

# Impact of Supplementing Donor Human Milk in the First Week of Life: A Pilot Study



Robin Hollen, DNP, APRN, FNP-C, PMH-C | Pediatric Associates, Reno, NV

Rebecca E. Perry, MD FAAP | Department of Pediatrics, University of Nevada Reno School of Medicine

Jerry Tao, Data Science and Economic Consultant | University of California, Irvine

## Background

Current research indicates that newborns often receive formula in response to early breastfeeding challenges, negatively impacting breastfeeding duration and increasing the risk of infectious diseases.

## Objective & Study Design

To evaluate the effects on newborn weight when supplemented with donor human milk pasteurized by Gentle-UHT (GHM) to support an exclusive human milk diet (EHMD) and continued breastfeeding. An augmented regression discontinuity was used to assess how GHM duration impacts daily weight change since birth.

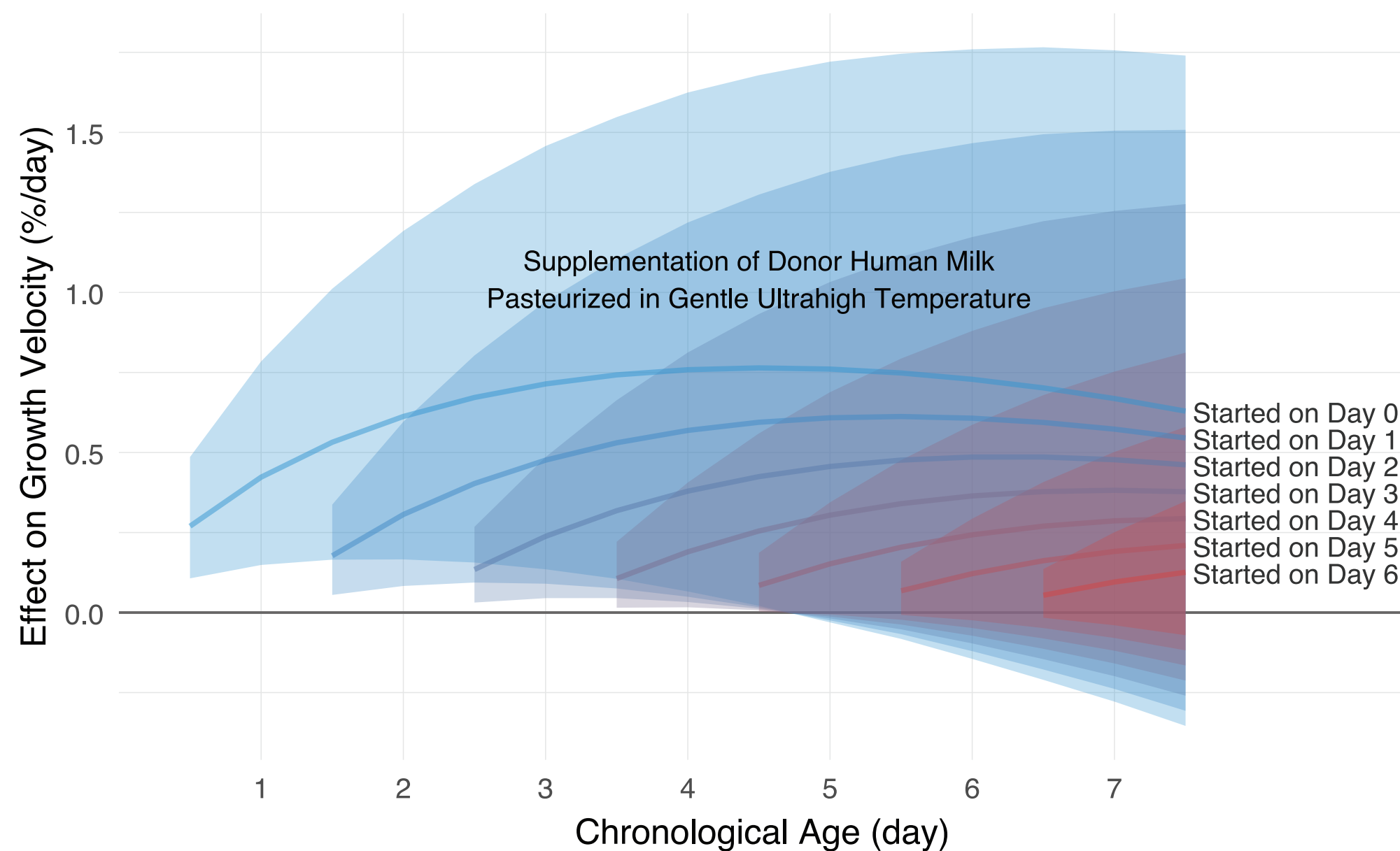
## Methods

Breastfed newborns  $\geq 36$  weeks at risk for excess weight loss at hospital discharge born to mothers exhibiting insufficient milk volume or delayed onset of lactogenesis II supplemented breastfeeding with GHM as an alternative to formula.

**Intervention:** Supplementation of GHM.

**Duration of Supplementation:** The infants started GHM on average at 2.36 days of chronological age and discontinued usage on average at 8.04 days.

