

## An Assessment of High Delivery Load Facilities under the Dakshata Program

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### Abstract

Goal 3 of the Sustainable Development Goals which use to be United Nations Millenium Development Goals (Goals 4 and 5) had focused on child survival and maternal health. These are the focused theme of the Government of India's public health programs under National Health Mission. It was Dakshata Program initiated in 2016 by GoI in 31 districts of the populous state of India, i.e., Uttar Pradesh. The investigation was carried out for these districts for the 124 high delivery load facilities selected from Health Management Information System data 2015-16. The random observations were undertaken for 2½ months (15 Sep - 30 Nov 2016). The quality of the services was assessed using indicators in form of human resource, infrastructure, availability of drugs and trays, staff practices and knowledge and documentation processes. It was observed that human resource was inadequate for the investigated facilities. Despite of designated delivery rooms in all districts, the infrastructural setup was in poor state. The availability of the drugs and trays was in worst state. The labor room staff hardly followed practices as per standard guidelines and lack the required knowledge. The documentation processes were inconsistent all over. Thus, the investigation concluded that governance need to strategize their approach of enhancing the intra partum services through Dakshata Program.

**Keywords:** Goal: Child; Maternal

### Introduction

Goal 3 of Sustainable Development Goals (SDGs) which include the older version of Millenium Development Goals (MDGs) maternal health (MDG-5) and child health and survival (MDG-4) are prime focused themes under the National Health Mission (NHM) of Government of India (GoI) [1]. Reduction in the maternal mortality of the country to achieve SDG goal is far away. On the further analysis, there has been a significant change with steady decline found in Infant Mortality Rate (IMR) in last decade, while Early Neonatal Mortality Rate (ENMR) and Perinatal Mortality Rate (PNMR) remained steady since last decade [2].

Considering the fact that institutional deliveries raised significantly up to 73% across India after implementing Janani Suraksha Yojana (JSY) scheme, the major proportion of maternal mortality (44%) and neonatal mortality (40%) is still high on the period around child birth [2]. The majority of causes of maternal and newborn mortality are preventable through appropriate care to mother and newborn at the time of birth despite of having many strategies like Reproductive Maternal Neonatal Child and Adolescent Health (RMNCH+A). With the objective of improving the quality of care during child birth, GoI institutionalized 21 days training program of Skill Birth Attendance (SBA) for in-services Auxillary Nurse Midwives (ANMs) and staff nurses but results were not as according to expectations [2]. Subsequently, GoI introduced "Dakshata" which means adroitness, to improve intra partum and immediate post partum care with the training competency based and focusing on the highest impact practices during child birth, specifically shorter in duration for 3 days, post training follows up with support component by rolling out safe child birth checklist for doctors, staff nurses and ANMs. The Dakshata program was launched in 2016 in the highest populace state of Uttar Pradesh (UP), holding 16.16% (approx. 218.4 m) population of India. The state government of UP decided to implement Dakshata program in 31 districts of the 75 districts of the state where no other program related to intrapartum care was implemented earlier [2].

The present investigation is an attempt to the assess the available infrastructure and services in the labor room, i.e., intra partum

services along with infrastructural facilities. The investigation further documented current practices and knowledge of staff engaged for intrapartum care and early post partum services.

### Methodology

#### Study area and design

The investigation was conducted for high delivery load facilities of 31 districts of Uttar Pradesh (India) (Table 1), where the State Government of UP decided to implement Dakshata program due to lack of any type of earlier interventions in these districts towards intra partum care. These 31 districts are non high priority districts, which consist approximately 36.6% of total population of Uttar Pradesh.

#### Study period

The investigation was undertaken for 124 facilities in 31 Dakshata districts from 15<sup>th</sup> September to 30<sup>th</sup> November 2016, on diurnal basis between 10:00 AM to 5:00 PM. Random approach was used by the observant, to collect the unbiased data of labor room commodities and the practices undertaken by labor room staff associated with intra partum care unit.

