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Original Research Article

Institutional births analysis from labour room registries in North Indian hilly state

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ABSTRACT

Background: India is the second most populous country in the world contributing to one fifth of global deaths among under 5-year-old children. Of these under 5 deaths, Infant mortality contributes to more than 89% and neonatal mortality is responsible for 70% of IMR. Of the many proximal determinants of neonatal mortality, inadequate utilization of health services and poor skills of health care providers contribute significantly. The lack of data constrains targeted interventions for these. This study is an attempt to analyze the existing data quality along with gaps in the reporting system to initiate timely course correction for improved programmatic outcomes.
Methods: The labour room birth registries from 12 District hospitals and two Government Medical Colleges in the state of Himachal Pradesh (India) were analyzed. The data was extracted from archives in the State Child health Nodal Officer for the year 2017-2018 and 2018-2019.
Results: Over these two years the proportion of institutional delivery has improved. The number of newborns resuscitated remained constant at 4.5%. There was an improved coverage of birth dose immunization. Improvement in Antenatal Corticosteroids coverage among preterm laboring mothers was also observed.
Conclusions: Continuous data analysis for improving its quality to take evidence informed decisions is needed. Hands on skill improvement for staff is need of the hour to ensure timely and maximum returns on investment in reproductive and Child Health program.

Keywords: Institutional delivery, Labour room, Newborn survival

INTRODUCTION

India contributes to one fifth of global deaths among under 5-year-old children.[1] As per the Census 2011 and SRS 2016 birth rate, around 24 million babies are born every year in India, and 8.2 million babies die before one year of age. Of these, 5.7 million death occurs in the first 28 days of life.[2,3] Neonatal mortality contributes to 70% of the infant mortality. The sustainable development goals (SDG) requires India to reduce U-5MR reduce U-5MR by 25 per 1000 live births and NMR from 27 per 1000 live births (in 2015) to 12 per 1000 live births by 2030.[4] In Himachal Pradesh, the SRS 2017 indicator for mortality is U5MR 25, IMR 22, NMR 14.[5]

The neo-natal mortality rate (NMR) has reduced in the last two decades, this decline picking up more pace in the last decade with a reduction rate of 33% compared to 17% in 1990 to 2000.[1] In India, from 2014 to 2016 Infant Mortality Rate reduce from 39 to 34. But the contribution of NMR to the improvement in IMR was very marginal with a reduction in NMR from 26 in 2014 to 24 in 2016.[6]

This slower decline in NMR compared to IMR and U-5MR is responsible for its least contribution to the achievement of SDG.[7]

Evolution of RCH Program in India

Of the growing and emerging economies of the world, India is one of the front runners. However, poverty and inequality is still present between urban and rural population and in between states.[8] Government of India is increasing public health spending by investing and supporting the health infrastructure through National Health mission (NHM).[9-11] Programs like Janani Sishu Suraksha Karyakaram, Janani Suraksha Yojana (JSY) scheme increase the number of hospital deliveries, Integrated Management of Neonatal Childhood Illness (IMNCI), Diarrhea and pneumonia control program manage sick children more effectively for better survival.[7] Immunization against vaccine preventable diseases is reducing under 5 mortality. Studies have reported that about 75% of the total neonatal deaths occur in the first week of life and more than 40% occur in the first 24 hours after birth.[12] Facility-based new born care (FBNC) including New born care corner (NBCC) intervention has been established at the district and sub-district level. These increase the coverage of sick newborn during the greatest risk period that is from birth to first seven days of life addressing the challenge of bringing down the neonatal mortality.[13] Newer interventions like Vitamin K, Antenatal Corticosteroids aim to bring down Newborn mortality further.

Bottle necks

Of the many determinants of neonatal mortality, inadequate utilization of health services, poor governance, shortage of skilled health workers and preparedness of health care facilities for emergencies are few of the major challenges that have been identified.[14,15] A coverage evaluation survey was conducted in 2009 to assess the important indicators that can influence neonatal health. It was found that 73% had institutional delivery, 76% of the babies were breast fed within one hour of delivery and less than half received postnatal visit within 10 days after delivery.[16] Lack of quality data is another determinant. There is large underestimation of maternal, fetal and neonatal monitoring during antenatal and labour period. Data is important in improving public health services and economic planning which extends beyond the health system.

