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ORIGINAL ARTICLE

AN ASSESSMENT ON THE ROUTINE IMMUNIZATION AT THE BLOCK PRIMARY HEALTH CENTRE (BPHC) LEVEL IN FOUR DISTRICTS OF ASSAM

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ABSTRACT: Immunization is an investment for today and tomorrow. It is a cost effective and highly successful health intervention, which prevents needless suffering through sickness, disability and death. Immunization is one of the interventions that will help in achieving the MDG-4 i.e. reducing child mortality by 2/3rd between 1990 and 2015. **OBJECTIVE:** The objective of the study is to evaluate the current quality of the immunization program and to identify the gaps in the Routine immunization with focus on micro-planning, manpower, supervision, funding and community participation. **METHODS:** The study is conducted in the four selected districts of Assam namely Barpeta, Darrang, Dhubri and Morigaon. This activity was conducted in b November 2012- January 2013 by two researchers. In total 21 no.s of BPHC are assessed using formats along with review of records, micro plans and data. All analysis was completed in Microsoft Excel. **RESULTS:** The majority of blocks in each district reported availability of all routine vaccines (i.e., BCG, OPV, DTP, and MCV); however, all districts had at least 1 BPHC with a stock out of 1 vaccine in the 3 months prior to the assessment. Across all districts, syringes were adequately available. Funding of immunization services was a challenge in nearly all BPHCs; only 2 of the 21 assessed BPHCs had funding for all major immunization activities (cold chain, supervision, outreach, vaccine transport) in the month prior to the assessment. In the 18 BPHCs with written supervision plans, low performing sub centers (SC) were not prioritized to receive more supervision visits in 8(44%) BPHCs. **CONCLUSION:** Funding for all immunization activities, particularly supervision and staff salaries, remains an ongoing challenge. ASHAs and AWWs are vital links for delivering immunization-related information to communities. A higher proportion of BPHCs in the districts had monitoring charts. Those charts were generally of good quality across all BPHCs with monitoring charts. Cold chain monitoring was high and was routinely occurring twice a day.

KEYWORDS: BPHC-Immunization-districts –SC.

INTRODUCTION: Immunization is an investment for today and tomorrow. It is a cost effective and highly successful health intervention, which prevents needless suffering through sickness, disability and death. Immunization is one of the interventions that will help in achieving the MDG-4 i.e. reducing child mortality by 2/3rd between 1990 and 2015.

Immunization averts between 2 and 3 million deaths each year globally.1 In India expanded program on immunization was started in 1978 and renamed Universal immunization program in 1985. UIP is delivered as part of reproductive child health program. In 2005, Government of India has launched multiyear plan (MYP) to strengthen routine immunization and routine immunization is now a part of NRHM. Given the fact that GOI has declared for intensification of RI activities, it is important to have high coverage with quality with thrust on capacity building, human resource management, cold chain management, Vaccine logistics supplies and infection control mechanisms.

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Despite the concerted efforts of the government and other health agencies, a large proportion of vulnerable infants and children in India remain unimmunized. The National Family Health Survey (2005-06) reports that only 43.5% of children in India received all of their primary vaccines by 12 months of age. There is a wide variation among states, and states with poorer immunization coverage have higher child mortality rates.

The current scenario depicts that immunization coverage has been steadily increasing but the average level remains far less than the desired. Still only 44 per cent of the infants in India are fully immunized (NFHS-III) which is much less than the desired goal of achieving 85 per cent coverage.

This could have been the result of numerous confounders, such as the introduction of the National Rural Health Mission in all districts and the implementation of Immunization Weeks. Process indicators have to be collected to indicate any differences in the quality of the immunization program in the districts.

Quality assessment is an important global strategy to increase immunization coverage. Although evaluations of the impact and sustainability of routine immunization programme are important, there have been very few evaluations. And though this study and the assessment were focused on routine immunization strategies, there are larger lessons to be learned regarding the long term effect of training and supervision, the two major inputs of the Routine Immunization strategy.

The objective of the study is to evaluate the current quality of the immunization program and to identify the gaps in the Routine immunization with focus on micro-planning, manpower, supervision, funding and community participation.

MATERIAL AND METHODS: The objective of the activity was to assess the status of routine immunization indicators in the four selected districts of Assam namely Barpeta, Darrang, Dhubri and Morigaon out of the total 27 districts of Assam. The districts were selected based on the poor routine immunization performance indicators, high drop outs, presence of high risk areas, hard to reach areas, focused districts in IPPI micro plans, migratory population and presence of huge riverine areas population.

