



Hackensack
Meridian Health
Jersey Shore University
Medical Center

Nutritional and Metabolic Support (NMS)

| Medical Staff Policies & Procedures | |
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| Document Owner: Medical and Dental Staff of JSUMC | Date Approved by MEC: 02/12/2019 |
| Author: Chief / Department of Medicine | Date of Last Review: |

Purpose:

The primary purpose is to enhance parenteral nutritional care for patients at Jersey Shore University Medical Center. Nutrition and Metabolic Support (NMS) team will provide PN oversight at JSUMC.

The NMS team includes; attending physicians (Representative from Departments of Nephrology, Endocrinology, Surgery, Trauma, and Gastroenterology), dietitians, pharmacists and registered Nurses. The NMS team will enhance PN and ensure appropriate and safe administration of Central or Peripheral PN.

Supportive Data:

Parenteral Nutrition should be used when the gastrointestinal tract is not functional or cannot be accessed and in patients who cannot be adequately nourished by oral diets or enteral nutrition. Parenteral Nutrition solutions generally include amino acids, dextrose, electrolytes, minerals, vitamins and water. Intravenous fat emulsions (IVFE) or lipids are included in 3-in-1 or total nutrient admixtures and supply essential fatty acids and provide a portion of the total caloric intake.

Central PN (CPN) contains a complete balanced formulation of dextrose, amino acids, IVFE, electrolytes, and trace elements that can meet 100% of the patient's nutrient needs. CPN solutions are hyperosmolar and must always be infused via a central line.

Peripheral PN (PPN) has a similar composition as CPN but contains a lower concentration of nutrients in order for it to be delivered into a peripheral vein. PPN may not meet 100% of the patient's nutrient needs. PPN can be infused via a peripheral or a central line. To be administered through a peripheral line, the osmolality of the PN solution must be less than 900 mOsm/L (maximum final concentration 3% Amino Acids and 10% Dextrose).

Scope:

Jersey Shore University Medical Center

Policy:

- Central Parenteral Nutrition must always be infused via a central line.
- Peripheral Parenteral Nutrition can be infused via a peripheral or a central line. To be administered through a peripheral line, the osmolarity of the PN solution must be less than 900 mOsm/L (maximum final concentration 3% Amino Acids and 10% Dextrose).

Procedure:**I. Orders:**

a. Central and Peripheral PN may only be ordered by an attending physicians who are credentialed and privileged by the Hackensack Meridian Health Board of Trustees to order PN or their designee. To obtain privilege to prescribe Parenteral Nutrition, attending physician must review educational material (30 minutes) and pass examination (5 minutes test) available on Hackensack Meridian Intranet/Healthnet.

b. All orders written by a resident, fellow, nurse practitioner, physician assistant must be countersigned by the supervising physician with PN privileges.

c. PN orders are to be ordered via the computer or written on a PN order form and must be re-ordered every 24 hours. If a new order is not re-written after 24 hours, the PN will be automatically discontinued.

d. PN Orders must be received by the Pharmacy by 1 pm. If PN order is not received by 1pm, the NMS team will be contacted to provide PN to avoid any missed treatment. The primary attending of the patient will also be notified.

e. All PN orders will automatically receive standard formulation of Multivitamin.

f. A nutrition consult for nutrition assessment will be generated with initial PN order and will be completed within 24 hours by the registered dietitian.

II. Administration:**Catheter:**

a. A portable chest x-ray is needed to verify correct catheter position following triple lumen central catheter insertion or Seldinger wire change. Once the correct position of a central catheters is confirmed, a physician order is needed to initiate or resume PN administration.

b. The date of the catheters insertion, or wire change, name of the physician performing the procedure and patient tolerance should be documented.

c. Use the middle port of the triple lumen catheter for PN and label tubing appropriately. If the port was previously used for medication and /or IV fluid it will be re-designated for PN therapy and will not be interrupted for other medication administration. The proximal port is recommended for blood draws if another access is not available.

Verification of Solution:

a. Check the physician's order for PN against the ingredient label on the front of the PN solution container. If a discrepancy is found the pharmacy/physician must be notified.

