



ADULT PARENTERAL NUTRITION (PN) ORDERS Order by 1300 (DIRECTIONS / ADDITIONAL INFORMATION ON BACK)

NUTRITIONAL SUPPORT SERVICES[NSS]

All new patients on PN will receive an initial consult [Pager 917-1870 or call 588-7681 or enter on SMS]

- Additional Services:**
- Management of Parenteral/Enteral Nutrition [NSS WILL write orders with Medical Director oversight]
 - Patient Monitoring with Recommendations Only [NSS will NOT write orders]
 - No Further Services Requested

Primary Diagnosis: _____ PN Indication: _____ Ht: _____ cm Dosing Wt: _____ kg

ADMINISTRATION BY CENTRAL LINE ONLY

Standard PN Formula 50mL/hr [1200mL/24hrs] (1216 kcal) [no modifications or additions allowed except for famotidine or insulin in this box]
 Amino Acids 51 g/day Dextrose 180 g/day MVI 10mL/day Sodium 90mEq/day Magnesium 6mEq/day
 Fat Emulsion 20% 200mL/day Trace Elements 1mL/day Potassium 40mEq/day Phosphorus 14mmol/day
 Famotidine _____ mg/day Insulin [regular] _____ units/day Calcium 6mEq/day Chloride:Acetate 3:1

Non-Standard PN Formula

[select rate, then grams of amino acids and dextrose, order the volume of fat emulsion, then order electrolytes and other additives below]

Continuous Rate _____ mL/hour x 24 hrs = _____ mL/24 hours OR **Cyclic Schedule** See Below

Amino Acids _____ g/day (4 kcal/g)	Dextrose _____ g/day (3.4 kcal/g)	Fat Emulsion 20% _____ mL <input type="checkbox"/> None	All-in-One Daily (2 kcal/mL)
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<p style="text-align: center;">----- Electrolyte Additives ----- **</p> <p>Sodium _____ mEq/day Potassium _____ mEq/day Calcium _____ mEq/day Magnesium _____ mEq/day Phosphorus _____ mmol/day Chloride:Acetate <input type="checkbox"/> All Chloride <input type="checkbox"/> 3:1 <input type="checkbox"/> 2:1 <input type="checkbox"/> 1:1 <input type="checkbox"/> 1:2 <input type="checkbox"/> 1:3 <input type="checkbox"/> All Acetate</p> <p>** Conversion table for electrolyte/Liter to daily amount on back of form.</p>	<p style="text-align: center;">----- Other Additives -----</p> <p>Famotidine _____ mg/day Multivitamins Adult _____ mL/day Trace Elements Additive* _____ mL/day Ascorbic Acid _____ mg/day Insulin [regular] _____ units/day Other _____</p> <p>* Trace Elements Additive contains in 1 mL = Zinc 5 mg, Copper 1 mg, Manganese 0.5 mg, Chromium 10 mcg, Selenium 60 mcg.</p>
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Trace Element Modifications [Used in special situations **only**. For routine Trace Elements see above]

Zinc** _____ mg/day	Selenium** _____ mcg/day	Manganese** _____ mg/day
Chromium** _____ mcg/day		Copper** _____ mg/day

**Individual orders for components of trace elements will be in addition to any that are ordered as the Trace Elements Additive.

Orders:

1. PN Catheters are to be used only for PN infusions unless specifically ordered by the physician.
2. 24-hour infusions will begin at 2030. The previous solution should be removed at that time regardless of the amount remaining.
3. Cyclic infusions will be removed after the specified time period followed by appropriate catheter care.
4. If the PN runs out early for any reason before next PN is available or if the PN is ordered after the cutoff time, infuse D10W at the rate ordered for the PN. (Call Central Pharmacy if not in Pyxis.)
5. If the central line malfunctions, start peripheral line and infuse D10W at the rate ordered for the PN.
6. Patient weights on Monday, Wednesday, and Friday.
7. **Routine laboratory tests: (in some patients more frequent monitoring may be necessary, do not duplicate labs already ordered):**
 - a. Blood sugars: every six hours while on PN.
 - b. Comprehensive Metabolic Panel, phosphorus, triglycerides, pre-albumin, magnesium in morning following PN initiation, then every Monday and Thursday.
 - c. Metabolic Panel on Tuesday, Wednesday, Friday, Saturday, and Sunday.
8. Disregard order #: _____.