This activity was conducted in November 2012- January 2013 by two researchers. In total, at the district level, a questionnaire was administered to the district immunization officer. At the block level, data collection included a questionnaire, a knowledge quiz and a review of relevant records. The data collection included a knowledge quiz and a questionnaire about supervisory visits The block level functionaries Block Medical Officer, Block Programme manager, Block accounts manager, Lady heath Visitor(LHV), Health Educator(HE), Block extension Educators (BEE) were interviewed. Two researchers formed a team and a series of blocks for assessment being conducted. A total of 21 Block Primary Health Centre were assessed in 4 districts of Assam.

Assessment visits were conducted from November 05, 2012 to January 14, 2013. Process indicators (e.g., supervisory visits, availability of plans) were collected to understand the quality of the routine immunization program. All data were cleaned and electronically entered by the researchers into Microsoft Excel. For each categorical indicator, proportions were calculated and for each continuous indicator, means were calculated. All analysis was completed in Microsoft Excel.

RESULTS: Across all districts, ANM vacancy rates were low. In the 3 months prior to the assessment, there was a delay in fully paying the salary and allowances of the ANMs in a quarter of the BPHCs in

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Darrang and in just over half of the BPHCs in Barpeta and Dhubri. Funding of immunization services was a challenge in nearly all BPHCs; only 2 of the 21 assessed BPHCs had funding for all major immunization activities (cold chain, supervision, outreach, vaccine transport) in the month prior to the assessment.

In particular, funding was unavailable for all 4 immunization activities in 2 BPHCs (50%) in Darrang, 7 BPHCs (100%) in Barpeta, 1 BPHC (33%) in Morigaon, and 4 BPHCs (57%) in Dhubri At the district level, funding for routine immunization was received on time only in Morigaon.

The majority of blocks in each district reported availability of all routine vaccines (i.e., BCG, OPV, DTP, and MCV); however, all districts had at least 1 BPHC with a stock out of 1 vaccine in the 3 months prior to the assessment. There was a stock out of BCG in 3 BPHCs, OPV in 1 BPHC, and MCV in 1 BPHC) out of the 21 no.s of BPHC assessed. Across all districts, syringes were adequately available. Except in Barpeta, the majority of BPHCs in each district had a fully functioning cold chain for the 3 months prior to the assessment.

Indicator*	Darrang (4 blocks)	Barpeta (7 blocks)	Morigaon (3 blocks)	Dhubri (7 blocks)
ANM vacancy rate**	1%	4%	1%	1%
ANMs fully paid for the last 3 months	75% (3)	43% (3)	100% (3)	43% (3)
Funds/resources for all major operations in last month	50% (2)	0% (0)	0% (0)	0% (0)
Adequate supply of all vaccines available in last 3 months	75% (3)	71% (5)	67% (2)	86% (6)
Adequate supply of syringes available in last 3 months	100% (4)	100% (7)	100% (3)	100% (7)
Cold chain fully operational in last 3 months	100% (4)	29% (2)	100%(3)	71% (5)

Table 1: Summary of general operational indicators from the 4 assessed districts; Assam India

* Proportion and number of Block PHCs with the indicator in the district (unless otherwise noted)
**Mean of the percentage of empty ANM posts computed across the Block PHCs in the district.

Across all of the districts, BPHC managers used ASHAs and AWWs as the main mechanism for communicating to and mobilizing the community for routine immunizations. In Dhubri, the majority of BPHCs also used community leaders and community groups to assist with social mobilization. In Darrang, some BPHCs received assistance from school teachers and NGOs.

The types of routine immunization-related social mobilization tools used at the BPHCs varied by district. Posters were the most commonly used social mobilization tool used in BPHCs in Morigaon (100%) and Dhubri (86%). Whereas in Barpeta, 3(43%) of the BPHCs used public announcements (i.e., “miking”) as the primary social mobilization tool. In Darrang, the use of social mobilization tools was low.

Community participation in the implementation of routine immunization activities was high across the districts; 67% or more of the blocks in a district reported some form of participation by the community. The involvement of the community varied across the districts; community

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involvement was low in Darrang and Morigaon. In Dhubri, most BPHCs reported that the community assisted with session timing (86%), outreach site locations (71%), and requesting additional services (&1%). In nearly half (43%) of the BPHCs in Barpeta, communities contributed resources and assisted with session timing.

