

Original Research Article

A quality improvement study on breastfeeding initiation rate within 1 hour of life in inborn neonates in a tertiary care centre

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ABSTRACT

Background: Breastfeeding is a well-established key of success to improve the outcome in neonates. Early initiation of breastfeeding in neonates refers to the provision of mother's milk to their own babies as early as possible after delivery. Despite the established benefits of breastfeeding, early initiation of breastfeeding is found to be suboptimal in our country. Early initiation of breastfeeding has many challenges like no bedding in, availability of lactation counsellors and staff nurses, procedural delay (episiotomy, skin suture) and shifting from the recovery room. Objective of the study was to improve the rate of initiation of breastfeeding stable term and preterm neonates within 1 hour of life in both normal vaginal delivery and caesarean section conducted in our hospital from baseline to 95% over 3 months period by Quality improvement approach.

Methods: Eligible inborn mother-infant dyads were enrolled in this study. A team formed, baseline data and rate of early initiation of breastfeeding collected and factors for delayed initiation analysed by Flowchart process, Fishbone analysis and 5 why's, 3 PDSA cycles were done.

Results: Total 50 mother-infant dyads assessed. Rate of early initiation of breastfeeding within 1 hour of life increased from 25% to 100% over 3 months.

Conclusions: This quality improvement study was able to accomplish sustained improvement in the rate of breastfeeding the neonates in the first hour of life.

Keywords: Breastfeeding, Early initiation, Neonates, Plan-do-study-act cycle, Quality improvement

INTRODUCTION

Neonatal mortality is nearly half of under-five mortality rate.¹ Initiate breastfeeding as soon as possible after birth to improve neonatal survival and long term outcome.^{2,3} Breastmilk is safe, available, and affordable and most effective.^{4,5} According to NFHS-4 and NFHS-3, 41.6% and 23.4% neonates in India were breastfed within one hour of birth respectively.⁶ Caesarean section babies are four times less likely to breastfeed within one hour of

birth.⁷⁻⁹ This study was performed to improve the rate of early initiation of breastfeeding in the setting.

Aim of the study was to increase the percentage of initiation of breastfeeding in stable term and preterm neonates within one hour of life.

Objectives of the study was to improve the rates of early initiation of breastfeeding within one hour of life in stable term and preterm neonates delivered in the hospital from

baseline to 95% over 3 months period by quality improvement method.

METHODS

Quality improvement Study was done on inborn mother-infant dyad satisfying inclusion criteria and none of the exclusion criteria in a tertiary care centre from July to September 2019 approved by Institutional Ethics Committee

Inclusion criteria

All live births with Gestational Age \geq 34 weeks.

Exclusion criteria

- Active untreated TB mother or on certain drugs.
- Less than 34 weeks gestational age
- HIV positive mothers and sick mothers.
- Galactosemia.
- Cardiorespiratory instability or encephalopathy.
- Life-threatening congenital malformations.

This study was done according to the Institute for healthcare improvement model. Team Leader, 2 Obstetricians, 1 Neonatologist and 3 nurses formed a team which met twice a month. Baseline breastfeeding rate was measured and process mapping was done. Barriers and bottlenecks were discussed using fishbone analysis and 5 why's in both vaginal and caesarean deliveries. 3 PDSA cycles were done. Percentage improvement in early initiation of breastfeeding rates after each PDSA cycle calculated and sustenance monitored using run charts. Data were entered in Microsoft Excel and analysed. Categorical data were expressed in number and percentage. Continuous data of normal distribution were expressed as mean and standard deviation. Skewed data were expressed using the median and interquartile range, p-value of <0.05 was taken as statistical significance.

PDSA Cycle I: As one of the key bottleneck was lack of awareness among health care professionals about early initiation of breastfeeding within one hour of life, awareness was raised among them by pediatric residents about early initiation of breastfeeding. Short term and long-term benefits including mortality and morbidity were also discussed by a small group discussion in the labour room and OT complex. They were made aware of the national policy of early initiation of breastfeeding irrespective of the mode of delivery within 1 hour which needs to be practiced. A recent change in a staff posting in the labour room and theatre was present which was one of the reasons for lack of awareness. Initial resistance from anesthetists and obstetricians regarding new ideas, uncomfortable in adapting the new ideas and which later settled due to the national policy which had to be practiced and knowing its benefits for mother and baby. It was planned to maintain regular discussions and feedback

from health care providers especially when the new staff comes in.

PDSA II: Documentation in the case sheets of time of initiation of first breastfeeding made compulsory using seal. Continuous surveillance of documentation whether initiation of breastfeeding within an hour or delayed was done. The reasons for delayed initiation was also documented in case sheets, once again confirming whether it was missed the opportunity or true indication for delayed initiation.

