

# Perinatal factors associated with initiation of breastfeeding following very preterm birth <29 weeks in Manitoba.

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## BACKGROUND

The current recommendation of the World Health Organization (WHO), supported by the Canadian Paediatric Society and Health Canada is for exclusive breastfeeding for the first 6 months of life and continued breastfeeding for up to 2 years of age and beyond. The benefits of breastfeeding extend from preterm neonatal benefits of decreased rates of necrotizing enterocolitis (NEC), severe retinopathy of prematurity (ROP), and mortality to maternal benefits of decreased rates of type 2 diabetes mellitus, breast and ovarian cancer, and postpartum depression. Although these benefits are widely recognized, mother's own milk-feeding is difficult to establish in the preterm population and these neonates are at particular risk for not breastfeeding.

## OBJECTIVE

To determine the feeding trends and perinatal characteristics associated with breastfeeding amongst very preterm neonates <29 weeks' gestation.

## METHODS

This was a retrospective cohort study using a national neonatal database. Preterm neonates delivered at less than 29 weeks and admitted to either of two level III neonatal intensive care units in Winnipeg, Manitoba between January 1, 2015 and December 31, 2018 were eligible for inclusion. Maternal demographics, obstetrical complications, birth events and postnatal factors were recorded in the database by trained abstractors using standardized definitions. Using this data, the primary outcome was to determine local initiation and continuation rates of feeding with mother's own milk (MOM) amongst very preterm neonates. The secondary outcome was to identify the perinatal factors associated with non-initiation of MOM feeds and/or discontinuation prior to hospital discharge. Descriptive and inferential statistics (student t-, chi-square, and Wilcoxon rank-sum tests) were used to present results and compare outcomes between groups. Prevalence of feeding trends were calculated for the total study period and annually.

