SUPPLEMENTAL TABLE 1. Birthweight < 1250 g Feeding Guidelines

Day of Feed	Kcal/oz EBM[1] or Donor Human Milk	Feeding Volume (mL/kg/day)	TPN (mL/kg/day)	Lipids (mL/kg/day)	Total Fluids[2] = Enteral + TPN + IL (mL/kg/day)
1	20	15 – 20	90 - 100	5 – 10	120
2	20	15 – 20	95 - 105	10 – 15	130
3	20	15 – 20	115 - 120	15	150
4	20	40	95	15	150
5	24 (add Prolact + 4)[3]	60	75	15	150
6	24 (Prolact + 4)	80	55 -70	15 or Off Lipids	150
7	26 (Prolact + 6)	100	50	0	150
8	26 (Prolact + 6)[3]	100	50	0	150
9	26 (Prolact + 6)[4]	120	Off TPN	0	120 Off TPN or
10	26 (Prolact + 6)	140	0	0	140
11	26 (Prolact + 6)	150	0	0	150 Full enteral

[1] EBM = expressed breast milk

[2] Volume available for TPN may be less depending on volume of meds, flushes, etc

[3] Add Prolact +4 to EBM at 60 mL/kg/day and Prolact +6 to EBM at 100 mL/kg/day

[4] Add poly-vi-sol and fer-in-sol after parenteral nutrition is discontinued for infants consuming EBM + Prolacta.

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When to Introduce Prolact CR® (cream supplement):

- Infants should be tolerating 100 ml/kg/day of fortified feeds (with Prolact+H^{2}MF®) before Prolact CR® is added
- Once infants have achieved full fortified feeds and 4 g/kg/day of protein, if weight gain is < 15 g/kg/day, start Prolact CR®
  - The standard additive amount of Prolact CR® is 2 kcal/oz (Milk volume x 0.04)
  - Cream is added to mother's own milk or donor human milk
- If weight gain is < 15 g/kg/day despite standard additive of Prolact CR® 2 kcal/oz and infant is receiving all mother's own milk, then the team may decide to re-analyze mother's own milk and consider increasing to Prolact CR® to 4 kcal/oz

SUPPLEMENTAL TABLE 2. Birthweight 1251-1500 g Feeding Guidelines

Day of Feed	Kcal/oz EBM[1] or Donor Human Milk	Feeding Volume (mL/kg/day)	TPN (mL/kg/day)	Lipids (mL/kg/day)	Total Fluids[2] = Enteral + TPN + IL (mL/kg/day)
1	20	20	70	10	80
2	20	40	60	15	100-120
3	24 (add Prolact + 4)[3]	60	40	15	100-120
4	24 (Prolact + 4)	80	40	15 or Off Lipids	100-120
5	26 (Prolact + 6)	100	50	0	150
6	26 (Prolact + 6)[3]	100	50	0	150
7	26 (Prolact + 6)[4]	120	Off TPN	0	120
8	26 (Prolact + 6)	140	0	0	140
9	26 (Prolact + 6)	150-160	0	0	150-160

[1] EBM = expressed breast milk

[2] Volume available for TPN may be less depending on volume of meds, flushes, etc

[3] Add Prolact +4 to EBM at 60 mL/kg/day and Prolact +6 to EBM at 100 mL/kg/day

[4] Add poly-vi-sol and fer-in-sol after parenteral nutrition is discontinued for infants consuming EBM + Prolacta.

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- Once infants have achieved full fortified feeds and 4 g/kg/day of protein, if weight gain is < 15 g/kg/day, start Prolact CR®
  - The standard additive amount of Prolact CR® is 2 kcal/oz (Milk volume x 0.04)
  - Cream is added to mother's own milk or donor human milk
- If weight gain is < 15 g/kg/day despite standard additive of Prolact CR® 2 kcal/oz and infant is receiving all mother's own milk, then the team may decide to re-analyze mother's own milk and consider increasing to Prolact CR® to 4 kcal/oz

SUPPLEMENTAL TABLE 3. Infants Excluded from Study

Reason for Exclusion	Number of Infants Excluded (Total = 33)
Poor projected survival*	22
Died during initial hospitalization	*13*
Survived to discharge	*9*
Born after 33 weeks PMA	4
(Would have been in study < 3 weeks)	
Severe perinatal hypoxia	3
Significant congenital heart disease	3
Died within 24 hours of birth	2
Planned to transfer to NICU closer to parents' home	2
Severe immune hydrops	1