PDSA III: Mothers were not shifted to the postnatal ward in view of post anesthesia observation care in OT complex. Hence, to provide early breastfeeding, the team appointed a dedicated lactation supporter for each shift who ensured early initiation of breastfeeding inside the OT complex itself. She also ensured the correct position and attachment during breastfeeding subsequently. If required extra support was provided by the nursing staff in the postnatal ward to provide practical help to the mothers. Compulsory documentation in daily progress notes was done and the checklist was maintained. Mothers were also made confident by providing practical support.

RESULTS

Baseline data was collected. Total of 64 deliveries had happened over 3 months period, 50 neonates were eligible for the study. A baseline process flowchart indicating all the steps, a fishbone diagram and 5 why's highlighting the possible root causes of delay in initiation of feeds were made (Figure 1,2,3).

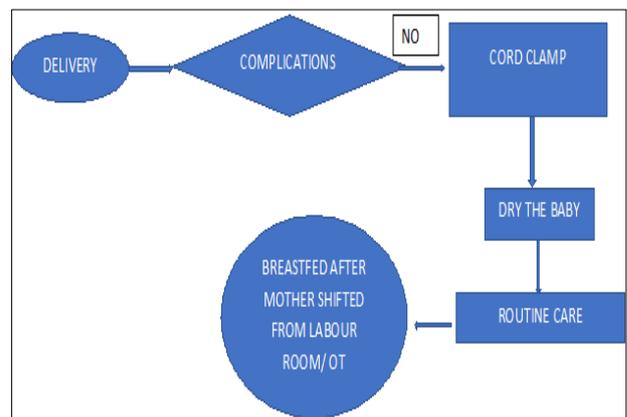


Figure 1: Baseline process flow chart depicting from delivery to initiation of breastfeed.

After Routine newborn care, weighed the baby, vitamin K injection is given, then the mother shifted from the recovery room, so there is a delay in breastfeeding initiation. Hence babies were fed within the LR-OT complex during cesarean section itself assisted by a trained person. The OT staff nurse would help the mother to hold the baby in her breast. The Median time of

initiation of breastfeeding is 30 and 55(50-75 minutes) minutes for vaginal delivery and cesarean sections respectively. A changed flowchart was drafted about the suggested new process and circulated among the doctors and nurses. The change idea was systematically expanded to include subsequent deliveries in subsequent PDSA cycles (Table 1).

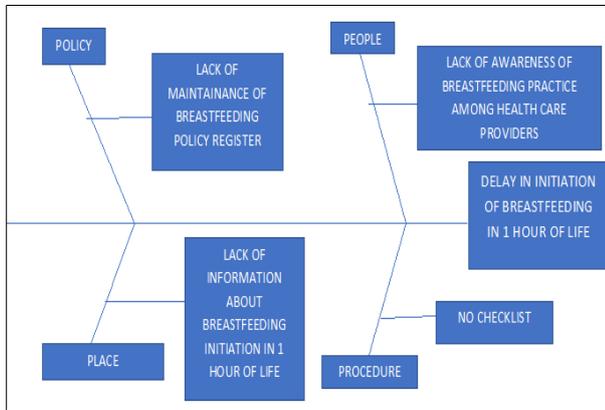


Figure 2: Fishbone diagram of possible reasons for delayed initiation of breastfeeding after baby delivery.

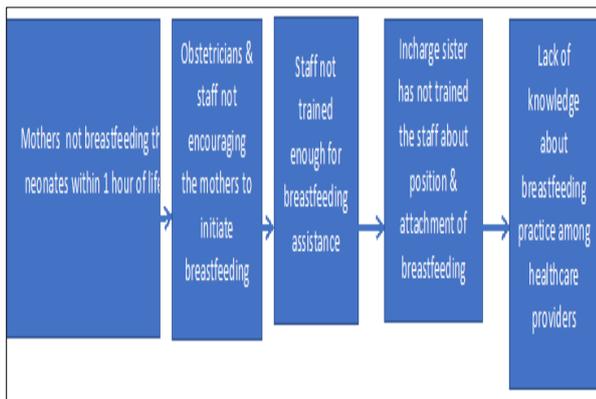


Figure 3: 5 whys for delayed initiation of breastfeeding after delivery.