#### Sample size

On the basis of the year 2015-16 HMIS data, 4 high delivery load facilities were selected in each 31 districts, thus constituting the total 124 facilities across 31 Dakshata districts.

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Sr. No.	District Name (as per HMIS)
1.	Baghpat
2.	Bijnor
3.	Firozabad
4.	Gautam Buddha Nagar
5.	Ghaziabad
6.	Hapur
7.	Mainpuri
8.	Saharanpur
9.	Sambhal
10.	Shamli
11.	Ballia
12.	C S M Nagar
13.	Chandauli
14.	Deoria
15.	Fatehpur
16.	Ghazipur
17.	Kushinagar
18.	Mau
19.	Pratapgarh
20.	Sant Ravidas Nagar (Bhadohi)
21.	Auraiya
22.	Banda
23.	Chitrakoot
24.	Etawah
25.	Hamirpur
26.	Jalaun
27.	Jhansi
28.	Kanpur Dehat
29.	Lalitpur
30.	Lucknow
31.	Mahoba

Table 1: Investigated districts of uttar pradesh.

### Data collection and analysis (supplementary)

The data from selected facilities were collected by 3 state technical specialists of UP- TSU (Technical Support Unit) and 19 Quality Improvement Mentors (QIM) of UP- NHM, who were trained on data collection tool, named LRGAT (Labor Room Gap Assessment Tool). LRGAT was prepared by State Dakshata Team at UP-TSU and pre-tested for one facility of randomly selected one district of each sub-region by 3 State Technical Specialists to ensure the quality and homogeneity of collected data. The training of filling LRGAT was also provided to 19 QIMs, the UP-NHM BSc nursing graduate staff with teaching experience. The Principal Investigators, 3 State Technical Specialists randomly cross verify collected data for precision of the data. The collected data were further analyzed for the results and outcomes.

### Observation and Results

During the course of investigation of 124 facilities across 31 districts, total 30 District Hospitals, 51 CHC-FRU and 43 non-CHC-FRU (Community Health Centre - First Referral Unit) were observed for the functional facilities for high delivery load on the basis of HMIS year 2015-16. The average delivery load on the facilities per month was 289/ month, which varies from 60 to 1240 per month in the range.

### Human resource

As per the norms of MNH toolkit, published by Government of India, the total number of Gynaecologist, pediatrician and medical officer should be 400, 124 and 480, while the government sanctioned

posts were 213, 117 and 534 respectively across all the facilities. Subsequently, the available human resource were 152, 95 and 392 for Gynaecologist, pediatrician and medical officers respectively, which stated that there was not the only issue at planning level in minimum available positions required but also in the availability of human resources in every cadre. In the same vein the range 0 to 30, 0 to 7 and 0 to 34 for Gynecologists, pediatrician and medical officers also indicated the underutilization of human resource at the district level.

### Infrastructure of delivery unit and labor room organization

Labor room is an integral part of a delivery unit and it is mandatory to keep at least one labor room at each delivery point. Across all the 124 facilities designated delivery room was available only in 96% facilities. On the other hand, in terms of other facilities, separate waiting areas for attendants and ASHAs (Accredited Social Health Activists), dedicated receiving area for women in labor, post-delivery observation room for 2 hrs and separate store rooms were only available in 62%, 56%, 49% and 43% facilities across the 31 districts respectively. Similarly, separate examination room for pre delivery examination for women in labor found only in 22% facilities and both pre delivery examination room and sterilization room was available only in 15% facilities that further raised the issue of available infrastructure to maintain the infection prevention practices around the labor room.

However, in the case of the organization of labor room, the condition was not much different. The availability of required labor table on the basis of delivery load, as per the MNH tool kit criteria, was found only 55% and that was a huge discrepancy that increases the unnecessary waiting period for delivery and pushes patients to face more labor pain. Apart from labor table, there were three other accessories, which makes it completely functional, these are Kelly's pad, mattress and Macintosh. Availability of the three accessories were 49%, 49% and 63% respectively, however, there were only 30% facilities where all the labor tables were equipped with all three accessories, that indicated that only 30% labor tables were functional completely.