*<50% projected survival per NICHD NRN Extremely Preterm Outcome Data

SUPPLEMENTAL TABLE 4. Subjects Removed From Study

Subject #	Reason for Removal
008	Congenital intestinal atresia diagnosed after enrollment
045	Small bowel obstruction secondary to meconium ileus
046	Intestinal perforation secondary to incarcerated hernia
062	Iatrogenic gastric perforation during nasogastric tube placement
080	Intestinal perforation at <48 hours of life after three trophic DM feeds
110	Iatrogenic esophageal perforation on day of life seven
113	Congenital intestinal stenosis/atresia diagnosed after enrollment
125	Extravasation of parenteral nutrition into peritoneum from malpositioned UVC*

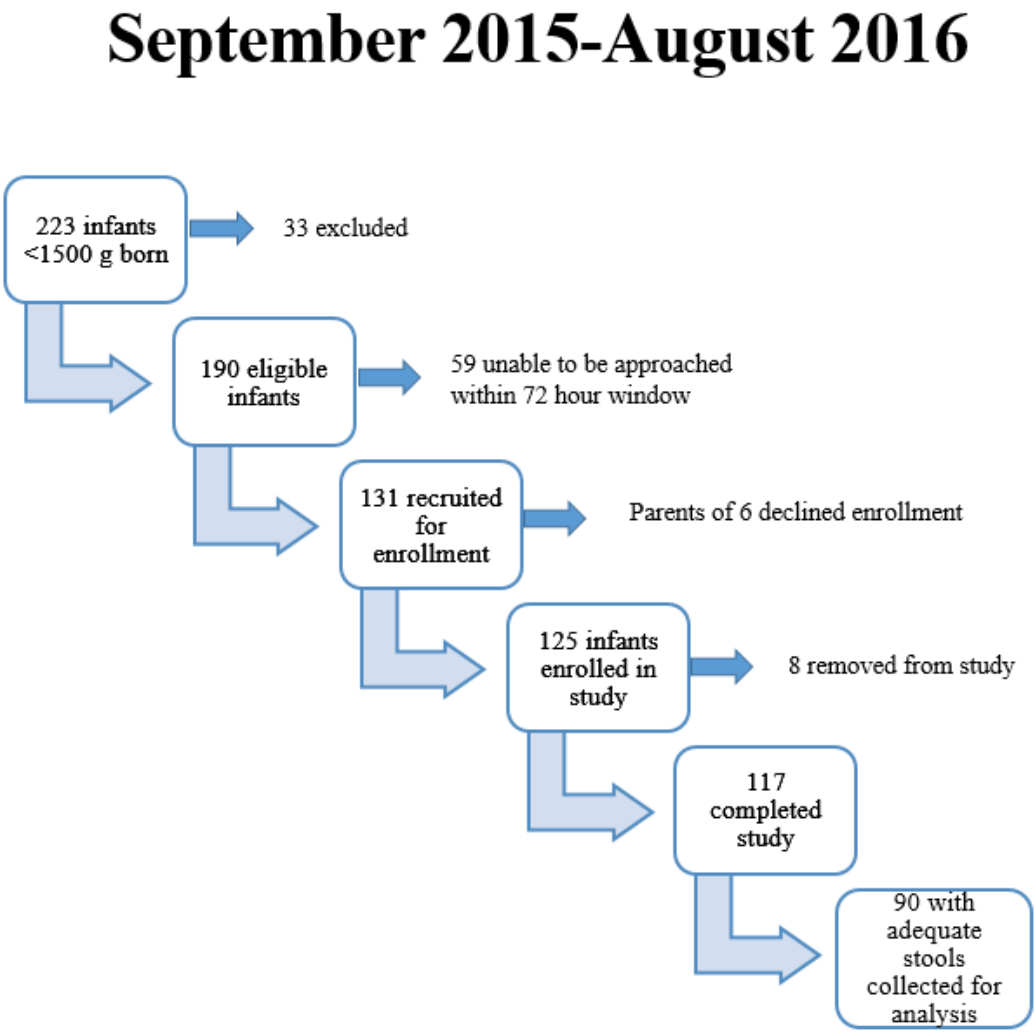
*UVC = umbilical venous catheter

SUPPLEMENTAL TABLE 5. Growth Outcomes of Study Infants at 36 weeks PMA

All parameters at 36 weeks PMA	MOM cohort n=74	DM Cohort n=43	p-value[1] (unadjusted)	p-value[2] (adjusted)
Weight z-score	-1.21 ± 0.83[3]	-1.65 ± 0.78	***<0.01***	***<0.01***
Length z-score	-1.27 ± 0.96	-1.67 ± 1.03	0.07	***0.01***
Head Circumference z-score	-0.99 ± 1.19	-1.53 ± 1.11	***0.02***	***0.01***
Weight < 10th %tile[4]	34 (46)[5]	26 (60)	0.18	***0.03***
Length < 10th %tile	33 (45)	23 (53)	0.44	0.20
Head Circumference < 10th %tile	26 (35)	19 (44)	0.43	0.37
Weight < 3rd %tile	15 (20)	14 (33)	0.18	0.12
Length < 3rd %tile	16 (22)	14 (33)	0.20	0.10
Head Circumference < 3rd %tile	13 (18)	16 (37)	***0.03***	***0.03***