<p>Cyclic Schedule</p> <p>First Hour (1 hr) @ _____ mL/hr = _____ mL In-between _____ hrs @ _____ mL/hr = _____ mL Last Hour (1 hr) @ _____ mL/hr = _____ mL Total hours _____ hr Total Volume _____ mL/bag</p>	<p>Special Instructions:</p> <p>_____</p> <p>_____</p>
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Date/Time: _____ Patient: _____ Physician: _____ Pager: _____

DIRECTIONS:

- New or change orders must be received by **1300**. Orders written after this time will be processed with the following day's orders and hung at the standard time that day.
- If no change, please write continuation orders on regular physician's order sheet.
- Solutions will be made up in a **24-hour** bag. Standard PN hang time is at **2030**.
- Indicate rate per hour, number of hours, and total volume or complete the Cyclic Schedule section.
- Peripheral Parenteral Nutrition is usually not indicated in adults due to its inability to provide adequate nutrition and the hazards to the veins.
- To use Standard PN Formulas, check the box with the appropriate volume. All additives are pre-selected and may NOT be changed. Famotidine and Regular Insulin may be added if desired.
- For non - standard formulations:
 - Enter the grams/day of amino acids.
Enter the grams/day of dextrose.
Enter the daily volume in mL of Fat Emulsion 20%.
 - Enter the mEq/day of each electrolyte. Enter 0 (zero) if none is desired.
 - Check the box for the Chloride: Acetate ratio.
 - Enter the amounts of other additives as needed.
 - When entering individual components of Trace Elements, the amounts ordered will be in addition to any that are ordered as the Trace Elements Additive.
- Rate changes will ONLY be allowed if a complete PN order form is filled out with one exception: A rate taper that includes an order to DC the PN may be written on the Physician's Order form e.g. "Decrease PN to 40mL/hr x 4 hrs, then DC" or "Decrease PN to 40mL/hr then DC after current bag."

Note: The Nutrition Support Service does not cover weekends or holidays. The primary team is responsible for TPN changes on those days and for initial starts during those days.

ESTIMATED ADULT REQUIREMENT

Basal Energy Expenditure x Activity Factor x Injury factor = Total Calories

Use Harris-Benedict Equation to calculate Basal Energy Expenditure (BEE)

Males: $BEE = 66.47 + (13.75 \times W) + (5.00 \times H) - (6.76 \times A)$

Females: $BEE = 655.10 + (9.56 \times W) + (1.85 \times H) - (4.68 \times A)$

W = weight in kg

H = height in cm

A = age in years

25 kcal/kg/day with increased kcal in septic or trauma patients

0.8 g/kg/day - Normal protein RDA for adults

1.3-1.5 g/kg/day - Protein for Stressed patients with adequate renal function

NUTRIENTS and OTHER CALORIC SOURCES

Carbohydrate 3.4 kcal/g Dextrose in parenteral solutions.

Protein 4 kcal/g

Fat 20% 2 kcal/mL

50 - 60% of kcal may be given as carbohydrate and ≤30% of total calories as fat.

D5W 170 kcal/Liter

Propofol 1.1 kcal/mL

DAILY ELECTROLYTE REQUIREMENTS FOR PN*

Electrolyte	Standard Requirement
Sodium	1-2 mEq/kg/day
Potassium	1-2 mEq/kg/day
Calcium	10-15 mEq/day
Magnesium	8-20 mEq/day
Phosphorus	20-40 mmol/day
Chloride:Acetate Ratio	As needed to maintain acid-base balance. 3:1 is the usual starting point.

*Standard intake ranges based on generally healthy people with normal losses.

DAILY ELECTROLYTE CALCULATION

Enter the desired Amount per Liter and Volume in Liters. Multiple the two columns and place answer in last column. Transfer this number [with appropriate rounding] to front of form.

Electrolyte	Amount per Liter	Volume in Liters	Amount/Liter x Volume in Liters = amount/day
Sodium			
Potassium			
Magnesium			
Calcium			
Phosphorus			

Previous standard electrolytes were: Sodium 51mEq/Liter, Potassium 30 mEq/Liter, Magnesium 5 mEq/Liter, Calcium 4.5 mEq/Liter, Phosphorus 12mmol/Liter.

VITAMINS

Multivitamin Adult contains vitamins: fat soluble (A 3300 units, D 200 units, E 10 units, K 150 mcg), water soluble (ascorbic acid 200 mg, pyridoxine 6 mg, thiamine 6 mg, riboflavin 3.6 mg, niacinamide 40 mg, dexpantenol 15 mg, biotin 60 mcg, folic acid 600 mcg, cyanocobalamin 5 mcg)

COMPOSITION OF AMINO ACID SOLUTIONS

Amino Acids 15%

Amino Acids 150g/Liter

Nitrogen 0.158 g/g amino acid

Acetate 0.85 mEq/g amino acid

1357mOsm/Liter

SUGGESTED MONITORING PARAMETERS

After baseline, then monitor the following:

	First week	Subsequent Weeks
1. Weight	3x/week	3x/week
2. Intake-Output	daily	daily
3. Multistix	2-4x dly	daily
4. Fingerstick Glucose	Q6H until stable	daily
5. Labs: see Orders on front side of this order		

NUTRITIONAL SUPPORT RESOURCES

1. IV Team	Ext: 8-5394
2. Pharmacy	Ext: 8-2320
3. NSS Pharmacist	Pager: 4908
4. NSS Team	Ext:8-7681 Pager:1870

ADULT PARENTERAL NUTRITION ORDERS