- b. Check the PN solution for any signs of precipitation (i.e. Cloudiness-in non-lipid containing PN only, separation of solution, lack of uniformity or homogeneity in appearance, visible particle). If there are any signs of precipitation, the procedure below will be followed:
 - Notify the pharmacy and resident/physician who ordered the PN
 - Discontinue the PN infusion
 - Hang appropriate replacement solution
 - Send a sample of the solution to the laboratory for Culture & Sensitivity

Procedure for Administration

- a. PN solution must be refrigerated. Remove from refrigerator 2 hours before administration.
- b. PN solutions are to be hung at 9 pm daily. Any remaining PN solution from the prior infusion is discarded after 24 hours regardless of the amount left in the bag.
- c. Avoid rapid adjustments to flow rates. IF the rate needs to be changed for any reason, increase or decrease the rate in increments of 25mL/hr until desired rate is obtained.
- d. PN solution containing insulin must be shaken every 4 hours.
- e. *NOTE* Central or peripheral PN infusions should not be abruptly discontinued in patients who are not being fed orally or enterally as this could result in hypoglycemia. To safely transition of PN in patients who are not being fed orally or enterally, decreased PN rate by half for 2 hours then discontinue PN. Of the PN solution is abruptly discontinued for any reason, the procedure will be followed:
 - Dextrose 10% in water 1000mL will administered IV via peripheral or central line at the same rate as the PN solution
 - The prescriber will be contacted for further orders
 - 30 minutes after abrupt discontinuation of PN, obtain venous blood sugar.
 - Have dextrose 50%IV 50 mL available.

Filters/Lines/Compatibility:

- a. All PN solutions must be administered with an infusion pump. If the PN solution contains lipids, a 1.2 micron filter should be used. If the PN solution does not contain lipids, a 0.22 micron filter should be used.
- b. All PN IV tubing and filter must be changed every 24 hours.
- c. All tubing must be changed in any part of the tubing or connections leak.
- d. The PN line or solution must not be violated. The line must NOT be used to give transfusions, draw blood or take central venous pressure reading EXCEPT IN THE EVENT OF EMERGENCY.
- e. Do not piggyback any IVs with PN
- f. No additional medications are to be added to the solution bag are to be done prior to infusion. Medications that need to be added to the solution bag are to be done prior to infusion. Medications are to be added to PN solution bags by authorized pharmacy personnel ONLY

III. Monitoring Parameters:

- a. Draw laboratory studies as ordered
- b. All patients must be placed on intake and output

- c. Vital signs are to be taken as ordered. (Notify Physician for temperature greater than 101 degree F).
- d. Monitor weights as ordered
- e. Blood sugars must be monitored as per physician's order
- f. For patients who are noted to have hyperglycemia, blood glucose levels should be closely monitored.

See attachment for the Adult Total Parenteral Nutrition Order form.

Requirements

Approvals:

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| Meridian P&T Committee | 1/22/2019 |
| JSUMC Combined ICU Committee | 11/20/2018 |
| JSUMC Infectious Disease Committee | 11/08/2018 |

Special Notes / Appendix

References:

1. Lyman, B., Colombo, J.M. & Gamis, J.L. (2010) Implementation of the Plan. In Corkins, R. M. (Ed.). The ASPEN Pediatric Nutrition Support Core Curriculum (448-451). Silver Springs, MD: American Society for Parenteral and Enteral Nutrition.
2. Rhoda KM, Chatricall EG. Transitional Feeding: Challenges and Approaches. Support Line 2008; 30:21-28
3. Mueller, C.M. (Ed.)(2012). The A.S.P.E.N. : Adult nutrition support core curriculum 2nd edition. Silver Spring, MD: American Society of Parenteral and Enteral Nutrition.
4. Thompson C. Initiation, Advancement, and Transition of Enteral Feedings. In: Charney P, Malone A. ADA Pocket Guide to Enteral Nutrition. American Dietetic Association. 149
5. Canada T, Crill C, Guenter P.A.S.P.E. N. Parenteral Nutrition Handbook. American Society of Parenteral and Enteral Nutrition: Silver Spring.2012

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Attachments:

Applicability

Nutrition and Metabolic Support Team

Dr. Arif Asif MD, Chairman of Department of Medicine
 Dr. Mayurkumar Patel MD, Department of Nephrology
 Dr. Jennifer Cheng DO, Department of Endocrinology
 Dr. Danielle Lann MD, Department of Endocrinology
 Dr. Nasim Ahmed MD, Department of Surgery
 Dr. Glenn Parker MD, Department of Surgery
 Michael Winstanley, RPh, Department of Pharmacy
 Michelle Kohute, PharmD, BCCCP, Department of Pharmacy
 Denise Rubin, M.S.,R.D.N., Department of Nutrition
 Stephanie Macaluso, D.C.N., R.D.N., CNSC., Department of Nutrition