

# “Do I really need to express milk eight times a day?”

## Assessing clinical recommendations on milk expression after very preterm birth



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### Introduction

Mothers of very preterm babies are at high risk for poor milk supply<sup>1,2</sup>.

The UNICEF UK Baby Friendly Initiative (BFI) recommends that mothers express 8-10 times a day<sup>3</sup>. This is because this is the breastfeeding frequency of an average healthy, term newborn<sup>4,5</sup>. Prolonged milk stasis in the breast can stimulate negative feedback, reducing future milk production.

Expressing may compete with time spent on the mother's other physical and emotional needs. Few mothers exclusively expressing after premature birth achieve this frequency.

There is limited evidence from NICU settings that expressing more than 6, 8 or 7 times a day is associated with higher milk yield<sup>6,7</sup> but no studies have looked at the recommendation of 8 or more.

This study used a cohort of UK mothers taking part in a randomised controlled trial to provide more evidence in this area.

### Methods

From August 2021 to October 2022, 132 participants were recruited into a randomised controlled trial in four UK neonatal units.

Eligibility criteria included birth <32 weeks' post-menstrual age with a singleton or twins.

Participants were given a portable scale and asked to complete a 24 hour expressing log on day 4, 14 and 21 after birth. Participants recorded milk weight, method, duration and timing of each expression. Milk weight and volume can be treated as interchangeable (1g is nearly equivalent to 1ml<sup>8</sup>).

Linear regression was used for analysis. This exploratory analysis was pre-planned as a nested part of the randomised trial.

### Results

108 individuals contributed data for at least one timepoint. On day 21, 91 logs were submitted.

- Mean age: 32.8 years
- 60% were primiparous, 15% had twins
- 57% gave birth by caesarean
- 70% planned to exclusively breastfeed

33 years old

28 weeks' PMA

- Mean gestational age at birth was 27.8 weeks' PMA
- 54% had extremely preterm infants (<28 weeks' PMA)
- 18% were Asian, 17% were Black and 60% were White

Table 1 shows how often participants were expressing and for how much time each day

	Expressing frequency (mean, SD)	Time spent expressing (mean, SD)
Day 4	5 ± 2 per day	132 ± 85 minutes
Day 21	6 ± 2 per day	155 ± 88 minutes

Table 1: expressing frequency and duration

At day 21, approx. 85% were using an electric pump and simultaneously expressing at all sessions. There was a median duration of two hours skin-to-skin contact and minimal direct breastfeeding attempts.

Figure 1 shows the very large variability between individual milk yield trajectories. Table 2 shows the variables associated with milk yield on day 4 in multivariable analysis. Expressing frequency was also strongly associated with yield on day 14 and 21.

	24-hour milk yield in grams (95% CI)	p value
Expressing frequency	30.5 (15.7 to 45.3)	<0.001
Prior breastfeeding 26mth (versus <8mth/primiparous)	204.3 (129.2 to 283.3)	<0.001
Electric pump only (versus manual/hand/expressure)	116.8 (40.9 to 192.3)	0.001
Simultaneous only (versus single/sequential/mixture)	112.7 (29.6 to 195.7)	0.003
First expression 56hrs from birth	90.1 (24.9 to 155.3)	0.007

Table 2: Adjusted analysis of 24-hour milk yield on day 4

Figure 2 shows that on day 21 around half of participants who expressed 6-7 times per day, and around half of those who expressed 8 or more times per day, achieved the target yield set by UNICEF UK Baby Friendly Initiative (750ml).

Figure 3 shows that participants with six months of prior breastfeeding experience or more, achieved target yield at a lower expressing frequency.

Figure 1: Large variability in milk yield trajectories

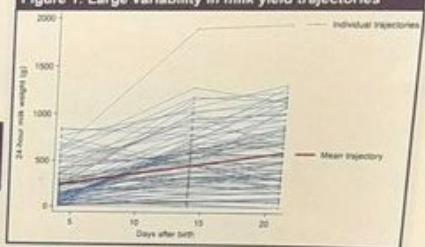


Figure 2: Day 21 milk yield & expressing frequency

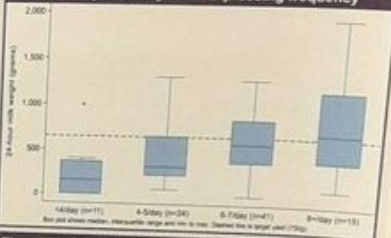
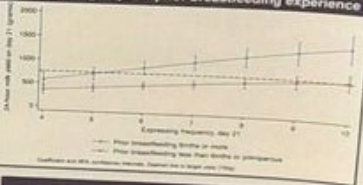


Figure 3: Subgroups of prior breastfeeding experience



### Conclusion

This was a diverse cohort of individuals with a high motivation to exclusively breastmilk feed their babies. Few participants expressed at the recommended 8-10 times a day.

Expressing frequency was strongly associated with milk yield. Few participants who expressed less than 6 times a day achieved target yield. We could not conclude conclusively that expressing 8 or more times is better than 6-7 times per day.

Milk yield is extremely variable after very preterm birth. Despite its importance, expressing frequency only explained around 10% of this variability in milk yield so other factors must be considered.

Participants with more than six months of prior breastfeeding experience had higher milk yield on average. They expressed less often to achieve the same milk yield. This requires replication.

Limitations include the observational nature of the study, the reliance on participant report of expressing pattern and yield, and limited sample size. Strengths include the diverse set of participants and multi-centre context.



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