The availability of attached toilet, 24 hrs water supply by tap and elbow tap in the labor room was 65%, 87% and 18% respectively, that indicated poor infrastructure for infection prevention strategy. On the other hand, the source of light in labor room was natural sun light normally but in the case of emergency, electricity with power back up either by generator or inverter was available in 94% labor rooms.

As per the MNH tool kit, newborn care corner is one an essential part of the labor room and the availability of newborn care corner was adequate and it was present in all labor rooms but the availability of essential accessories, which were indeed necessary for its functionality were the main concern. Only 91% radiant warmers were functional; mucus extractor, Ambu bag, shoulder roll were available in 81%, 29% and 79% facilities only. Subsequently, mask-0 and 1 size were available only in approximately 50% facilities while both were present in only 18% facilities.

### Availability of drugs and trays

To improve the functions and operation in the labor room, 7 trays concept has recently introduced through MNH guidelines, where are the essential commodities kept into the specific tray to use on time during delivery without delay. Surprisingly there was only 1% labor room, where all the seven trays were available. The availability of other trays were approximately 65% except for delivery tray which was present only in 6% labor rooms and labor tray is an essential tray, which uses in every delivery.

Separate mercury based BP apparatus for labor room was only available in 67% facilities and rest of the facilities was using the BP apparatus available in the hospital on the basis of as or when required. However, availability of stethoscope was much better, which was 90% in labor rooms.

As per the norms, few essential drugs and commodities had to be available in the labor room, namely, oxytocin, magnesium sulfate, misoprostol, gentamycin, ampicillin, metronidazole, Vitamin K, dexamethasone and IV fluid ringer lactate. None of the facility contained all the drugs at a time and the range was from 35% to 77% with variability. Oxytocin to protect post-partum hemorrhage after delivery in women and Vitamin K to prevent hemolytic disorders in newborns, which are essential drugs were present only in 50% and 35% facilities respectively. As per the Janani Suraksha Yojna (JSY), all the drugs must be provided by the facilities free of cost but at the ground level availability of drugs was the main challenge, which further increased the out of pocket expenditure of beneficiaries.

### Practices and knowledge of labor room staff

The labor room staff needs to follow some practices in the labor room for quality intra partum care for well-being of mother and newborn. The use of Partograph to track the labor process is mandatory for all deliveries, which was followed by only 9% facilities. Further, knowledge of filling Partograph was also poor among the labor room staffs. Subsequently, knowledge about identification and management of maternal complications such as obstructed labor, preeclampsia was less constituting approximately 50%. Bed head tickets had been used only in 52% facilities to record the status of mothers and newborns.

In the case of newborn management, only 32% staff could explain about essential new born care and 55% knew about new born resuscitation with many discrepancies. 83% staff of facilities reported they promote early initiation of breast feeding and 78% facilities staff knew about 0 dose vaccination.

### Documentation process

The labor room staff is expected to keep 12 records at the labor room as per the norms including Admission register, Bed head ticket, Delivery register, Referral slips, Referral registers, Maternal death register, PPIUCD register, PPIUCD follow up register, Maternal death register, MTP register, Drug stock register, Equipment stock register. The records were maintained by 27-97% labor rooms depending upon the type of registers. The quality of registers was poor, handmade far away from the standard prototype.

### Discussion

The current cross sectional study at the beginning of the program was taken place to assess the available resources and adequacy of the available infrastructure, human resources, equipment, drugs, services to be provided in the labor room, largely looking at the basic commodities, infrastructure, and services related to intra partum care in the labor room that should be available. The study also documented the practices and knowledge of labor room staff and their documentation process under the normal government ambience.

