MemorialCare
Miller Children's & Women's Hospital Long Beach

Guideline Usage Notes:

- Feed day may differ from Fluid day. If NPO or feeding volume different from guideline, increase IVF/PN rate to meet TF goal.
- For infants > 32 weeks AND > 1500 g, follow the 32-34 week feeding guidelines.
- Do not use decimals for feeding calculations. Round to nearest whole number.
- Central venous access will be the first line option and attempted in all babies < 1500 g and < 32 weeks.
- PN Recommendations are intended for single lumen central line.
- Lipids mL/kg to g/kg:

g/kg / mL/kg	1g/kg	2g/kg	3g/kg
	5mL/kg	10mL/kg	15mL/kg

Glycerin Protocol:

- Give every 12 hours for first 3 days of life;
- Continue glycerin at least daily if not stooling spontaneously or stools have not transitioned.
- Consult surgery and consider bedside contrast enema in the 2nd week of life if not improving.

Birthweight < 500 g or GA 22 0/7 - 23 6/7 weeks

Fluid Day	TFG mL/kg	Feed Day	Feeds mL/kg	Lipids mL/kg	IVF/PN mL/kg	GIR	Pro g/kg	CaGluc mg/day	Phos mmol/day	Notes
Day of Birth	140	Day 1*	10	5**	125	4	2-2.5	150-200	0.4-0.5	* Feed every 6 hours ** Use IL until DOL 14; Consider start lipids at 2.5 mL/kg (0.5 g/kg); Run at 0.1 mL/hr over less than 24 hours (i.e. 0.1mL/hr x 12 hours)
Day 2	140	Day 2	10	10	120	5	2.5-3	175-225	0.5-0.6	
Day 3	140	Day 3	10	15	115	6	3	200-250	0.6-0.7	
Day 4	150	Day 4***	20	15	115	7	3.5	225-300	0.7-0.8	***Feed every 3 hours
Day 5	150	Day 5	20	15	115	8		250-300	0.8-1.0	
Day 6	150	Day 6	30	15	105	9				
Day 7	150	Day 7	40	15	95					Remove UVC; Place PICC
Day 8	150	Day 8	50	15	85	7	3			Fortify EBM/DBM with Prolacta 26; Begin weaning protein/GIR
Day 9	150	Day 9	60	15	75	6	2.5			IV meds to PO
Day 10	150	Day 10	80	15	55	5	2			Remove MVI/TE. Start Poly-Vi-Sol 0.5mL BID + Fer-in-Sol 4mg/kg/day;
Day 11	160	Day 11	100	15	45	4	1			Start oral NaCl based on amount in PN
Day 12	160	Day 12	120	Discontinue PN/lipids; Remove central line; Increase to 28cal with Prolacta fortifier						
Day 13	160	Day 13-14	Advance by 20 mL/kg to goal of 160 mL/kg/day							
		Day 14+	Adjust feeds with weight gain to maintain 160 mL/kg or Total Fluid Goal per order.							

MemorialCare
Miller Children's & Women's Hospital Long Beach

Birthweight 500-750 g

Fluid Day	TFG mL/kg	Feed Day*	Feeds mL/kg	Lipids mL/kg	IVF/PN mL/kg	GIR	Pro g/kg	CaGluc mg/day	Phos mmol/day	Notes
Day of Birth	120	Day 1	10	5	105	4-5	3	200-250	0.5-0.7	* Feed every 3 hours
Day 2	130	Day 2	10	10	110	5-6	3	250-300	0.6-0.8	
Day 3	140	Day 3	10	15	115	6-7	3.5	300-350	0.7-0.9	
Day 4	140	Day 4	20	15	105	7-8		350-400	0.8-1.0	
Day 5	150	Day 5	20	15	115	8-9		400-450	0.9-1.1	
Day 6	150	Day 6	30	15	105	9-10				
Day 7	150	Day 7	40	15	95					Remove UVC; Place PICC
Day 8	150	Day 8	50	15	85	7-8	3			Fortify EBM/DBM with Prolacta 26; Begin weaning protein/GIR
Day 9	150	Day 9	60	15	75	5-6	2.5			IV meds to PO
Day 10	150	Day 10	80	15	55	3-4	2			Remove MVI/TE; Start Poly-Vi-Sol 0.5 mL twice daily and Fer-in-Sol 4 mg/kg/day
Day 11	150	Day 11	100	15	45		1.5			Start oral NaCl based on Na in PN
Day 12	160	Day 12	120	Discontinue PN/lipids; Remove central line; Increase to 28cal with Prolacta fortifier						
Day 13	160	Day 13-14	Advance by 20 mL/kg to goal of 160 mL/kg/day							
		Day 14+	Adjust feeds with weight gain to maintain 160 mL/kg or Total Fluid Goal per order							

Birthweight 751-1250 g

Fluid Day	TFG mL/kg	Feed Day*	Feeds mL/kg	Lipids mL/kg	IVF/PN mL/kg	GIR	Pro g/kg	CaGluc mg/day	Phos mmol/day	Notes
Day of Birth	110	Day 1	15	5	90	5-6	3	350-400	0.8-1.0	* Feed every 3 hours
Day 2	120	Day 2	15	10	95	6-7	3-3.5	425-500	1.0-1.3	
Day 3	130	Day 3	15	15	100	7-8	3.5	500-600	1.3-1.5	
Day 4	140	Day 4	30	15	95	8-9		575-700	1.6-1.8	
Day 5	150	Day 5	40	15	95	9-10				
Day 6	150	Day 6	60	15	75	7-8	3			Fortify EBM/DBM with Prolacta to 26 cal; Begin weaning protein/GIR
Day 7	150	Day 7	80	15	55	5-6	2			Remove MVI/TE; Start Poly-Vi-Sol 0.5 mL twice daily and Fer-in-Sol 4 mg/kg/day; Consider extend UVC vs use PIV/midline; May decrease lipids if using PIV/midline for higher PN rate.
Day 8	150	Day 8	100	15	45	3-4	1.5			Start oral NaCl if Na in PN > 4 mEq/kg
Day 9	150	Day 9	120	D/C TPN/lipids, remove central line. Increase to 28cal w/ Prolacta fortifier if BW <1000 g/28 wks GA; Use cream to 28cal if BW > 1000g.						
Day 10	150	Day 10-11	Advance by 20 mL/kg to goal of 160 mL/kg/day							
		Day 12+	Adjust feeds with weight gain to maintain 160 mL/kg or Total Fluid Goal per order							

