UC DAVIS HEALTH | CHILDREN'S HOSPITAL

UCD NICU Enteral Nutrition Guidelines

There is convincing evidence that the application of a standardized feeding protocol reduces the incidence of NEC. Risk of NEC is greatest in infants born < 32 weeks gestation and with a birth weight <1500 gm. For this reason, it is recommended to follow the NICU feeding guidelines for this population as medically appropriate (highlighted in "preemie purple" below). Careful consideration should be taken prior to deviating from these guidelines.

Trophic feeds of mother's own milk should be initiated as soon as medically appropriate after birth, but no later than 24-48 hours unless feeds are contraindicated. If a family intends to provide breast milk to their infant, the provider can consider allowing up to 24 hr for mother's breast milk (EBM) before initiation feeds. If parent chooses not to provide EBM, then initiate trophic feeds with donor breast milk (DBM) after obtaining parental assent.

Nutrition needs for infants born >1500 gm may vary. The guidelines may be used as a tool to determine appropriate feeding advances and fortification needs, though they are not prescriptive and may be adjusted as needed pending individual need and clinical status. Individual patient nutrition needs may be discussed with the NICU dietitian.

NICU Enteral Feeding Advancement Guidelines

BW (gm)	Initial Feeding	Duration of trophic feeds	Advancement	Fortification
<750	10 mL/kg	3-5 days	10-20 mL/kg daily	• When tolerating 40 mL/kg x 24hr, fortify to 24 kcal/oz w/HMF • Ensure fortified feeds tolerated x 24 hr prior to further advances.
750-1000	10-20 mL/kg	Up to 3 days	20 mL/kg daily	
1000-1500	20 mL/kg	24-48 hr	30 mL/kg daily	
1500-2000	20 mL/kg	At least 24 hr	15-20 mL/kg BID	Likely needed pending GA & clinical status: • May fortify w/HMF if majority of feeds via NG. • If progressing toward discharge, may add supplemental feeds of PDF 22-24 kcal/oz.
2000-2500	20-30 mL/kg	Up to 24 hr	20 mL/kg BID	Likely need supplemental feeds of PDF 22-24 kcal/oz at least 1-2x/d.
>2500	40-60 mL/kg/d or ad lib with minimum	Up to 24 hr	20 mL/kg BID	Only if needed. Evaluate need after tolerating goal volumes.

HMF = human milk fortifier (product used: Similac HMF Hydrolyzed Protein Concentrated Liquid)
PDF = preterm discharge formula (i.e. Similac Neosure or Enfamil Enfacare)

Notes on fluid requirements:

- Goal hydration for most stable, growing infants is 100-120 mL/kg/d. Consider adding this as a shift minimum (i.e. 50-60 mL/kg/shift) when writing PO ad lib feeding orders.
- Goal *enteral* feeding volume for most infants is 150-160 mL/kg/d. If fluid restriction is warranted, additional fortification may be required to meet caloric goals to support growth.

Additional Enteral Nutrition Guidelines for Cubs (< 27 weeks)

- Colostrum should be provided as soon as possible. If it is not yet safe to initiate feeds, may provide as buccal swabs with cares.
- Encourage MOC to begin expressing breast milk within 6 hours of delivery. Prioritize lactation consultation as soon as possible.
- **Goal:** initiate trophic feeds (10 mL/kg) within 48 hours of life using maternal EBM if available or high protein DBM if clinically appropriate (i.e. demonstrating adequate perfusion, stable BP off vasoactive support, etc.).
- Trophic volumes may be maintained during initial stabilization phase ~ DOL 0-3. Thereafter, may advance feeds ~ 10 mL/kg (no more than 20 mL/kg/d) daily as tolerated.
- Can consider empirically extending feeds over 1 hr in infants <24 weeks GA in effort to promote tolerance in setting of slowed gut motility in this population.
- If infant has not stooled within 72 hours of life, a 3-day course of glycerin slivers should be initiated q AM. Ongoing need for glycerin will be evaluated after the initial 3-day course is complete.

Lab Monitoring on Full Enteral Feeds

	Frequency	**Lab Test**	**Notes**
≤34 weeks	q1 weeks (starting at 5 weeks)	Alk phos, serum Ca, serum Phos	If Alk phos <600 IU/L and serum phos >4.5 mg/dL, no need to repeat
	q2 weeks when on enteral iron supplementation	H/H, retic	
	q1 week PRN	BMP, spot urine sodium	Check if concern for poor growth or when receiving electrolyte supplementation
> 34 weeks and at risk for osteopenia*	q2 weeks (starting at 4 weeks)	Alk phos, serum Ca, serum Phos	If Alk phos <600 IU/L and serum phos >4.5 mg/dL, no need to repeat

*Patients at risk for osteopenia/rickets = BW < 1500 g, IUGR, history of long-term TPN (> 1 month), history of diuretics or corticosteroids, history of NEC or intestinal failure, presence of underlying endocrine pathology, or suboptimal mineral intake.

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