The availability of the Human Resource in terms of Gynecologists, Pediatricians, and Medical officers was the greatest concern at every level (including regular and contractual both). Stefan et al. also suggested that management of human resources is essential to any health care and how it can improve the output [3]. Many workers addressed the importance of human resource management in health care [3,4]. India

is also facing the problem regarding lack of availability of trained and skilled health workers in terms of ANMs, SNs and doctors [4]. Redistribution of human resources in the facilities at the district level has a critical role thereafter [5]. Availability of human resources and its distribution in a country has great impact. Demand for health services in countries depends upon various characteristics such as economic factors, sociodemographic characteristics, etc. [5,6]. There are no clear guidelines from the government to decide from the state level regarding the rational distribution of human resources on the basis of the delivery load. Under the every newborn action plan, A study was conducted in 12 countries of Asia and Africa that also suggested that newborn resuscitation bottleneck is more severe than for essential newborn care [5]. The study also stated that neonatal resuscitation services are more critical at the district level. Subsequently, we found that only 33% facilities labor room staff knew about the essential new born care, but none of them could explain all the key steps of essential new born care. The same situation lies in the case of newborn resuscitation, where 55% labor room facilities staff knew about it while none of them could perform the steps of resuscitation in chronological order. Many models have been adopted worldwide to increase the efficiency of the health system for example outsourcing, contractual, etc. [5,6]. Filler et al. [7] also found that critical steps of resuscitation have not being followed and improved education and further training on resuscitation need to be imparted in labor room team [6]. Furthermore, availability of commodities in the newborn care corner for resuscitation is also an important bottleneck found in our surveys such as availability of functional radiant warmer and Ambu bag was approximately 80%; shoulder roll 29%; either availability of mask 0 or 1 was 50%; availability of both masks was 28% [8].

The clean environment during birth reduces the risk of acquired newborn infection during the intra partum period [9,10]. The base line assessment shows mixed results in the case of infection prevention services. There is three kinds of practices found during infection prevention in the labor room, first is the personal maintenance of hygiene which includes wearing mask and caps or changing sleepers while entering in labor room is approximately 10%. Second is practices during blood exposure which are wearing plastic apron during labor, wearing gloves during examination and wearing gloves for handling infectious waste are 66%, 87% and 75% respectively, Thirdly general infection prevention which includes the availability of 4 color coded bins and preparation of bleaching solution are 24% and 79%. That denotes that health workers give maximum preference to follow practices of infection prevention while exposing to blood contamination related activities and next they focus on routine practices in the labor room and least they give preference to personal hygiene behavior. Rajesh et al. also coated in a study in the Gujarat state of India that 33% facilities didn't have hand free water taps however in our study it was 18% and less than 5% facilities have protocol posters; he also stated that there is strong need to improve information system, protocols and with training and follow up mechanism [11]. UNICEF also identified the same situation in two states of Odisha and Rajasthan, India that general cleanliness and hygiene were absolutely absent, lack of awareness and poor supplies for the hand hygiene practice further increase the chances of exposure to health workers [12].

To determine the standardized infrastructure provision, the referral point is Indian Public Health Standards (IPHS) [13]. It was lacking in most of the cases for the facilities observed during the present investigation which was similar to the earlier one [14]. Similarly, the shortage of drugs in the labor room was quite common. The 10<sup>th</sup> CRM Report mentioned about the inadequate services and supply of drugs in

many parts of nation in the past year 2016 [15]. Though the investigated facilities is small proportion of the country wide facilities but lacking of standards need attention.

The seminal work of Tanahashi [16] to develop coverage models for the evaluation of health services shows highlights the importance of availability of essential commodities such as drugs, vaccines and supplies and availability of human resources such as doctors, nurses, community health workers play key role in adequate functioning of the health system and specifically the delivery of evidence based interventions.

