

Improving the Breastfeeding Practices in Healthy Neonates During Hospital Stay Using Quality Improvement Methodology

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Objective: To demonstrate the applications of the principles of Quality Improvement (QI) in a tertiary-care centre with the aim to improve the breastfeeding practices during hospital stay.

Methods: An operational team was formulated to identify the reasons for low proportion of exclusive breast feeding (EBF) in healthy neonates. Reason specific solutions were proposed, discussed, prioritized and tested using Plan-Do-Study-Act Cycle (PDSA Cycle). Strategies included clear departmental policy plan and creation of Breastfeeding support package (BFSP). PDSA cycles were tested and implemented over 6 weeks period and its

sustainability was measured monthly for five months duration.

Results: After implementation of PDSA cycles, the proportion of neonates receiving early breastfeeding within one hour of birth increased from 55% to 95%, and the proportion of neonates on EBF during hospital stay increased from 72% to 98%.

Conclusion: Quality Improvement principles are feasible and effective to improve breastfeeding practices in the hospital setting.

Keywords: Breastmilk, Baby friendly hospital, Exclusive breastfeeding, Intervention.

Breastmilk is safe, available, affordable and one of the most effective ways to ensure child health in developing countries [1,2]. According to UNICEF, only 39% of infants 0-5 month-old in the developing world are exclusively breastfed (EBF). About 1.45 million lives are lost due to suboptimal/breastfeeding in developing countries per year [3,4]. NFHS 4 data for 15 states from India shows rise in institutional deliveries to 82.2%, with initiation of early breastfeeding stagnant at 47.7%, and EBF values of 40% for the first six months of life. This study aimed to improve the breastfeeding practices during hospital stay, as hospital-based practices affect the duration and exclusivity of breastfeeding throughout the first year of life. The two main objectives were to increase the proportion of neonates receiving early BF within one hour of birth from 55% to 90% and neonates on EBF at the time of discharge from the hospital from 72% to 90%, over a period of six months using principles of Quality improvement.

METHODS

Mother-newborn pairs who were healthy and delivered vaginally were included. Newborns delivered by lower segment caesarean section, critically sick neonates, preterm neonates not on breastfeeding/expressed breast

milk, neonates of retro-positive mothers who declined breastfeeding, and neonates having major congenital malformations requiring surgical intervention were excluded (**Fig. 1**).

A team consisting of faculty members from departments of Pediatrics, Obstetrics and Community Medicine; health educator; a nutritional counselor; the sister in-charge of the labor room, and a staff nurse from postnatal ward was constituted to evaluate the reasons for Non-exclusive breastfeeding (NEBF) and to plan the strategy for the promotion of optional breastfeeding practices. A baseline survey was conducted by the Nutritional counselor for three days/week from 10:00 to 12:00 Hr and 14:00 to 16:00 Hr every day in December 2016, to know the prevailing breastfeeding practices. It highlighted poor adherence to standard guidelines, inappropriate provision and promotion of infant formula. Focussed Group discussions (FGDs) were followed by fish bone analysis, which revealed that the reasons for NEBF were related to policy, people, place and processes. Lack of knowledge, sensitization of health care providers and lack of support for the mothers were few of the vital reasons limiting the BFP (**Web Fig. 1**).

Suggested solutions were prioritized and each proposed solution was considered as a change idea and

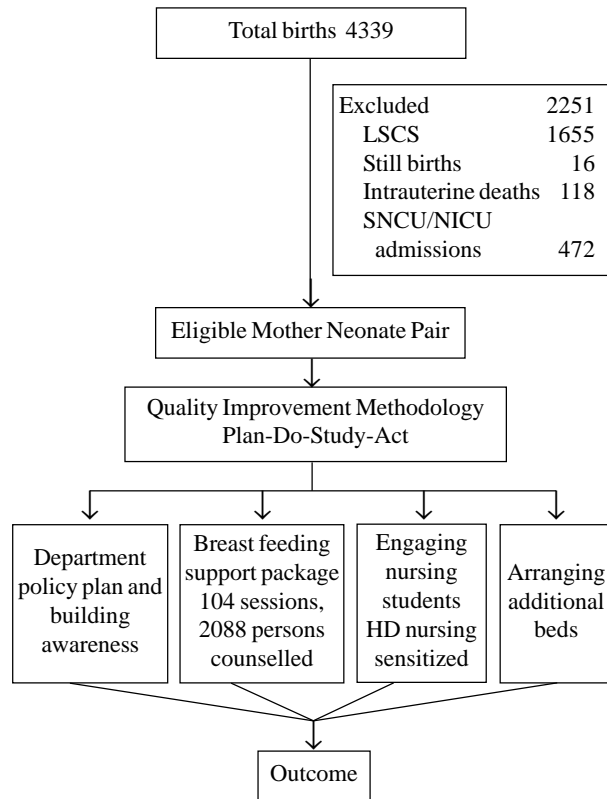


FIG. 1 Study flow chart.

was tested on five mothers for one day in order to adopt or adapt the proposed solution. There were four change ideas which were applied weekly for the period of six weeks. The data was collected after each Plan-Do-Study-Act (PDSA) cycle for 3 days/week for six weeks initially to see the feasibility. To assess the sustainability of the Quality-improvement (QI) practices, subsequent data collection was done monthly for a period of five months in a manner similar to the baseline assessment. The team met weekly for six weeks, followed by monthly meetings for five months. The change ideas were implemented as PDSA Cycles in accordance with QI principles.

