



Nursing Professional Development

Enteral and Parenteral Nutrition

Resource Manual

*Quality, Patient Safety & Interprofessional Practice
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Together, supporting quality care



Table of Contents

Purpose.....	3
Objectives	3
Continuing Competence.....	3
Enteral Nutrition	4
Definition	4
Definition of Bolus and Continuous feeding	4
Indications.....	4
Procedures – Patient Safety	4
Verifying Feeding Tube Placement.....	5
Irrigating/Flushing a Feeding Tube	5
Administering Feed/Medications through a Feeding Tube	5
Documentation.....	6
Parenteral Nutrition.....	6
Definition – Difference between TPN and PPN	6
Indications.....	6
Procedures – Correct Solutions and corresponding TPN tubing	6
The 2:1 Solution (Clinimix) with separate Intralipid 20%	7
The 3:1 Solution – SmofKabiven - Amino acids, dextrose and lipids	7
Procedure – Administering (hanging the solution).....	8
References.....	9

Purpose

This learning package is a resource, designed to standardize education for all nurses caring for patients that require enteral or parenteral nutrition. It is important that the reader know Quinte Healthcare Corporation (QHC) process on enteral and parenteral nutrition prior to managing them independently.

This package is intended to be a part of orientation to enteral and parenteral nutrition. If at the completion of this program you feel that you are unable to perform these skills competently, it is your responsibility to confer with your Professional Practice Specialist, Manager, or Charge Nurse/delegate.

Objectives

1. Provide an interdisciplinary team approach to patient nutrition that can assist in achieving and maintaining the patient's optimal level of function.
2. Promote early and safe nutrition for the patient.
3. To assist nurses to practice within their scope of practice and adhere to relevant professional standards and legislation.

Continuing Competence

It is strongly recommended that nurse's review all skills related to the administration and maintenance of enteral and parenteral nutrition on an ongoing basis to ensure continued competence. If at any time the nurse feels additional review/retraining is required, it is the responsibility of that nurse to seek additional education/resources from the manager, or Professional Practice Specialist/delegate to ensure continued competence related to enteral and parenteral nutrition. Nurses are professionally responsible for ensuring that they have the requisite knowledge, skill and judgment necessary to provide safe and effective therapy (CNO, 2019).

Enteral Nutrition

Definition

Enteral Nutrition is the administration of nutrients directly through the gastrointestinal tract when a patient is unable to ingest, chew or swallow, but is able to digest and absorb nutrients. Nasogastric (NG) tubes are usually indicated for patients who require short-term enteral nutrition, usually for about 30 days. Patients who require feedings for longer periods of time are in need of more invasive gastrostomy or jejunostomy tubes (Potter, Perry, Stockert, Astle, & Duggleby, 2018).

Indications

- Patients who have a functional gastrointestinal tract that is capable of absorption of adequate nutrients
- Patients who are unable to take nutrients orally
- Inadequate energy intake to meet metabolic demands

Bolus feeding

Bolus feeds are a delivery of smaller volume feeds which are given at specific intervals during the day. This volume of feed can total up to a maximum of 500mL over a maximum of two hours. The physician and/or the registered dietician will provide the order for the amount of feed. Bolus feeds can be delivered via a gravity feeding set or by syringe method. Always use caution when administering bolus feeds and ensure instillation is not performed too fast.

Continuous feeding

Continuous feeds are administered via pump when a slower rate enhances the tolerance of feeds. Refer to the Physician Orders and/or Enteral Nutrition Order Set for administration orders for your patient.

Procedures – Patient Safety

Patient safety considerations need to be in place during feed times:

- Maintain head of the bed (HOB) at 30-45 degrees minimum during feeding
- Ensure confirmation of tube placement has occurred (via x-ray)
- Strict monitoring of intake and output
- Signs of intolerance to enteral feeding include: retching, vomiting, abdominal discomfort, distention of the abdomen, diarrhea.
- It is imperative to ensure the patient is having regular bowel movements and that the physician is made aware of any concerning symptoms which may indicate intolerance of feeds.

Verifying Feeding Tube Placement

- X-ray verification is the most reliable method to confirm placement
- After initial x-ray, mark the exit site of a feeding tube with a sharpie marker and note the length and nare placement of the tube. Document this information in the Meditech intervention Drainage Tubes. Observe for a change in external length when accessing/monitoring the tube.
 - Auscultation of an air bubble is no longer considered a reliable method of tube placement as it cannot distinguish between gastric and small bowel placement
- For intermittently fed NG patients, ensure tube placement prior to initiation of feeding. If the tube has migrated, notify MD before initiation of feeds.
- For continuously tube-fed patients, verify tube placement q 4hours and prior to any medication administration.