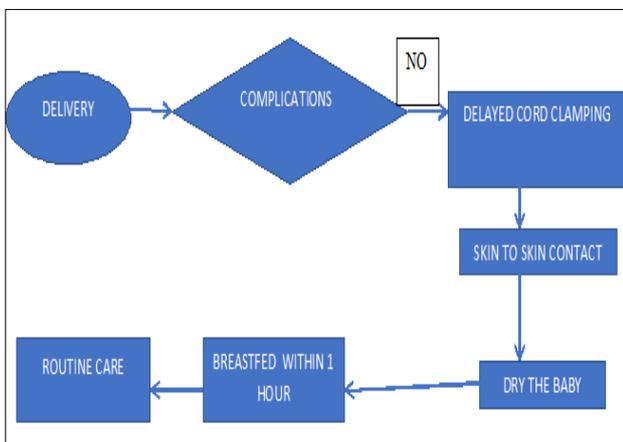


Figure 4: The process of deliveries until breastfeeding initiation with change ideas.

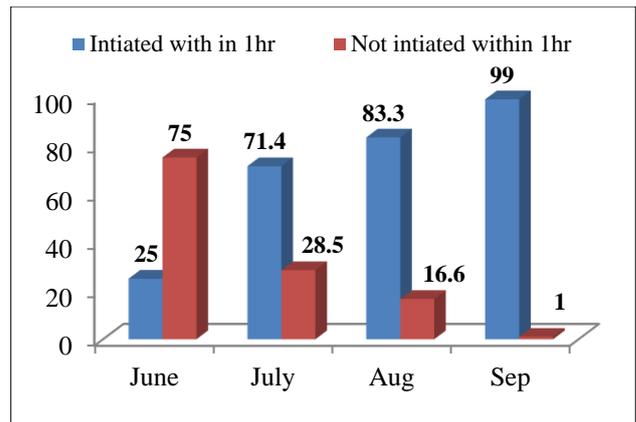


Figure 5: Improvement in the rate of initiation of breastfeeding within 1 hour of life from baseline over 3 months period.

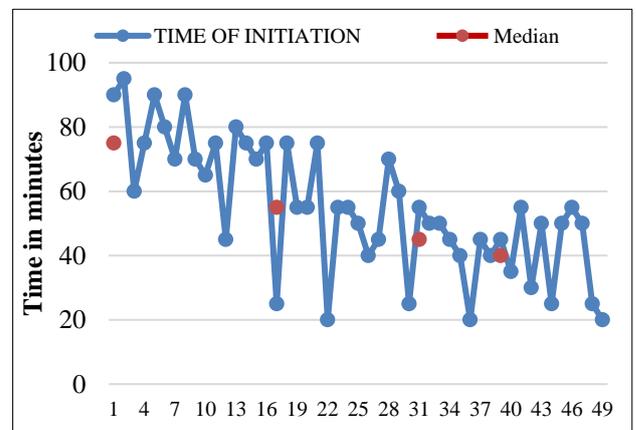


Figure 6: Compliance to first hour breastfeed initiation gradually improved to well above the goal by PDSA-3 (100%).

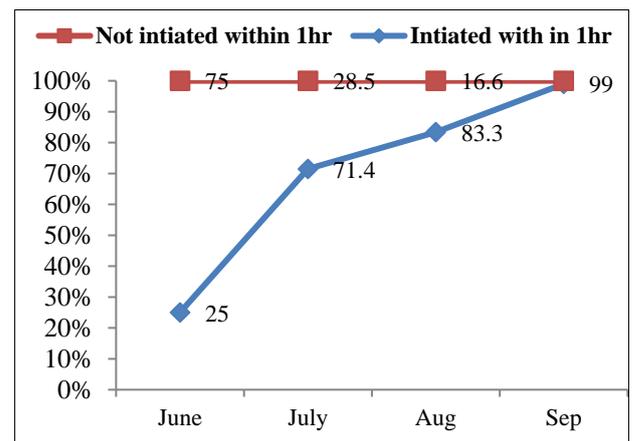


Figure 7: Improvement in the rate of initiation of breastfeeding within 1 hour of life from baseline over 3 months period.

The breastfeeding rate increased from baseline to 100% over 3 months period (July to October 2019) (Figure 5, 6 7).

Table 1: Details of all plan-do-study-act cycles.

PDSA	Plan	Do	Study	Act
1	Assess the feasibility of Early breastfeeding initiation	Awareness among health care providers by residents using group discussion and training	Improved to 71%	Maintain regular discussions and feedback from health care providers
2	Assess the rate of initiation of breastfeeding	Documentation with a seal in notes.	83% compliance	Maintain checklist
3	Assess breastfeeding initiation time	Baby put to breast inside OT and Labour room, then routine care	100% Compliance	Mother satisfied and confident

DISCUSSION

Author have demonstrated a significant and sustained improvement in first-hour breastfeeding initiation rates in inborn neonates by using sequential 3 PDSA cycles. By group discussions and one-to-one, discussions-doubts were clarified, and staff members gradually adapted the change idea. WHO recommends that breastfeeding should be initiated in all newborns within one hour of life.¹ Keys to successful breastfeeding include breast crawl after birth, initiation within the first hour of birth.⁷