PDSA Cycle I: Department policy plan and building awareness amongst health care providers: A policy plan regarding breastfeeding practices was circulated amongst all health care providers with the emphasis on not prescribing formula feed unless clinically indicated. To create awareness in healthcare providers, FGDs with residents, in-charge sisters and nursing sister of labor room and sick newborn care unit (SNCU) were carried out. A poster was displayed in the labor room for dissemination of the information.

PDSA II: Breastfeeding support package: The data showed that merely building awareness and making

policy clear, changes the pattern of breastfeeding practices; through, some resistance from the mothers and their attendants was observed. During third week, team came up with the idea of delivering a BFSP, the components are depicted in **Box I**.

PDSA III: Engaging nursing students: To deliver BFSP to each and every mother, team decided to engage nursing students present in all the shifts in the labor room and postnatal ward. Nursing students were sensitized under the supervision of health educator and counselor. Finally, nursing students started providing BFSP throughout their posting.

PDSA IV: Arranging additional beds: Although data started showing improvement in the BFP, team realized that mothers are shifted soon after delivery from labor room to postnatal ward, which was making early initiation of BF difficult. Hence, to provide bedding-in facility, the team arranged additional 10 beds for mothers outside the labor room in the fourth week. The additional benefits were prolonged observation of mothers for any complications after delivery and their counselling on nutrition and family planning which was missed earlier.

The team members shared the results of interventions and gave continuous feedback to staff and resident doctors involved in clinical care.

RESULTS

In the baseline survey, out of total 280 healthy neonates, 154 (55%) had received early breastfeeding. Out of remaining 126 (45%), 78 (28%) had received non-breast milk supplements and 48 (17%) received nothing. During hospital stay, 78 (28%) of the healthy neonates were not on EBF. These neonates were receiving either infant formula feed or mixed feeds (breastfeeding along with formula feed). Amongst total 280 mothers, 154 (55%)

Box I COMPONENTS OF BREASTFEEDING SUPPORT PACKAGE

- Counselling of the mothers and attendants in the group of 15-20, on breastfeeding practices and its benefits, in the labor room and postnatal ward using IYCF (Infant and young child feeding) guidelines.
- One ear-marked SNCU nursing sister to be posted in each shift in the labor room - NBCC (Newborn Care Corner) to ensure early initiation of breast feeding.
- Additional support was provided by the nursing staff in the postnatal ward to provide practical help to the mothers.

WHAT THIS STUDY ADDS?

- Quality Improvement principles are feasible and effective to improve exclusive breast feeding practices in the hospital-setting.

were primigravida. About one third of multiparous mothers had unsatisfactory experience of breastfeeding due to poor positioning and poor attachment.

After four PDSA cycles, the proportion of neonates receiving early breastfeeding within one hour of birth increased from 55% to 95% and the proportion of neonates on EBF during hospital stay increased from 72% to 98% (*Fig. 2 a and b*).

The assessment for sustainability for five months revealed that trend of improved BFP remained above 95%. To ensure smooth running of system, healthcare providers were oriented on optional breastfeeding practices at the time of their joining.

DISCUSSION

Low- and middle-income countries lose more than \$70 billion annually due to low rates of breastfeeding. Universalization of breastfeeding in India may reduce 1,56,000 under-5 deaths, 39,00,000 episodes of diarrhea, 34,36,560 episodes of pneumonia and 7,000 deaths due to breast cancer annually [1,2]. Our root cause analysis showed widespread use of NEBF to be due to poor antenatal care, and lack of information on optimal infant feeding, especially EBF, given by health workers at health institutions. This study revealed that lack of early initiation of BF, lack of bedding-in facility and not giving

EBF during their last pregnancy was associated with NEBF. Inappropriate provision and promotion of infant formula were common, despite evidence that such practices reduce BF success. These findings are in accordance with the available literature [5-7]. In our study, rates of early initiation of BF and EBF increased significantly during hospital stay. It showed sustainability of 95% even after 6 months of implementation. These results show impact similar to the previous work done to improve EBF rates using QI principles [8-12].

Our study showed processes and system changes resulted into improvement in BFP. Important reductions in morbidity and health care costs with a positive public impact are possible if our method of QI is widely disseminated. A study on impact of optional breastfeeding practices BFP during hospital stay on continuation of EBF upto 6 months of age could have strengthened our study results.