Rationale of the study

Himachal Pradesh is a hilly state with wide peculiar topography and demographic variation which demands public health services tailored to the state.[17] The state has recorded a perennial shortage of medical specialists and other skilled staff members. The Human resource shortage, difficult terrain and poor infrastructure affect the quality implementation of the program including data reporting. This study was planned to check the actual implementation and operationalization of FBNC guidelines in alignment with the instructions issued by government of India from time to time under newborn action plan in the labour rooms.[13,18]

METHODS

This is a retrospective study over two years (2017-2019) duration, comparing the profile of newborns of 2017-18 cohort with the 2018-19 cohort, born in the labour rooms of 12 districts and two Government Medical Colleges of the Indian state of Himachal Pradesh. The data for this study has been extracted from the data archives of the state Child Health Nodal officer for the year 2017-2018 and 2018-2019. Any ambiguity and incompleteness in the data have been discussed with the concerned officials to correct and clean the datasets. The data includes the number of deliveries, proportion of cesarean section, still birth, low birth weight (LBW), Kangaroo mother care provided to LBW babies, as well as information on other services provided during the intra partum period.

The datasets are sourced from the registry established in 2016 in the labour rooms of selected Health facilities. All services provided to pregnant women during active labour admitted in the labour room was entered in this register by staff nurse providing those services. These staff nurses were skilled and trained to provide services, as well as recording them. There were continuous refresher trainings by seniors, colleagues and District officials. Whoever was found to be deficient in service and not in-service quality was given hands on. Random verification of entered data was done by administrative staff of the hospital as well as external supervision to labour rooms and post-natal wards as part of Supportive supervision. Responsibility of local senior administrative staff was fixed for completeness and timeliness of entered data. A monthly summary of this data in standard format was shared with the state headquarter where regular analysis of data was done.

The data was entered and analyzed in MS excel.

RESULTS

The birth registry data showed decline in the total number of institutional deliveries in these selected Public health facilities from 63,042 in 2017-18 to 56,822 in 2018-19 (Table 1). HMIS data during the same period showed the total number of institutional deliveries has increased from 75000 in 2017-18 to 78000 in 2018-19.

The cesarean section rate increased from 16.1% in 2017-18 to 18% in 2018-19. The still birth rate declined from 15.3% in 2017-18 to 13.3% in 2018-19. The proportion of mothers starting breast feeding within one hour of delivery improved to 85%. The Low birth weight birth proportion was constant at 19% with no change over the two years. The Preterm birth reduced from 16.4% to

11.2%of the total live births between 2017-18 and 2018-19. The number of women in preterm labour who were provided antenatal corticosteroids increased from 12.4% in 2017-18 to 24.1% in 2018-19. The number of newborns who required resuscitation at birth was constant at 4.6%. The number of newborns detected with congenital malformations increased from 5% in 2017-18 to 7% in 2018-19. The low birth weight babies provided KMC increased from around 19% in 2017-18 to 22% in 2018-19. The immunization at birth improved for all antigens in the two years (Figure 1).

Table 1: Results.

	2017-2018	2018-2019
Total institutional deliveries	63042	56822
Caesarean section rate/Total deliveries (%)	16.10%	18.05%
Still births rate / 1000 LB	15.30	13.29
LBW rate (%)	19.68%	19.81%
How many LBW provided KMC (%)	22.17%	22.31%
Preterm births %	16.42%	11.20%
% of Preterm mothers received Antenatal CS/ Total live preterm births	12.48%	24.05%
No. of newborns who required resuscitation at birth/Total LB (%)	4.73%	4.61%
No. of newborns breast fed within 1 hour/ Total LB (%)	83.20%	85.54%
No of newborns with Congenital malformations/ 1000 LB (%)	5.04%	6.90%

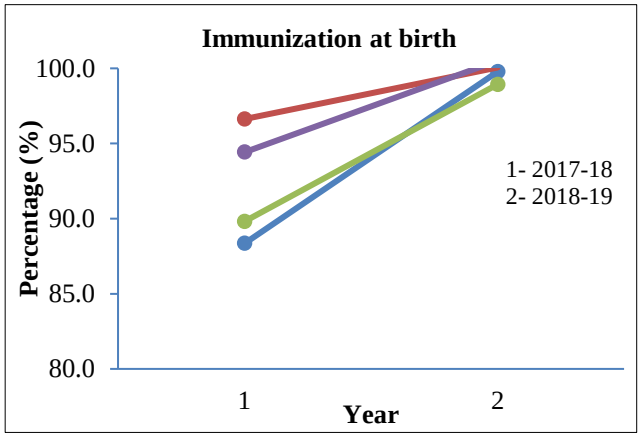

Figure 1: Immunization coverage.