Analysis of a large cohort of nearly 100,000 newborns from three large trials in India, Ghana and Tanzania showed that the risk of neonatal death was 41% and 79% higher among children who started breastfeeding between 2-23 hours and 24-96 hours after birth compared to infants who started breastfeeding within the first hour of life.¹⁰ A study about the early initiation of breastfeeding within 1 hour of life has multiple benefits for both mother and baby.^{4,5} Breastfeeding after one hour doubles the neonatal mortality rate.^{3,9} The introduction of breastfeeding within the first hour of life reduced deaths in Nepal by 19% and in Ghana by 22%.^{10,11}

Knowing the consequences of delayed initiation of breastfeeding, team approach with small simple measures which will have a high impact with almost nil cost can be achieved with quality improvement initiative.¹² This will also help us practice evidence-based medicine translating research to practical application making bench to bedside practice. This will also help in formulating standard operating procedures in postnatal care. In this study, team members were involved to diagnose the root causes of the problem. The ideas described here can be easily tested in the health set-ups to achieve early initiation of breastfeeding in cesarean born or vaginally born babies. Similar quality improvement studies had been undertaken but the factors involved in each centre may be different.^{12,13}

CONCLUSION

Author have shown improvement in the first-hour breastfeeding rate over a short span of time. To sustain

this improvement, need to continue the measures of bedside lactation counsellors, documentation with a seal in routine notes, checklist maintenance and training of staff nurses. This will improve the maternal confidence about breastfeeding and neonatal outcome in the long run.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO. Early initiation of breastfeeding. Available at: https://www.who.int/Elena/Titles/Commentary/Early_Breastfeeding/En/. Accessed 9 December 2019.
2. Khan J, Vesel L, Bahl R, Martines JC. Timing of breastfeeding initiation and exclusivity of breastfeeding during the first month of life: effects on neonatal mortality and morbidity--a systematic review and meta-analysis. *Matern Child Health J.* 2015 Mar;19(3):468-79.
3. Edmond K, Newton S, Hurt L, Shannon C, Kirkwood B, Mazumder S, et al. Timing of initiation, patterns of breastfeeding, and infant survival: prospective analysis of pooled data from three randomised trials. *Lancet Glob Health.* 2016 Jan 1;4.
4. WHO. Planning guide for national implementation of the Global strategy for infant and young child feeding. Available at: https://www.who.int/maternal_child_adolescent/documents/9789241595193/en/. Accessed 9 December 2019.
5. Breastfeeding | Nutrition | UNICEF. Available at: https://www.unicef.org/nutrition/index_24824.html. Accessed 9 December 2019.
6. National Family Health Survey. Available at: http://rchiips.org/nfhs/factsheet_nfhs-4.shtml. Accessed 9 December 2019.
7. Rowe-Murray HJ, Fisher JRW. Baby friendly hospital practices: cesarean section is a persistent barrier to early initiation of breastfeeding. *Birth Berkeley Calif.* 2002 Jun;29(2):124-31.

8. Mikiel-Kostyra K, Mazur J, Wojdan-Godek E. Factors affecting exclusive breastfeeding in Poland: cross-sectional survey of population-based samples. *Soz Praventivmed.* 2005;50(1):52-9.
9. Hobbs AJ, Mannion CA, McDonald SW, Brockway M, Tough SC. The impact of caesarean section on breastfeeding initiation, duration and difficulties in the first four months postpartum. *BMC Pregnancy Childbirth.* 2016 Dec;16(1):90.
10. Tawiah-Agyemang C, Kirkwood BR, Edmond K, Bazzano A, Hill Z. Early initiation of breast-feeding in Ghana: barriers and facilitators. *J Perinatol Off J Calif Perinat Assoc.* 2008 Dec;28 Suppl 2:S46-52.
11. Bhandari S, Thorne-Lyman AL, Shrestha B, Neupane S, Nonyane BAS, Manohar S, et al. Determinants of infant breastfeeding practices in Nepal: a national study. *Int Breastfeed J.* 2019 Apr 3;14(1):14.
12. Sharma S, Sharma C, Kumar D. Improving the Breastfeeding Practices in Healthy Neonates During Hospital Stay Using Quality Improvement Methodology. *Indian Pediatr.* 2018 Sep 1;55(9):757-60.
13. Dudeja S, Sikka P, Jain K, Suri V, Kumar P. Improving First-hour Breastfeeding Initiation Rate After Cesarean Deliveries: A Quality Improvement Study. *Indian Pediatr.* 2018 Sep 1;55(9):761-4.

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