MemorialCare
Miller Children's & Women's Hospital Long Beach

Birthweight 1251-1500 g * Use this category for infants > 1500 g if they are less than 32 0/7 weeks

Fluid Day	TFG mL/kg	Feed Day*	Feeds mL/kg	Lipids mL/kg	IVF/PN mL/kg	GIR	Pro g/kg	CaGluc mg/day	Phos mmol/day	Notes
Day of Birth	100	Day 1	20	10	70	5-6	3	550-650	1.2-1.4	
Day 2	120	Day 2	20	15	85	7-8	3.5	650-775	1.5-1.7	
Day 3	130	Day 3	40	15	75	9-10		750-900	1.8-2.0	
Day 4	140	Day 4	60	15	65	7-8	2.5			Fortify EBM/DBM with Similac HMF 24 cal; Begin weaning protein/GIR
Day 5	150	Day 5	80	15	55	5-6	2			Remove MVI/TE. Start D-Vi-Sol 0.5 mL/day and Fer-in-Sol 3 mg/kg/day
Day 6	150	Day 6	100	0	50	3-4	1.5			
Day 7	150	Day 7	120	Discontinue TPN/lipids remove central line.						
Day 8	150	Day 8-9	Advance by 20 mL/kg to goal of 160 mL/kg/day							
		Day 10+	Adjust feeds with weight gain to maintain 160 mL/kg or Total Fluid Goal per order							

MemorialCare
Miller Children's & Women's Hospital Long Beach

Recommended Parenteral Intake

	Initial Dose	Target	Notes
Energy (kcal/kg)	42-57	90-100	
Protein (g/kg)	2 to 3	3.5	
SMOF Lipids (g/kg)	0.5 to 2	3	Min of 2 g/kg to prevent EFAD
GIR (mg/kg/min)	4-6	8 to 12	Max of 20
Sodium (mEq/kg)	0	3 to 5 or more as needed	Restricted during the first 24-48 hours
Potassium (mEq/kg)	0	2-4	Restricted until UOP > 1 mL/kg/hr
Calcium (mg/kg)	30-40	60-80	
Phosphorus (mg/kg)	30-40	45-70	
Magnesium (mEq/kg)	0-0.2	0.4-0.6	Hold Magnesium until serum level <2.6 mg/dL
Carnitine (mg/kg/day)	10 for BW <1000 g		Max 20 mg/kg/day
MVI (mL/kg)	2 mL/kg		Max 5 mL/day
Trace Elements (mL/kg)	0.4 mL BW< 1250 g 0.3 mL BW > 1250 g		Individualize if D Bili > 2
Zinc (mcg/kg)	400-500		Increased needs with GI losses
Copper (mcg/kg)	20-40		
Selenium (mcg/kg)	3-7		Reduce or omit with renal impairment

Managing Hyperglycemia During Advancement

POC Glu 140-160	Advance GIR by no more than 0.5mg/kg/min until goal reached
POC Glu 161-180	Hold GIR, do not advance
POC Glu 181-200	Decrease GIR to previously tolerated GIR
Glu >200 (≥1000g) Glu >250 (≤1000g)	Consider insulin if GIR < 6 OR Non-Protein calorie <60cal/kg ≥ 3 days

Managing Hypertriglyceridemia During Advancement

TGs 200-249	Do not advance rate.
TGs 250-300	Decrease lipids by 0.5- 1g/kg/day from current rate
TGs >300	Decrease lipids to a minimum of 0.5g/kg/day. F/u TGs in AM.
With elevated TGs, advance carnitine by 5mg/kg/day to max of 20 mg/kg	

Managing Sodium/Potassium During Fluid Advancement

1mmol NaPhos = 1.3mEq Na; 1mmol K Phos = 1.4mEq K	
Na Target 140-150	
Na < 140	Decrease fluids by 10 mL/kg
Na > 150	Increase fluids by 10 mL/kg

Managing Calcium/Phosphorus Ratio in PN

Elemental Ratio = [(mg Ca Gluc x 0.09)/(mmol Phos x 31mg)]			
Serum Ca	**Serum Phos**	**Intervention**	
Low	Low	Increase both and maintain similar ratio	
Low	High	Increase Calcium only	
High	High	Decrease both and maintain similar ratio	
High	Low	Increase phosphorus only	
Early Hypernatremia:		If unable to add Phosphorus, may need to decrease both Calcium and Phos to avoid a Ca: P ratio > 2:1	
Calcium Bolus Indications:		< 1500 g >1500 g	< 0.8 mmol/L <1 mmol/L
		Administer 50-100 mg/kg Ca Gluconate bolus over 60 min	

Max TPN/PPN Capacity

Max Phos Infusion 0.1mmol/kg/hr
Max Ca Infusion Central: 10 mg/mL
Max Ca Infusion Peripheral: 2 mg/mL
Max Osmo 800 mOsm/L for peripheral line