Category	Indicator*	Darrang (4 blocks)	Barpeta (7 blocks)	Morigaon (3 blocks)	Dhubri (7 blocks)
Community members involved in social mobilization in last 3 months	Community health workers	0% (0)	14% (1)	0% (0)	0% (0)
	Community leaders	50% (2)	29% (2)	0% (0)	86% (6)
	Community groups	25% (1)	43% (3)	33% (1)	71% (5)
	Religious leaders	0% (0)	29% (2)	0% (0)	29% (2)
	ASHAs	100% (4)	100% (7)	100% (3)	100% (7)
	AWWs	100% (4)	86% (6)	67% (2)	100% (7)
	NGOs	25% (1)	0% (0)	33% (1)	0% (0)
	School teachers	50% (2)	0% (0)	0% (0)	0% (0)
Social mobilization tools used in last 3 months	Pamphlets	0% (0)	14% (1)	33% (1)	14% (1)
	Posters	25% (1)	29% (2)	100% (3)	86% (6)
	Other print media	0% (0)	14% (1)	0% (0)	0% (0)
	Public announcements	0% (0)	43% (3)	0% (0)	0% (0)
	Radio/TV	0% (0)	0% (0)	0% (0)	0% (0)
Community role in social mobilization activities	No role	25% (1)	29% (2)	33% (1)	0% (0)
	Micro planning	0% (0)	0% (0)	0% (0)	43% (3)
	Selecting vaccination dates	0% (0)	43% (3)	0% (0)	86% (6)
	Registration of newborns	0% (0)	14% (1)	0% (0)	29% (2)
	Defaulter tracking	25% (1)	29% (2)	0% (0)	14% (1)
	Transportation	0% (0)	0% (0)	0% (0)	14% (1)
	Resources	0% (0)	43% (3)	0% (0)	14% (1)
	Location of outreach sites	25% (1)	0% (0)	0% (0)	71% (5)
	Demand for additional services	25% (1)	14% (1)	0% (0)	71% (5)

Table 2: Summary of indicators of routine immunization-related social mobilization and community links from the 4 assessed districts; Assam India

Definitions = BPHC: Block Primary Health Centre;
* Proportion and number of Block PHCs with the indicator in the district

The proportion of planned outreach visits held was 80% or greater in all 4 districts. In the majority of BPHCs, records were not kept routinely of the number of outreach visits planned and held; consequently, these data were calculated as well as the BPHC manager was able given the information available. All BPHC micro plans contained information on the target populations for outreach sites in all districts except Morigaon. In the month prior to the assessment, funds were available for outreach visits in less than a quarter of the assessed BPHCs.

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Indicator*	Darrang (4 blocks)	Barpeta (7 blocks)	Morigaon (3 blocks)	Dhubri (7 blocks)
Outreach visits held of planned in last month	93%	99%	80%	96%
BPHC microplan lists target population for outreach sites	100% (4)	100% (7)	33% (1)	100% (7)
Funds were available for outreach visits in last month	50% (2)	0% (0)	33% (1)	29% (2)

Table 3: Summary of indicators for routine immunization outreach session from the 4 assessed districts; Assam India

Definitions = BPHC: Block Primary Health Centre

* Proportion and number of Block PHCs with the indicator in the district

The indicator of supervision from the district to BPHC level was stronger in Darrang and Barpeta, compared to Morigaon and Dhubri. Indicators of supervision from the BPHC to Sub centre (SC) level were generally equal across all 4 districts. All BPHCs conducted an MIS review meeting in the previous month and held nearly all planned MIS meetings in the past year. At least one supervision visit per quarter to all SCs by the BPHC occurred in the BPHCs of Barpeta. A third of the BPHCs did not provide supervision visits per quarter to all SCs in their jurisdiction.

The BPHCs had written plans for supervision visits in the majority (85% or more) in all districts except in Darrang (33%). In the 18 BPHCs with written supervision plans, low performing SCs were not prioritized to receive more supervision visits in 8 (44%) BPHCs. Overall, documentation of the number of completed supervision visits and the percentage of the planned supervision visits that were completed was low.

In Darrang and Barpeta, BPHC managers described topics and activities conducted during the most recent supervision visit to the BPHC by district immunization staff. In Dhubri and Morigaon, topics and activities covered in the most recent supervision visit to the BPHC by district immunization staff were summarized. Topics which were rarely or never discussed during supervision visits across BPHCs included: injection techniques, waste management, AEFIs, vaccine stock outs and calculating coverage. Previous supervision visits by all BPHCs staff rarely or did not include conducting rapid assessments, discussing vaccine supply, providing feedback on monitoring charts or meeting with ASHAs. In Darrang and Barpeta, , micro planning was more likely to be a topic of discussion than in the other districts.

All BPHCs had micro plans available and all micro plans had the monthly target population for fixed sites. A micro plan quality score was created to summarize the presence of information in the micro plan for each BPHC; it is a composite score of 6 equally weighted indicators. The indicators include:

1. BPHC micro plan identified targets by delivery strategy (fixed/outreach/mobile),
2. had a monthly target population for fixed sites,
3. had a session schedule for fixed sites,
4. Identified hard to reach villages,
5. Had a supervision visit schedule, and
6. Had the number of cold chain depots.