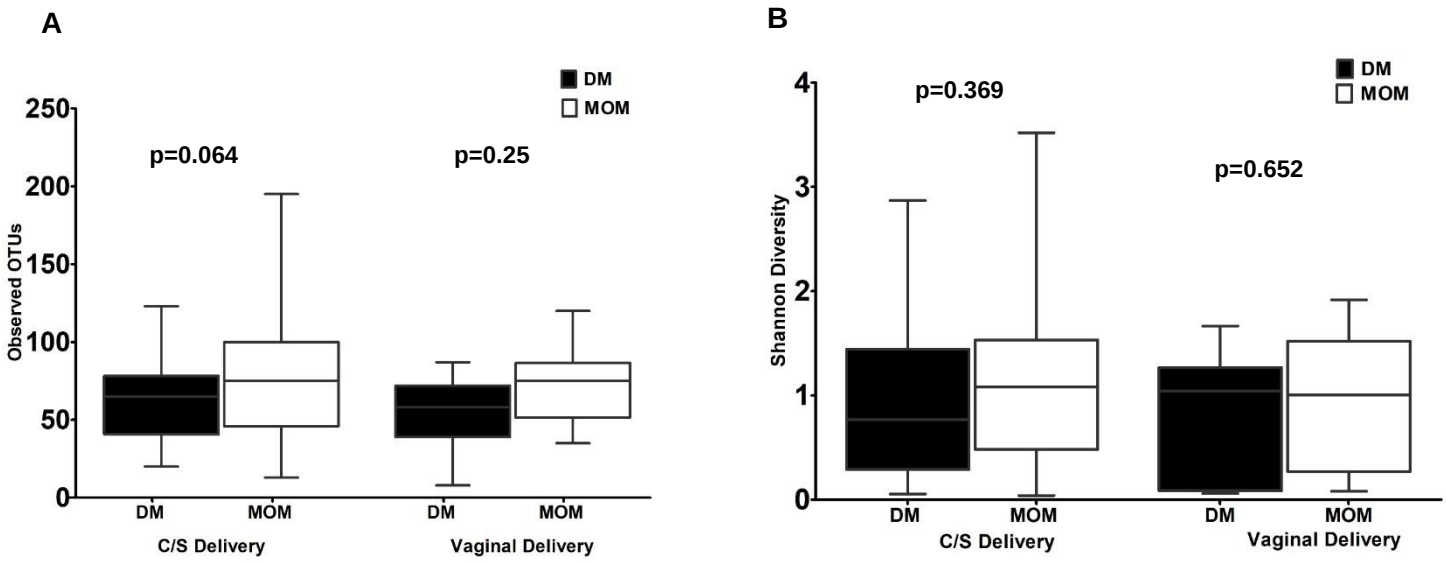
[1]P-values from Wilcoxon rank sum test for continuous variables and Fisher's exact test for categorical variables
[2]Model adjusted for birth weight, ethnicity, receipt of prophylactic Indomethacin, and days of antibiotics in first 14 days of life using linear regression for continuous variables and logistic regression for categorical variables
[3]Mean ± SD
[4]Percentile based on Fenton 2013 growth curves
[5]Frequency (%)