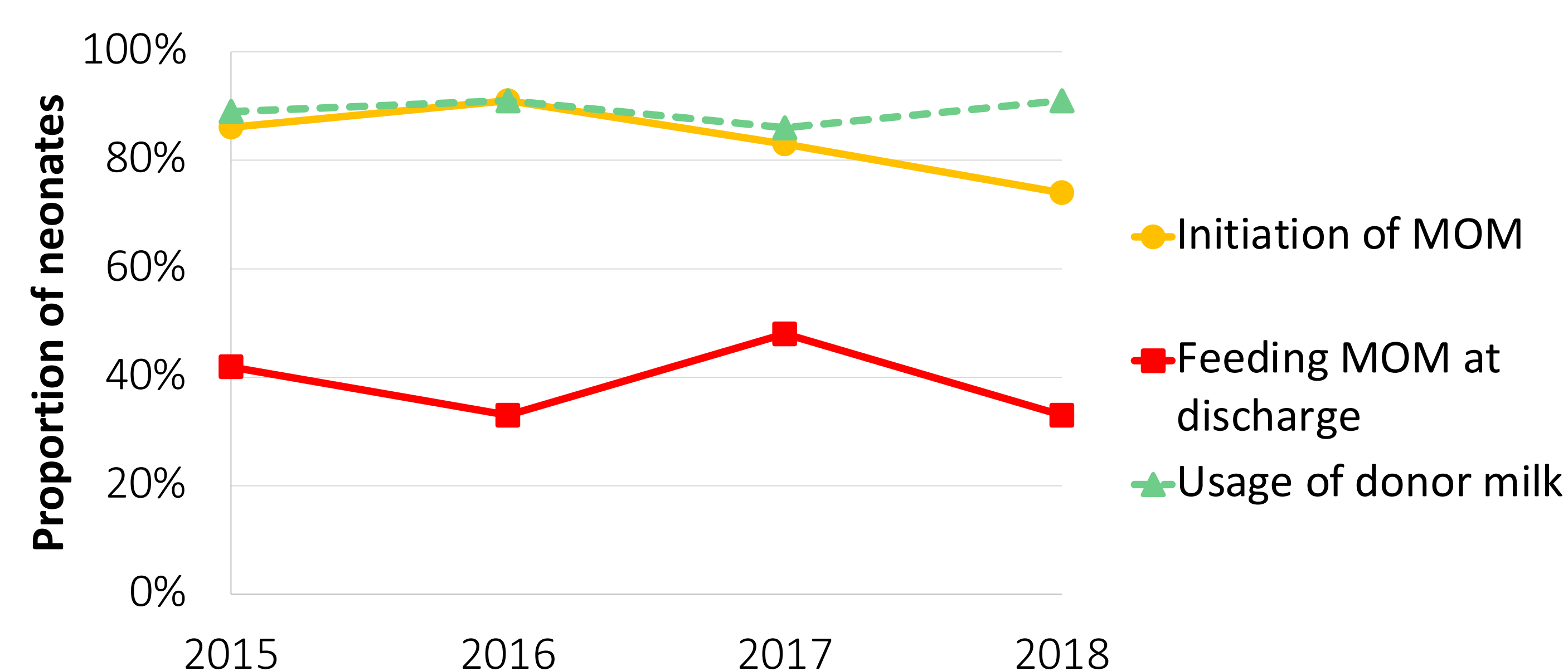


Figure 1. Trends in initiation and continuation of feeding MOM and usage of donor milk by year of study.