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The average of the BPHC-level micro plan quality scores was calculated to obtain a district-level micro plan quality score. The highest quality micro plans were in Barpeta (88%) and Darrang (93%) respectively Micro plans in Dhubri and Morigaon averaged less than 75% on the micro plan quality score. Micro plan quality scores were lower when BPHCs did not identify targets by the delivery strategy, did not have session schedule for fixed sites, did not identify hard to reach populations, did not include supervision visit schedules, or did not have information on cold chain depots in the block. All BPHCs in Darrang and Barpeta had maps available. The BPHCs in the other two did not always have a map; 1 of 3 BPHCs in Morigaon and 3 of 7 BPHCs in Dhubri lacked a map.

For those BPHCs' with a map, a BPHC-level and district map quality score was created in a similar fashion to the microplan quality score. It is a composite score of 3 equally weighted indicators.

The indicators include:[1] map identified the location of PHCs/SCs,[2] had catchment population for each PHC/SC, and[3] had the PHC/SC catchment area delineated for each fixed site.

The quality of maps across all BPHCs was low; the average map quality score was less than 70% in all districts. The majority of reviewed maps did not have information on the catchment area population or the catchment areas for each health facility in a BPHC which led to the lower map quality score.

Monitoring charts were available for review across all Darrang and Barpeta BPHCs but for only a third of the BPHCs in Morigaon and Dhubri. For those BPHCs' with a monitoring chart, two separate BPHC-level and district-level quality scores were created in a similar fashion to the micro plan quality score. The first quality score, the monitoring chart key element quality score, summarized the presence of the following 6 key monitoring chart elements: the data were current, the monthly target populations were correct, the cumulative number of vaccine doses were summed correctly, the cumulative dropout rate was calculated correctly, the data points were graphed in the correct boxes and were connected.

The second quality score, the monitoring chart DPT doses and dropout rate quality score, summarized the presence of the 3 following elements: the number of DPT1 doses, the number of DPT3 doses, and the DPT1-DPT3 dropout rate was on the monitoring chart.

Of the BPHCs with monitoring charts available, both the key element quality score and DPT doses and dropout rate quality score was over 90% in all districts. Cold chain monitoring charts were available in all blocks. In all but 2 BPHCs each in Barpeta and Dhubri, cold chain monitoring was occurring twice daily, 7 days per week. In regards to knowledge of routine monitoring indicators, two-thirds or more BPHC managers within each district were able to calculate coverage. Nearly a quarter of BPHC managers (5 out of 21 BPHC managers) were unable to calculate dropout rates correctly.

DISCUSSIONS: Stockouts are not common; however, they did occur at least one block of every district. The cold chain systems appear adequate in all districts except Barpeta. Cold chain component was also assessed at PHC level in the present study. Temperature of ILR between +2 to +8'C observed in all visited PHCs. Tushar Patel, Devang Rawal and Niraj Pandit in Anand district, Gujarat in 2008 observed 90.9% PHCs had appropriate ILR temperature which was slightly lower than present study.[3] Funding for all immunization activities, particularly supervision and staff salaries, remains an ongoing challenge. ASHAs and AWWs are vital links for delivering immunization-related information

to communities. The staff often works through community groups and leaders. The majority of the BPHCs could use the community members more effectively to aid with defaulter tracing.

Systematic tracking of the number of sessions held and planned was inadequate and could be strengthened in nearly all BPHCs. Funding for outreach visits is a challenge. Across all BPHCs and districts, MIS meetings regularly occurred in the past year. Supervision plans were not dynamic; poor performing SCs were not prioritized to receive more supervision. A list of the supervision visits completed in the month was not kept.

The percentage of planned supervision visits conducted for the BPHC or by supervisor was not calculated. In a NIHFW study in 2009 where no records to support the supervisory visits were available in 45% of the PHCs and Supervisory checklists/reports were available only at 27% of the PHCs.[4] Hard to reach villages need to be incorporated in the micro plan. However, across all BPHCs, map quality was generally weak. Overall, BPHC manager's knowledge of how to plan an immunization session based on Government of India guidelines was weak.

A higher proportion of BPHCs in the districts had monitoring charts. Those charts were generally of good quality across all BPHCs with monitoring charts. Cold chain monitoring was high and was routinely occurring twice a day, 7 days a week. Knowledge on how to use a tickler chart is low among BPHC managers. In addition to training on this topic, refresher training on how to calculate coverage and the dropout rate is needed.

BPHC managers were generally weak in their knowledge around dropout; e.g. the meaning of the rate and how to use a tickler chart to track dropouts. No tracking of drop-outs and left outs and missing opportunities due to wastage concerns were also identified by National Immunization Programme. Review [5] BPHC managers were generally strong in their knowledge of which doses to give an unimmunized child, the relationship between vial size and reported doses and how to create community links.

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