

Elizabeth Simpson MD¹, Jessica Curry MS VI², Vidya Sharma MBBS, MPH¹
¹Children's Mercy Hospitals and Clinics, Kansas City, Missouri, USA
²University of Missouri-Kansas City School of Medicine

1. Introduction

- Although weight loss during newborn nursery stays is expected, normative data on the amount of weight loss is limited.
- Clinical decisions regarding need for breast feeding supplementation or urgency of follow up appointments are often made on the basis of individual provider experience rather than evidence.
- Previous studies 1-5 have attempted to define amounts of weight loss and factors which affect the weight loss. These studies were done in European or Suburban English speaking only populations.
- Although these studies have placed infants into risk categories according to feeding method, no studies have quantified the amount or number of formula supplement given to the infants.
- No studies have looked at weight loss in infants less than 48 hours of age.
- Study specific aims are to determine the daily change in weight in healthy term infants from birth until 72 hours of age and assess factors which may impact change in birth weight during routine nursery hospital stays.

2. Methods

- This study was a single site retrospective chart review.
- The selection criteria was all infants born at Truman Medical Center Hospital Hill for a two month period beginning November 1, 2009.
- 250 babies were evaluated regarding gender and percent change in weight lost.
- 100 babies were evaluated regarding gestational age, mode of delivery, number of supplemental feedings, antepartum IV fluid administration, method of feeding, and age at discharge weight.
- Subjects were >37 week healthy term infants admitted and remaining in the routine newborn nursery until time of discharge.
- Primary outcome measure was change in weight between birth and discharge. Data was recorded along with exact hour of age at the time of the discharge weight. Percentage of birth weight was calculated.
- Non-parametric test of significance was performed due to the small sample size and skewed distribution of data. The Kruskal-Wallis test was used because independent samples were evaluated.
- Significance defined by a p value of < 0.05

3. Results

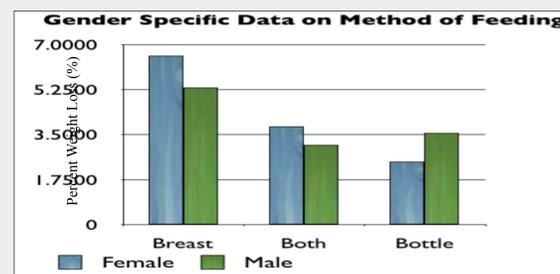
- Statistical significance was shown using non-parametric testing regarding the numbers of supplemental feedings. (p value 0.02).

Number of Supplement if Breastfed	Mean	N	SD	Grouped Median
0.0	6.56	7	1.39	6.01
1.0	5.73	2	0.26	5.73
2.0	1.14	4	8.49	4.67
3.0	3.45	41	3.06	4.37
Total	3.79	54	3.62	4.78

- Statistical significance was shown using non-parametric testing regarding the method of feeding. (p value 0.003).

Method of Feeding	Mean	N	SD	Grouped Median
Both	3.33	34	2.96	4.08
Bottle	2.8	54	2.52	2.77
Breast	4.62	14	4.96	5.62
Total	3.23	102	3.12	3.54

- There was no statistical difference regarding gender (p value 0.45).



- The distribution of percent change in weight was the same across categories of mode of delivery.
- The distribution of percent change in weight was the same across categories of AGA/SGA/LGA.
- The distribution of percent change in weight was the same across categories of age at discharge weight.
- The distribution of percent change in weight is the same across categories of antepartum maternal IV fluid administration.
- The distribution of percent change weight was the same across categories of gestational age.

4. Discussion

- This study demonstrates that there is little change in percent of weight loss regardless of maternal IV fluid administration, mode of delivery, gestational age, length of stay in newborn nursery, gender, or age at time of discharge.
- Methods of feeding and supplementation are the determining factors which impact the percent of weight lost prior to discharge.
- The distribution of our data was markedly skewed with most of our infants being bottle or breast fed with more than five supplements.
- Limitations of this study include very few exclusively breastfed infants or infants that received less than five supplemental bottles during their hospital stay. Only 100 charts were available for complete evaluation.

5. Conclusions

- This is an ongoing study.
- Power would be increased if we had a larger sample size with more infants whom are exclusively breastfed or have very little formula supplementation.

6. References

- ¹Wright C., et. al., Postnatal weight loss in term infants: what is "normal" and do growth charts allow for it? Arch Dis Child Fetal Neonatal Ed: 2004; 89: F254-57.
- ²Lamp J, et. al., Relationships Among Intrapartum Maternal Fluid Intake, Birth Type, Neonatal Output and Neonatal Weight Loss During the First 48 Hours After Birth JOGNN: 2010; 39: 169-77.
- ³Macdonald P, et. al., Neonatal weight loss in breast and formula fed infants. Arch Dis Child Fetal Neonatal Ed: 2003; 88: F472-F76.
- ⁴Martens PJ, et. al., Factors associated with newborn in-hospital weight loss: J Hum Lact: 2007; 23: 233-41
- ⁵Dewey K, et. al. Risk Factors of Suboptimal Infant Breastfeeding Behavior, Delayed Onset of Lactation, & Excess Neonatal Weight Loss, PEDIATRICS 2003;112:607-19