SUPPLEMENTAL FIGURE 1



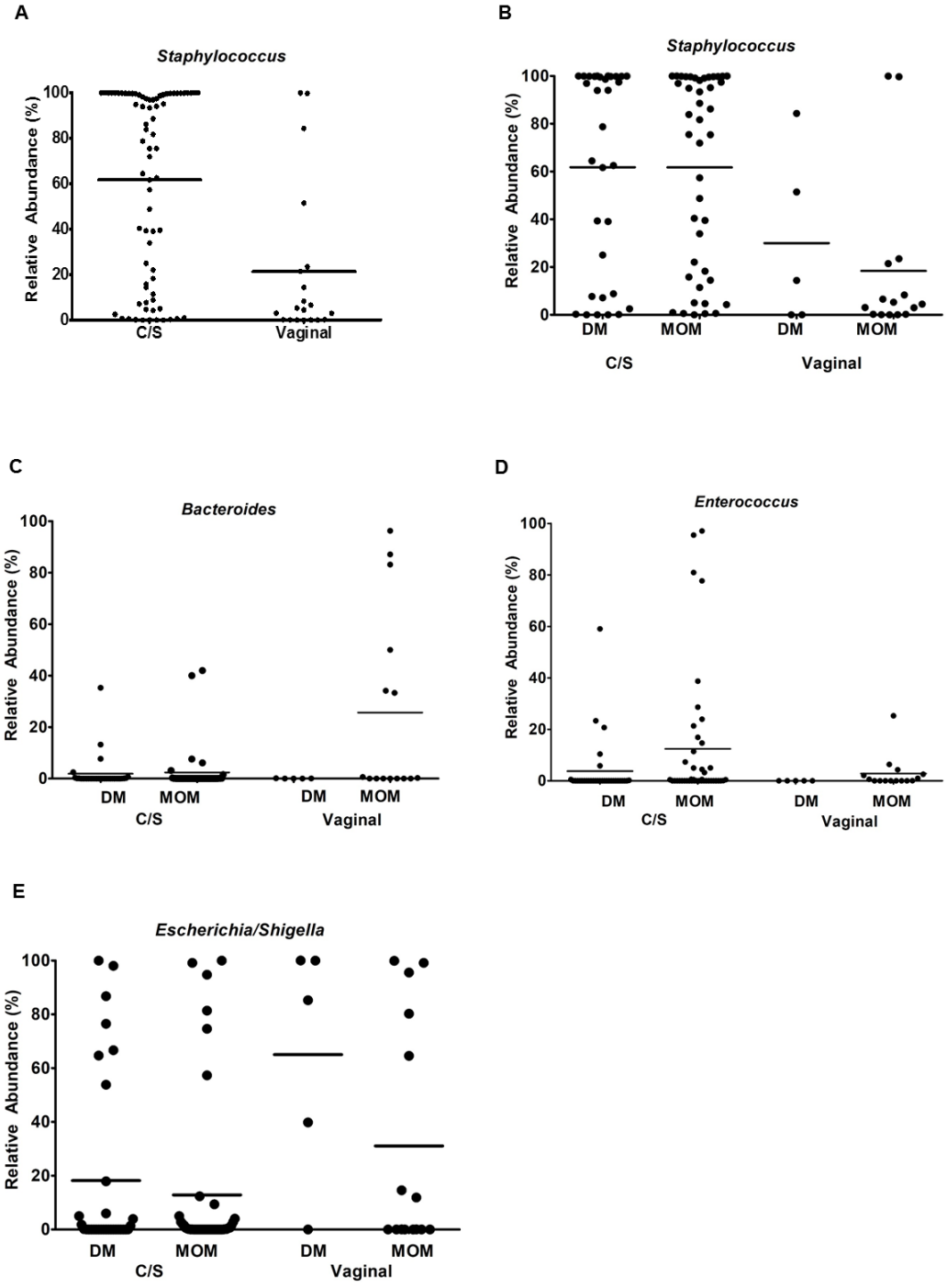
SUPPLEMENTAL FIGURE 1. Study Inclusion Flowsheet

Supplemental Figure 2



Supplemental Figure 2. Alpha-diversity of gut microbiota from DM and MOM cohorts by mode of delivery. (A) For infants delivered via C-section, the MOM group had marginally higher observed OTUs (slope = 8.3, standard error = 4.1, p = 0.064), but there was not a significant difference for the MOM versus DM group among those delivered vaginally (slope=10.9, standard error=3.7, p = 0.250) **(B)**. There was not a significant difference in SDI for infants delivered via C-section (slope= 0.14, standard error = 0.15, p = 0.369), or for infants delivered vaginally (slope= 0.75, standard error = 0.96, p = 0.652).

Supplemental Figure 3



Supplemental Figure 3. Relative abundance of selected genera from DM and MOM cohorts by delivery mode (A-E). Using mixed effects linear models for data analysis **(A)** during weeks 1 and 2, study infants delivered via C-section (n=75 samples across two weeks) were significantly more likely than infants delivered vaginally (n=20 samples across two weeks) to exhibit *Staphylococcus sp.*, noted skin organisms, in their microbiota (slope = 28.0, standard error=11.5, p=0.018). **(B)** *Staphylococcus* is increased in C-section delivered infants in comparison to vaginally delivered infants after controlling for MOM (slope = 27.3, standard error = 11.7, p=0.023). **(C)** Differences were seen in the vaginal delivery group after controlling for MOM, with increased *Bacteroides* (slope = 12.6, standard error= 4.1, p=0.003) in MOM infants, **(D)** but *Enterococcus* was not significantly different (slope = -3.8, standard error = 4.3, p = 0.375). **(E)** Relative abundance of *Escherichia*/*Shigella* did not differ significantly for the MOM group after controlling for mode of delivery (slope = 6.4, standard error = 7.0, p = 0.366), however vaginally delivered infants had a significantly higher relative abundance of *Escherichia*/*Shigella* after controlling for MOM (slope= 19.9, standard error = 8.8, p=0.024).