DISCUSSION

Neonatal mortality is a multi-causal phenomenon which is a result of care received during the ante natal, intra natal and post-natal period. This study is an attempt to record some of these parameters to help decide quality of service in labour rooms within state. The monthly collection of the data at the state headquarters and its analysis followed by discussion with concerned staff has improved the quality of services and data reporting. The data also brings into light the lacunae in the service delivery and reporting system.

The present study showed a decline in the total number of institutional deliveries in the public health facilities under review but on analysis of the HMIS data during the same period, the number of institutional deliveries has increased from 75000 in 2017-18 to 78000 in 2018-19 with a decline in proportional home deliveries. This could be attributed to increase number of deliveries in PHC and health subcenters which were not under preview of this study as well in private health institutes. The JSSK and JSY schemes run by the government of Himachal Pradesh has led to increase in institutional deliveries. Also, staff is motivated, more peripheral level public health facilities within state have started conducting deliveries over two year study period which is itself encouraging. It is accepted that absence of total delivery data from all labour rooms of the state, including home and referral is a limitation.

In the present study, the cesarean rate has seen increase while the still birth has declined from 15.3% to 13.3% (Table 1). As per India Newborn Action Plan, the goal for reduction of the still birth rate should be 16.6% by 2020 and 13.3% by 2025.[18] The reduction can be attributed to improved antenatal care and timely referral to higher centers for delivery in case of complicated pregnancy. With this decline in the still birth, it is expected that Himachal Pradesh can achieve the single digit target for still birth by 2030.

In this study, the rate of antenatal corticosteroid (ACS) administration against the total preterm births has improved (Table 1) from 12.4% in 2017-18 to 24.1% in 2018-19. This is supported by the regular capacity building at the district and monitoring by the state to improve the ACS administration. This also indicates the improved availability of Dexamethasone which is now an essential drug.

The improved proportion of mothers starting breast feeding within one hour of delivery to 85% happened due

to sensitization of staff on IYCF feeding practices soon after birth. As per the India Newborn Action Plan, the target for 2017 was 75% and 2020 is 90% which seems to be achievable for state.[18]

As depicted in the results, prevalence of low birth weight was constant at 19% and LBW babies who received KMC was constant at 22%. This proportion was quite low compared to the target set by INAP to achieve rate of 35% by 2017, and improving KMC care to 90% by 2030.[17] This indicates more emphasis and training on KMC to be imparted to health staff and improve Kangaroo Mother Care provision to LBW newborns.

Another important finding of the study was the number of newborns requiring resuscitation, which was a constant 4.5%. Various earlier studies suggest birth asphyxia rates to be 10% of all live births. The proportion of newborns requiring resuscitation is very less compared to a study conducted in Bihar, where the number of newborns resuscitated at NBCC was 23.5%.[19] Extrapolating this data, the number requiring resuscitation should have been more. Whether the number reported in the present study was under reported and the health care provider needed refresher training on newborn resuscitation, this issue was addressed during review meetings at blocks and districts. Data was verified with number of neonates admitted with asphyxia to SNCU.

A critical concept which emerged was although the staff members were regularly trained on newborn care guidelines from time to time, this did not translate into quality services, owing to various factors like shortage of staff at the facilities in proportion to the delivery load, frequent transfers of trained staff and inadequate supervision.

CONCLUSION

With the launch of NRHM, a great effort has been put to improve the survival of new born, yet the results have been very slow to reach the MDG now the SDG target. A reliable documentation and continuous monitoring of program is required to improve the quality of care. An already established NBCC and newborn units under FBNC needs to be monitored on a regular basis to apprehend lacunae's for early intervention and correction. Good quality of data continuous hands on training will improve the output of child health indicators.

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