The present study suggests that QI principles are feasible and lead to improved rates of BFP during hospital stay. This is a single centre QI initiative done with the involvement of existing caregivers and executed without any external funding in the form of manpower or financial assistance, which suggests the importance of simple and feasible QI principles using team approach. Formation of a breastfeeding support group is the next

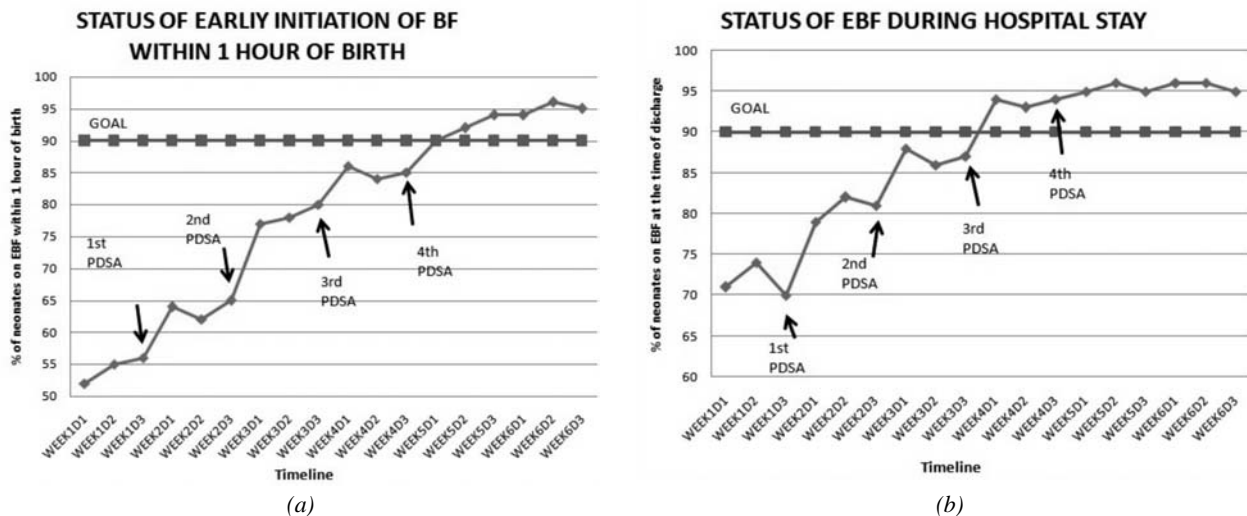


FIG. 2 (a) Status of early initiation of breastfeeding within one hour of birth; (b) Status of exclusive breastfeeding during hospital stay.

step to sustain these practices. This QI initiative has helped our institute to improve breastfeeding practices by transforming maternity practices to better support mothers who choose to breastfeed. Such efforts, could affect both initiation and duration of breastfeeding, with substantial, lasting benefits for maternal and child health.

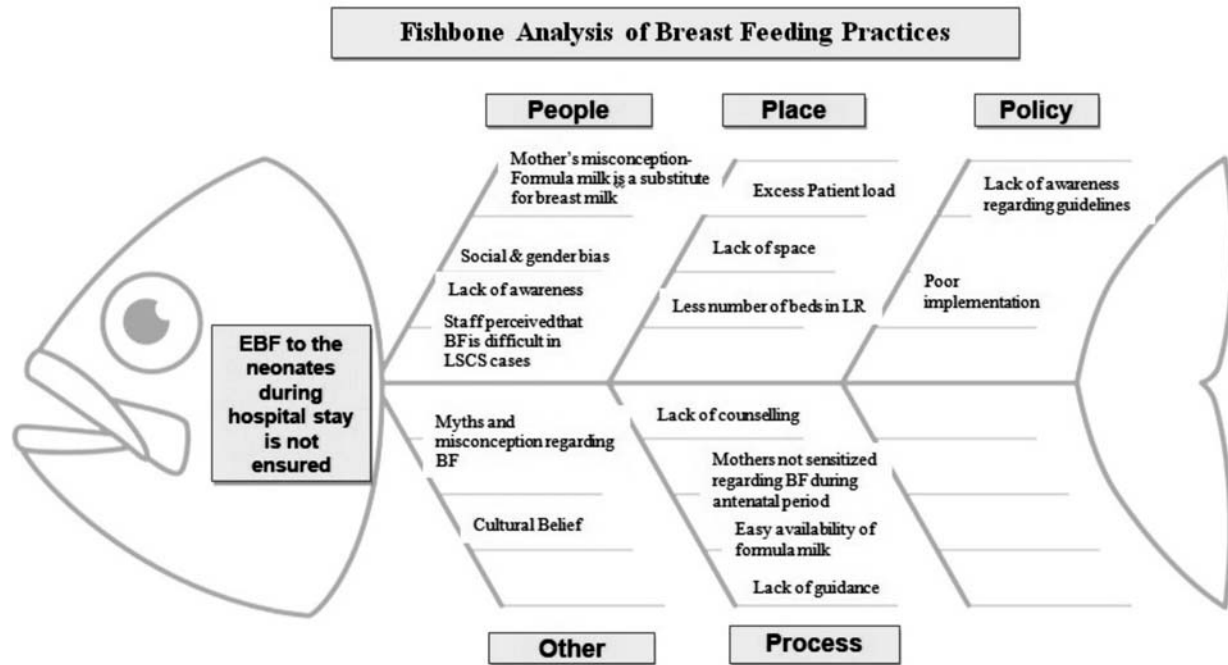
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WEB FIG. 1 Fishbone Analysis of Breast Feeding Practices.