

What are the Factors Associated with In-hospital Formula Supplementation in Healthy Term Infants?



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BACKGROUND

The World Health Organization (WHO) recommends that infants are exclusively breastfed for the first six months of life and continue to breastfeed up to 2 years and beyond.¹ In-hospital formula supplementation has been associated with shorter duration of breastfeeding and should be avoided unless medically indicated.² Despite this, in-hospital formula supplementation remains widespread.

AIM

To perform a clinical audit to identify what factors were associated with in-hospital formula supplementation in healthy term babies in an Australian Baby Friendly hospital.

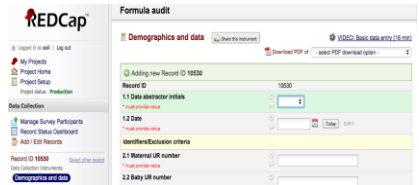


METHODS

Clinical retrospective audit at Royal Women's Hospital, Melbourne. Demographic and feeding data collected from the medical records of 519 mother and infant pairs born in March 2015 and 36 convenience samples from February 2015.

Eligibility: Singleton infants born at term (≥37 weeks), not admitted to Neonatal Intensive Care Unit or Special Care Nursery.

Data Collection: Data abstracted from physical and electronic medical records then entered onto REDcap, an online database.



RESULTS

Of the 519 infants, 388 were exclusively breastfed during their postnatal stay, 123 were fed both breast milk and formula, and 8 were exclusively formula fed. Figure 1 shows that the distribution of time of formula initiation. The highest initiation occurs in the first 24 hours, with the proportion initiating formula feeding decreasing over time.

Factors associated with increased likelihood of giving formula were: being a single mother; having a BMI < 20 or ≥ 25; epidural use; having an induced labour; caesarean birth; the infant requiring resuscitation; and later initiation or shorter duration of skin-to-skin (chi-square test) (Table 1). Multivariate analysis is pending.

Infants that had formula were more likely to have had their first breastfeed delayed, with a mean difference of 26 minutes between the two groups (t-test, $p = 0.009$). Figure 2 shows the time to first breastfeed for babies that were given only breast milk compared with infants that also had formula.

Figure 1: Time of formula initiation

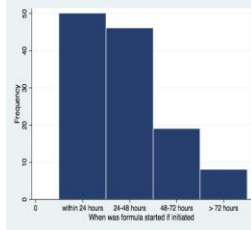
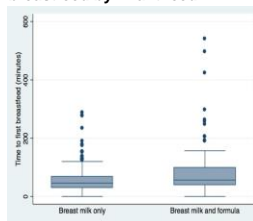


Figure 2: Time to first breastfeed by infant feed



For each 24-hour time period from birth, the main documented reason for formula supplementation was maternal request (Table 2). Maternal request reasons included: sore breasts, inadequate supply, baby not latching, mother tired and mother wanting to supplement breastfeeding with formula. The greatest amount of infants being supplemented was during the 24-48 hours period

Table 1: Demographic by infant feeding type

Variable	Total n	Breast milk only %	Breast milk and Formula %
Total	511	76.0	24.0
Maternal characteristics			
Primipara	277	75.6	24.6
Australian Born	260	77.7	22.3
Smoker	33	60.6	39.4
Age			
% ≤25	35	71.4	28.6
% 26-35	336	77.4	22.6
% ≥35	140	73.5	26.4
Marital status*			
% Single	51	64.7	35.3
% Married/De facto	459	77.1	22.9
BMI*			
% <20	69	76.8	23.2
% 20 - <25	262	82.4	17.6
% ≥25 - <30	105	70.5	29.5
% ≥30	76	60.5	39.5
Birth Characteristics			
Epidural used*	209	66.0	34.0
Labour onset*			
% Spontaneous	286	84.3	15.7
% Induced	157	66.2	33.8
% No Labour	67	62.7	37.3
Type of birth*			
% Vaginal	405	80.3	19.8
% Caesarean	106	59.4	35.0
Postpartum haemorrhage	94	70.2	29.8
Infant characteristics			
Any resuscitation*	70	58.6	41.4
Skin-to-skin initiation*			
% Within 30 min	416	79.6	20.4
% Delayed/not initiated	85	58.8	41.2
Duration of skin-to-skin*			
% <30 min	61	62.3	37.7
% 30-60min	74	82.4	17.6
% ≥60 min	290	79.3	20.7
Time of first breastfeed*			
% ≤60min	330	80.3	19.7
% >60min	181	35.4	68.0

BMI: Body Mass Index
*p value ≤ 0.05

Table 2: Reason for formula supplementation from birth during hospital stay (n=123)

	<24 hours	24-48 hours	48-72 hours	>72 hours
Infants receiving formula*	48	98	89	36
Maternal request	32	54	33	13
Hypoglycaemia	14	3	3	0
Jaundice	0	1	4	3
LOW 10% of BW	0	2	6	11
Poor output	0	4	1	0
Baby unsettled	2	25	12	2
Other	6	8	4	3
Not recorded	5	12	6	5

LOW: loss of weight BW: birth weight
*Mothers may have responded with more than one reason

CONCLUSIONS

These findings show that there are hospital practices that are predictors of formula supplementation that could be targets for intervention (pending multivariate analysis). Maternal request is the main documented reason for formula supplementation and should be explored further.

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