Effect on Growth Velocity (%/day) Over Chronological Age (day) by Sex

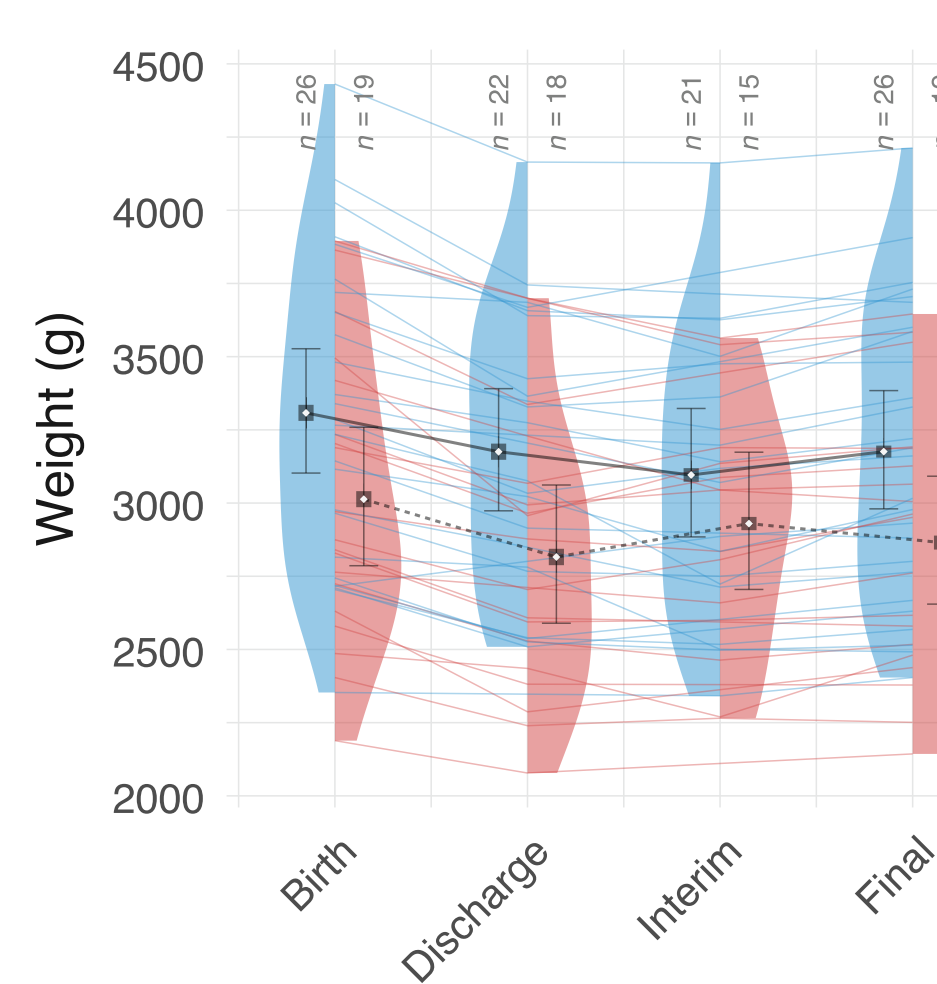


Notes: Ribbons show 95% bootstrap confidence intervals based on 20,000 resamples of linear combinations of estimated model coefficients.

## Results

- Growth velocity was positively associated with the duration of GHM supplementation, with effects of age and birth conditions accounted for.
- Newborns receiving earlier GHM experienced greater growth velocity than WHO growth curve velocities.
- Given the sample birth characteristics, the supplementation would increase the first-day growth rate by 0.42%, 95% confidence interval [0.018, 0.83].
- By the age of seven days, a one-day supplementation would lead to a higher average daily growth velocity by 0.096% [-0.078, 0.27], four-day by 0.38% [-0.31, 1.08], and seven-day by 0.67% [-0.54, 1.88], compared to average WHO daily growth velocities at -1.19% [-1.99, -0.40] per day.
- All newborns in the retained sample remained on EHMD and continued breastfeeding.

Weight (g) Over Stage By Sex



Growth Velocity (%/day) Over Age By Sex



Notes: Thin colored lines represent individual trajectories. Half violins show distribution density curves vertically. Colored ribbons are locally estimated scatterplot smoothing curves. White dots mark group means, connected by black lines. Black error bars delineate 95% confidence intervals of group means. Thin and long intervals were adjusted for positive range preservation, whereas thick and short intervals were further adjusted for repeated measurements and group comparisons.

## Conclusion

GHM supplementation supports the growth of newborns at risk of excessive weight loss and may accelerate weight recovery. Newborns with early weight loss demonstrated steady weight gain and were on track to regain their birth weights, with 93% maintaining an EHMD and continuing breastfeeding. Early access to GHM supplementation may be conducive to continued breastfeeding rates, allowing more mothers to achieve their breastfeeding goals. Observational evidence of the potential benefits of GHM supplementation calls for further studies to examine causal effects.

## Acknowledgments

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## Disclosures

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