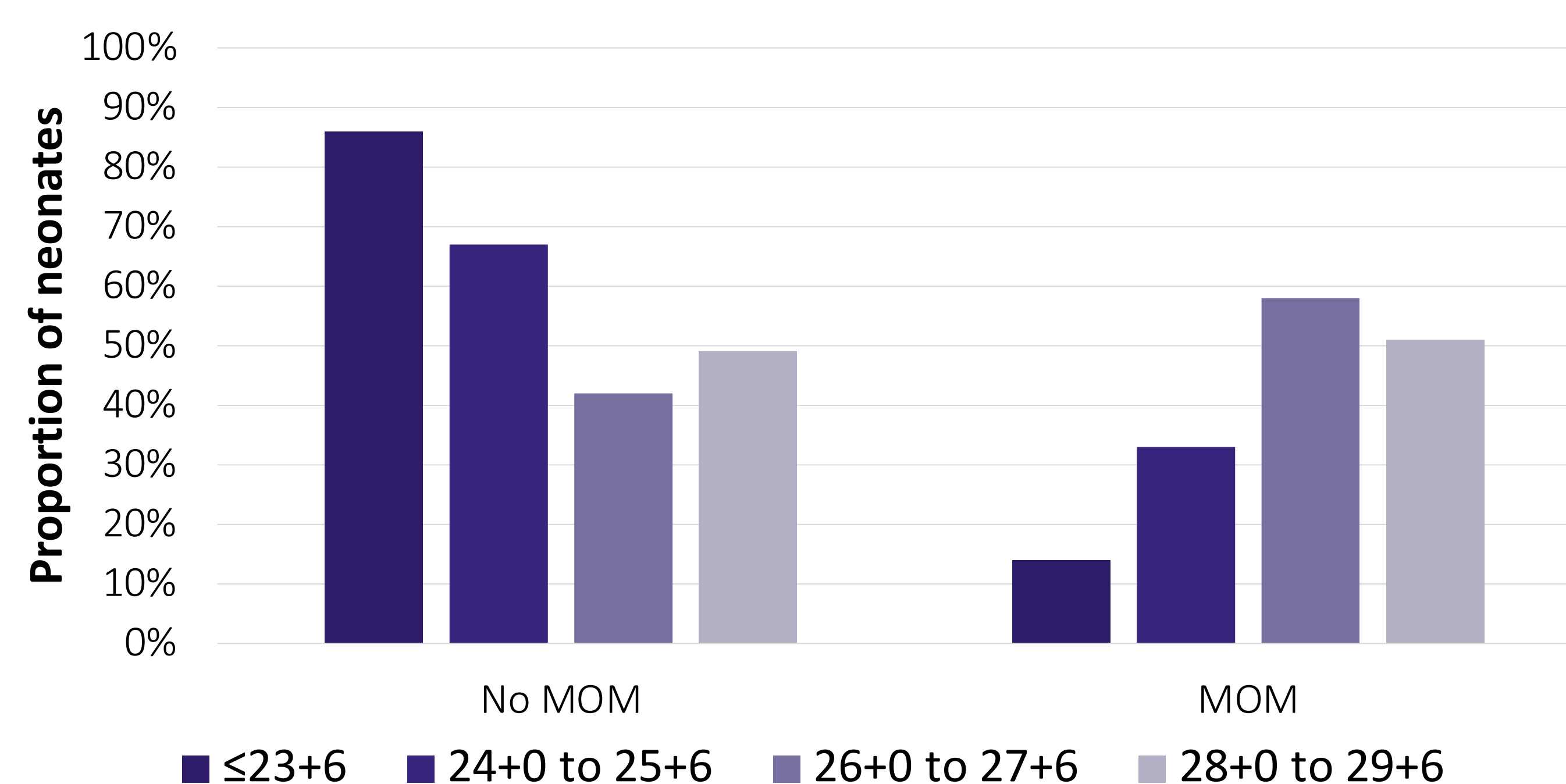


Figure 2. Proportion of neonates receiving no MOM versus those receiving MOM on the day prior to discharge by gestational age epoch

## RESULTS

302 neonates born at less than 29 weeks met study criteria and were included for analysis. Of these neonates, 84.1% initiated feeding of MOM but only 40.4% continued feeding to discharge from hospital. There was no change in the rates of discontinuation of MOM-feeding throughout the 4-year study period, but there was a significant reduction in initiation rates ( $p < 0.0001$ ; Figure 1). The perinatal factors negatively associated with initiation of MOM-feeding were multiparity ( $p = 0.0001$ ) and cigarette smoking ( $p = 0.0011$ ) (Table 1). Discontinuation of MOM during NICU admission was

Table 1. Pregnancy factors and early neonatal events by receipt of MOM on the day prior to discharge from hospital.

| Variable                     | No MOM on the day prior to discharge (n=105) | Any MOM on the day prior to discharge (n=95) | p-value |
|------------------------------|--|--|---------|
| Maternal age                 | 29.6 ± 6.9                                   | 31.6 ± 4.8                                   | 0.0195  |
| Smoking                      | 19 (18)                                      | 2 (2)  | 0.0002  |
| Parity >1                    | 46 (44)                                      | 19 (20)                                      | 0.0003  |
| Gestational age              | 25.8 ± 1.7                                   | 26.5 ± 1.3                                   | 0.0014  |
| Caesarean delivery           | 48 (46)                                      | 52 (55)                                      | 0.2048  |
| Antenatal corticosteroids    | 90 (86)                                      | 85 (89)                                      | 0.4313  |
| Birth weight                 | 937 grams ± 262                              | 998 grams ± 200                              | 0.0678  |
| Male sex                     | 56 (53)                                      | 47 (49)                                      | 0.5893  |
| 5-min Apgar <7               | 51 (49)                                      | 38 (40)                                      | 0.2244  |
| SNAP-II score, median (IQR)* | 14 (5,21)                                    | 10.5 (5,21)                                  | 0.4754  |
| Outborn                      | 21 (20)                                      | 2 (2)  | <0.0001 |
| Survival to discharge        | 87 (83)                                      | 94 (99)                                      | 0.0001  |

Data are n (%) or mean ± standard deviation unless otherwise specified.  
\* Indicates data only available for Site A

associated with earlier gestational age at birth ( $p = 0.0002$ ) as well as maternal characteristics of younger age ( $p = 0.0195$ ), multiparity ( $p = 0.0003$ ), and cigarette smoking ( $p = 0.0002$ ) (Table 1). There was a direct relationship between increasing gestational age epoch and MOM at discharge (Figure 2).

## CONCLUSION

Locally, initiation of MOM-feeding was high amongst very preterm neonates but less than half of these neonates continued MOM to discharge from hospital. The rate of initiation of MOM decreased over the study period. Improved understanding of the key perinatal factors associated with non-initiation and discontinuation of MOM-feeding will allow for an early and targeted approach to breastfeeding support and focused quality improvement strategies on this high-risk population.