Yentis and Randall [17] conducted a survey of lead obstetric anesthetists in all consultant led maternity units in UK about drug errors and the measures taken to reduce or prevent them. Of the 179 out of 240 (75%) who responded, 70 (39%) knew of at least one drug error in their unit during the last year, with 28 of them (40%) experiencing more than one. The recommended methods for reducing drug errors included use of colored labels, pre-filled labeled syringes, limiting the range of drugs available and keeping drugs in separate trays. Thus it is essential to arrange limited drugs and equipment in labeled and separate trays to ensure that essential medicine and equipment are available and the equipment and trays are arranged for a particular service.

However, in the present study only 1% facility had all the 7 recommended trays by GoI (Government of India). None of the facility contained all the drugs at the time of study, the range of availability of these supplies varied from 35% to 77%. Essential medicines like oxytocin which can prevent post-partum hemorrhage, the leading cause of maternal death – 38% of all maternal deaths, was present only in 56% of facilities; similarly, the recommended antibiotics set of ampicillin, gentamicin and metronidazole were available in 38%, 50% and 54% facilities implying that cases of maternal sepsis neither could be managed nor prevented adequately; magnesium sulphate was present in only 58% of facilities which is required to prevent maternal death from eclampsia and severe preeclampsia. Similarly, only 35% of facilities had Vitamin K that can reduce early neonatal mortality from hemorrhagic disorder; ambu bag was found only in 79% of facilities with 48% facilities having “0” size mask and 51% facilities having “1” size mask which is required to reduce early neonatal mortality from leading cause of neonatal mortality – perinatal asphyxia or only 77% facilities had dexamethasone that can prevent death in preterm newborns. As per the Janani Shishu Suraksha Karyakram (JSSK), all the drugs must be provided by the facilities free of cost but at the ground level availability of drugs and simple equipment is a key challenge which is an obstacle to reduction in maternal and newborn deaths.

Regarding the services, the current base line survey found that only 9% facilities were using the partograph to assess the progress of labor, which is the most important practice for quality intra partum care and also to decide the referral and interventions for complicated deliveries. The present investigation found that negligible use of the Partograph to assess the progress of labor, which is the most important practice for quality intra partum care and also to decide the referral and interventions for complicated deliveries. However, Fawole et al. [18] found similar observations for African nation Their work observed that only 9% facilities in southwest Nigeria have availability of Partographs and 16% staff has the knowledge about Partograph [18].

Documentation process is considered as one of the most important aspect for the preventive services [19]. Poor documentation is a major problem in the public health facilities specially in labor room setting where quality of captured data is incomprehensive, lead to

poor management and planning to improve the outcomes in terms of reducing maternal and neonatal deaths [20]. We found that availability of all records varies facility to facilities and maternal death registers found only at 29% facilities that could give a deeper insight for planning to prevent maternal death further. We also found that quality of captured data was very poor and all the mentioned section were not filled completely. Although guidelines for standard registers have already circulated through MNH toolkit but on most of the places, staff is using hand made, old registers which is incapable to collect data as required for planning to improve services in labor room. A study in Ghana also suggested that trainings to the health worker with follow up mechanism to ensure the quality of data can improve the further planning to achieve reduce the maternal mortality outcomes [21]. Kerber et al. [22] stated that health workers are the main source of collecting data at every steps in health care system to identify the best practices and flaws and that leads to create responsibility based health system not only at managers level but also at other level to reduce the systemic challenges.

## Conclusion

The most important aspect is Human Resource Management in health sector of India followed by improvement in the quality of services. Health care quality refers to both the technical quality as well as sociocultural quality. Identification of the local barriers and incentives based on such researches could prove to be useful for strategize the policy. Ongoing monitoring and action to redress bottlenecks requires this stronger and more systematic assessment of district level causes. Also, there need to maintain health workforce statistics which enable to develop policies ensuring the equitable and effective distribution of the workforce. Existing thresholds for the required number of professional health workers provide valuable references for translating need into indicative workforce requirements. This should be considered part of the process of planning the workforce to meet the needs of the population. The strategy should promote effective coverage with health services staffed by a workforce that is both fit for purpose and fit to practice embedded in the post-2015 development agenda for health which require accountability and reporting mechanism.

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