

# Factors associated with newborn in-hospital weight loss: comparisons by feeding method, demographics, and birthing procedures

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Full-term newborn normative weight loss and factors influencing this were determined through chart audits ( $n = 812$ ) at six hospitals in Manitoba, Canada. The effects of parity, gestational age, birth weight, sex, length of stay, type of delivery (cesarean vs vaginal), epidural use, and type of infant feeding (exclusively breastfed, partially

breastfed, exclusively formula-fed) on percentage weight loss in hospital were analyzed using multiple regression analysis. In-hospital weight loss was  $5.09\% \pm 2.89\%$  (95% CI, 4.89–5.29), varying by feeding category: exclusively breastfed  $5.49\% \pm 2.60\%$  (95% CI, 5.23–5.74), partially breastfed  $5.52\% \pm 3.02\%$  (95% CI, 5.16–5.88), and formula-fed  $2.43\% \pm 2.12\%$  (95% CI, 2.02–2.85). Factors significantly increasing the percentage weight loss included higher birth weight, female sex, epidural use, and longer hospital stay. Lower percentage weight loss was associated with greater gestational age and exclusive formula feeding. Parity and type of delivery were not significant. Controlling for demographic and delivery-related variables, exclusive formula feeding had the largest impact, with 3.1% less weight loss than exclusive breastfeeding.

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This is an interesting paper, in terms of the research process and the findings. While their main findings might possibly invoke the 'well we knew that anyway' response, this study offers a glimpse into the clinical picture of hospital practice by using data retrieved from feeding records. The background to the study is not that clear, but appears to derive from an interest in the appropriate use of supplementary feeds for breastfeeding infants and the association of longer term obesity in 'overfed' babies.

To start with there is an interesting review on the fluid intake of newly born babies, and the potential effect on breastfeeding for those mothers who are being given IV fluids. The well known scenario of epidural and caesarean section and the impact on feeding is also considered. The methodology for data collection is thorough and well described. It is always interesting to me that studies conducted on records are seen as so lowly in the evidence supporting chain when so much effort goes into trying to reduce bias and being open about the potential for under or over reporting. Anyway, to get back to the study, the authors go to some length to present their data so that the influences of the various feeding practices and other events can be considered, ensuring that their findings are as robust and reliable as possible. They had an interesting bias in that the proportion of infants being exclusively breastfed during the study period was 53%, with 34% being supplemented and only 13% completely formula fed. The study population breastfeeding rates reflect this as the three study sites had breastfeeding initiation rates of 89%, 80% and 79%.

As part of the statistical analysis, a regression model is presented which demonstrates those factors most influential on the overall weight loss. While at first glance this looks somewhat off-putting, once you have read the small print, it is easily understood. How I would have liked to have waved such a model at the junior paediatrician on the postnatal ward a few years back!

As part of the study, the authors note that where breastfed babies were offered supplementation, this was supported in retrospect because they were identified as those babies with the highest weight loss. This was, in turn, often linked to the influence of the other significant factors, mode of delivery, or epidural for example.

The main finding that formula fed babies lose less weight supports the initial question of whether they are actually being overfed in the first place. The use of various methods of offering supplements to breastfed babies appears to involve quite small quantities of milk according to their needs. In contrast, formula fed babies would appear to be offered both larger and more consistent amounts.

A well written paper, underpinning existing knowledge and supporting midwifery aspects of postnatal infant care in the first few days after birth, but also perhaps pointing towards the need for more research into formula feeding, current practices and the longer term outcomes for these babies?

Comments written by Sally Marchant, midwife/editor. © MIDIRS 2007.