Irrigating/Flushing a Feeding Tube

- Sterile water or saline is the preferred diluent for medications and for flushing over tap water.
- Flush feeding tube with 30 mL of water when hanging fresh formula, before and after medication administration, and before and after feedings. This prevents occlusion of the tube.
- Flush with water as directed by physician/dietician if the patient has additional hydration needs
- Observe for resistance when flushing, notify physician if unable to irrigate
- Document procedure as well as volume of fluid administered in the Meditech screen for enteral feeds after each administration and/or q4h for continuous feeds

Administering Feed/Medications through a Feeding Tube

- The feeding bag and tubing is to be changed every 24 hours.
- Formula should not hang for more than 4 hours, and should be clearly labeled with time, date and type of formula hanging.
- **Clear pump** and document your feeding volume and flush volume **every 4 hours**. Rationale: checking your patient's tolerance to feeding regularly and ensuring pump is functioning properly.
- When giving medications through a feeding tube, crush each medication thoroughly to a fine powder and ensure they are dissolved in the appropriate volume of sterile water. If on continuous feeds, suspend feeds while administering medication. Never add medication to the enteral feed.
- The "Flush Now" feature on the Kangaroo epump can be used to perform pre- and post-medication flushes of 30 mL water.
- Medications that are not to be crushed, such as enteric coated, or capsules with beads, may need to be reviewed by the physician. An alternate medication may be required, as these medications can clog the tube.

Documentation

Documentation within the Enteral Nutrition intervention must include:

- formula name
- the infusion rate
- the volume infused
- time of initiation/discontinuation

Document any issues pertaining to the enteral nutrition in the nursing notes and report to MRP any adverse events related to enteral feeding.

Parenteral Nutrition

Definition – Difference between TPN and PPN

Parenteral nutrition is the intravenous infusion of nutrients when the enteral route is contraindicated or inadequate. Total Parenteral Nutrition (TPN) is used for patients with no other source of nutrition. Patients receiving TPN will require central venous access, as the concentration of TPN is high and contains glucose, minerals and electrolytes and can be caustic to smaller peripheral veins.

Peripheral Parenteral Nutrition (PPN) is a partially complete form of nutrition. Peripheral Parenteral Nutrition has a reduced concentration and can be safely administered in the smaller peripheral veins. Peripheral Parenteral Nutrition solutions are typically used when a patient has an alternate energy source, or if the therapy is meant to be short term.

Indications

- Moderately malnourished patients who require intensive medical or surgical intervention.
- Non-functioning gastrointestinal tract such as prolonged ileus or bowel obstruction.
- Patients in severe malabsorptive state i.e., radiation enteritis, inflammatory bowel disease, and short bowel syndrome.
- Long term ventilated patients, where the enteral route is not indicated.
- To provide complete bowel rest.
- Patients in a hypermetabolic state.

Procedures – Correct Solutions and corresponding TPN tubing

The 2:1 solution requires the 0.22-micron filter and the lipids will be hanging separately from the Amino Acids.

The 3:1 solution requires the 1.2-micron filter. The solution will be a milky colour, as the Amino Acid, Dextrose and Lipids will be in the same bag.

Ensure you have the correct solution for the correct route ex. peripheral versus central line access. This will be identified on the Total Parenteral Nutrition Order Set.

The 2:1 Solution (Clinimix) with separate Intralipid 20%



Please note the white 0.22-micron filter for the 2:1 solution.

The 2:1 Solution requires two separate pumps. The amino acids and dextrose must infuse separately from the lipid infusion.

The amino acids and dextrose (clear or lightly yellow bag) require a dedicated line and the 0.22-micron filter.

The amino acids/ dextrose and TPN tubing must be changed q24h.



The lipids will require a 1.2-micron filter (blue filter), which can be attached to the Y port closest to the patient.

The lipid solution and TPN filter must be changed q12h.

The 3:1 Solution – SmofKabiven - Amino acids, dextrose and lipids



Please note the blue micron filter for the 3:1 solution – This solution will be ‘milky’ in appearance.

The 3:1 solution has 1 pump and 1 set of TPN tubing. This solution and TPN tubing must be changed q24h.

The 3:1 solution requires the 1.2-micron filter size, as the lipids are mixed in the same bag.

Please note the filter is below the drip chamber and attached closest to the patient.

Procedure – Administering (hanging the solution)

- The physician and/or the dietitian will determine the patient's nutritional needs
- Follow the physician order set for parenteral nutrition.
- Transcribe the physician order set for parenteral nutrition as per QHC policy (Policy 3.12.5 – Medication – Independent double checks – High Risk Medication Administration).
- Sign for TPN solution on the Computerized Medication Administration Record (CMAR).
- Parenteral nutrition ingredients listed on the bag should be checked against the physician order set for parenteral nutrition.
- Check amino acid/dextrose solution for precipitate. If there is any present, notify pharmacy and do not use.
- Parenteral nutrition will have its own designated peripheral or central venous access line.
- Parenteral nutrition bags must be hung in sequential order.
- No IV medications will be added or infused congruently with the parenteral nutrition. The only exception will be insulin. Insulin may be piggybacked into the lowest “y” port.
- Maintain a constant rate of flow.
- The nurse will monitor the patient for signs of hyperglycemia and hypoglycemia, signs of possible infection (including fungal infection), any complication related to therapy, indications of adverse reactions and will assess for potential readiness to begin oral/enteral feedings.
- The Parenteral solution is to be stored in the refrigerator until 1 hour prior to use.
- Solution hang time should not exceed 24 hours.
- Document and monitor fluid intake and output q4h.
- Document the infusion rate, the volume infused within the designated Meditech intervention.
- Document any issues pertaining to the parenteral nutrition in the nursing notes.

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