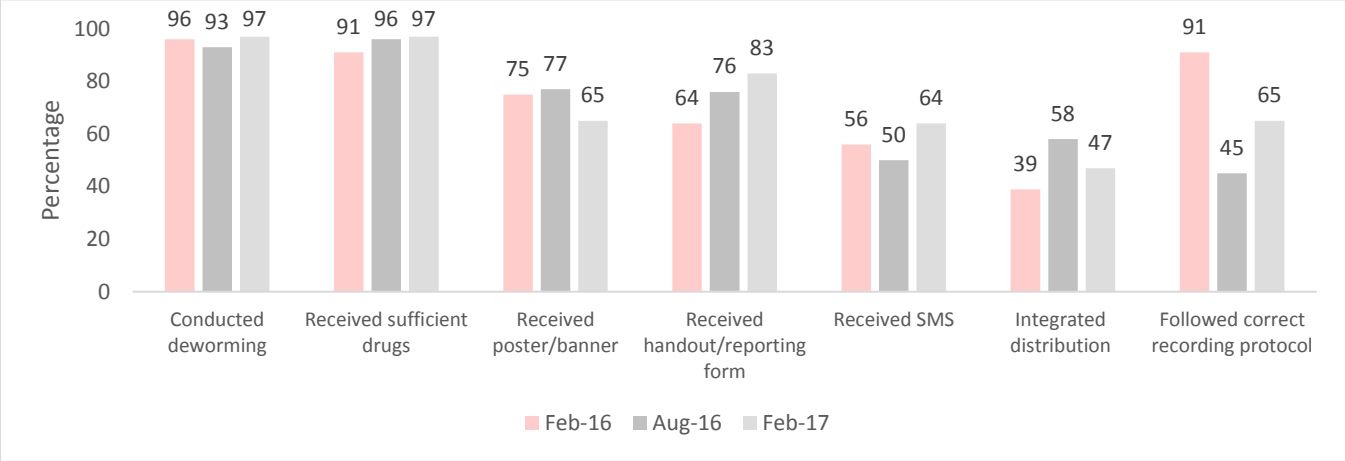
Figure 6: Comparison of key indicators in Schools over NDD rounds



Further, as per Figure 6 and 7, comparison of selected indicators indicate improvement in most for the indicators for schools and *anganwadis* from the previous round in terms of conducting deworming and receiving handout/reporting form. The integrated distribution has declined for both schools and *anganwadis* from NDD February 2017 to NDD August 2017 i.e. 53% and 47% respectively which could be due to delay in printing of training and IEC material at the state level. While drug availability at schools and *anganwadis* that were visited was ensured through channels, other than block level training, such as through CRCs, and ASHAs, however, these are not replacement to participation at the training.

Findings show that while the percentage of schools that received SMS has been stagnant from previous round, it has increased by 14% for *anganwadis*. This indicates that continuous efforts to update contact databases need to be made in consultation with state officials, especially for schools. It is also seen that there is an increase in the percentage of schools and *anganwadis* where correct recording protocol is followed by 27% and 20% respectively which is still significantly low. This could be partly attributed due to delayed and rushed block level trainings that impacted the quality of sessions.

Figure 7: Trend of key indicators in *Anganwadis* over NDD rounds



4. Recommendations

It is critical to conduct consistent high coverage program in all districts of the state in each round to bring down worm prevalence and slow reinfection rates. Therefore, continued and consistent efforts need to be made towards high quality program twice a year as mandated.

1. For a high quality program, setting targets as per census and reporting coverage against the targets set prior to the NDD round is important. Undermining (or reducing the targets) reflect a false picture of the coverage with the reduced targets.
2. Findings from process monitoring suggests that training participation of schools and *anganwadis* was sustainably low, which hampers distribution of materials in the NDD kit and their subsequent availability at school and *anganwadi* centres on NDD. To improve the gap observed, in upcoming rounds block level trainings must be planned and communicated in advance, and tracked and monitored by the respective

departments at the district and block levels. The training cascade with timeline to be incorporated in program directives and through reinforcement messages from the state.

3. Printing of IEC materials at the state level must be completed well in advance and the districts should ensure their availability at the blocks for integrated distribution at the trainings. This would be integral to a high-quality program.
4. As the state will initiate the process of procurement for NDD February 2018 round, the district–wise availability of drugs must be ensured by mid-December 2017 to ensure that drug availability is aligned for integrated distribution. The operational plans finalized prior to NDD round should be constantly referred for specific program timelines for better program quality.
5. The State Steering Committee Meeting and the DCCM (District coordination committee meetings) to be held within November 2017, in order that preparations for the upcoming February 2018 round could be initiated at the district level timely.
6. Findings from process monitoring and coverage validation indicates scope for improvement in engagement of ASHAs in the community mobilization and listing of unregistered and out-of-school children. It is recommended that timely engagement efforts with ASHA need to be strengthened for for program benefits to be available to all children. ASHA orientation on the NDD program and its benefits are to be initiated in advance so that they include appropriate messaging during home visits, mother meetings and other health education efforts.
7. For the upcoming round, it is recommended that the state utilizes MDM platform to receive real time information on coverage in Bihar as in the February 20177 round. This will facilitate real time coverage reporting for a significant proportion of schools and will allow for mid-course corrections before mop-up day.
8. The improvement in terms of positive trends seen during this round in conducting deworming, reach of SMS, availability of reporting forms and following of recording protocol at schools and *anganwadis,* need to be continued for a cost effective and high quality program.

5. Annexures

Annexure A	Coverage report of NDD August 2017 round
Annexure B	Drug Recall Letter
Annexure C	Detailed analysis of Pre-Post Test at state level
Annexure D	Note on Monitoring visits on NDD and mop-up day by Evidence Action
Annexure E	Process Monitoring Tables
Annexure F	Coverage Validation Tables

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