Authorizing Prescriber(s)

All Lakeridge Health (LH) Most Responsible Practitioners (MRP) who prescribe Parenteral Nutrition (PN) Therapy to LH patients.

Authorized to whom

Registered Dietitians (RD) employed at LH who have the knowledge, skill, and judgement as part of their principal expectations of practice in the selection of Parenteral Nutrition Therapy may implement the Medical Directive for patients with an RD referral and an order to initiate parenteral nutrition.

Co-implementers: Nurses employed at LH may co-implement this Medical Directive

Patient Description / Population

Adult and Paediatric admitted patients with a referral to an RD who have a Central Venous Access Device (CVAD) or Peripheral Venous Access Device (PVAD), or have a written order for these devices, and have an order to initiate parenteral nutrition.

Order and/or Procedure

The RD will select, monitor and/or adjust parenteral nutrition therapy specifying the type of amino acid, dextrose and lipid solutions, additives, route, rate, volume and infusion times as indicated in the Order Table using a Parenteral Nutrition Order Set.

The nurse providing care to a patient for whom the RD has selected parenteral nutrition therapy as per the Orders Table as indicated on a Parenteral Nutrition Order Set as co-implementer may administer parenteral nutrition.

Indications to the implementation of the Directive

RDs may implement this medical directive when all of the following are met:

- The MRP has written an order for parenteral nutrition
- The RD has completed a nutrition assessment and determined this is an appropriate route for nutrition therapy
- Consent has been obtained from the patient or substitute decision maker (SDM)
- CVAD or PVAD is available for parenteral nutrition. (For amino acids containing greater than 10% dextrose use CVAD only).

Contraindications to the implementation of the Directive

- Consent has not been obtained from the patient or SDM.
- PN is not indicated as per the RD assessment
- No CVAD or PVAD is available for parenteral nutrition
- The patient has a medical condition that would be adversely affected by PN, see specific contraindications as per the Order Table

Consent

After completion of the nutrition assessment, the RD will present the proposed PN therapy plan to the patient and/or SDM, proving rationale, risks, benefits and alternatives. Prior to implementing the Medical Directive, informed consent will be obtained.

Prior to any co-implementation of this Medical Directive, the nurse will obtain consent from the patient and/or SDM prior to provision of Parenteral Nutrition Therapy.

Documentation Requirement

In addition to standard documentation practices, the RD implementing this Medical Directive must document the following in the orders section of the patient's health record.

- The named Order Set they are using to complete the order for parenteral nutrition
- The name of this Medical Directive
- Printed name of the implementer (the RD)
- Signature of implementer including credentials

For example: Parenteral nutrition order completed on the Adult Parenteral Nutrition Order Set as per the Parenteral Nutrition Medical Directive. A. MacIntosh RD

The RD must also indicate on the Order Set in the prescriber section:

- Printed name of the implementer (the RD)
- Signature of implementer including credentials
- The name of this Medical Directive

For example: A. MacIntosh RD as per the Parenteral Nutrition Medical Directive
Nurses (co-implementers) will document parenteral nutrition provided in the patient's health record as per standard documentation practices.

Review/Evaluation Process

This medical directive will be reviewed every 2 years by Inpatient Clinical Nutrition and Interprofessional Practice.

References

Ayers, P. et al (2014) ASPEN Parenteral Nutrition Safety Consensus Recommendations. Journal of Parenteral and Enteral Nutrition 28(3) 296-333
DOI: 10.1177/0148607113511992

ASPEN (2017) Management of Parenteral Nutrition in Hospitalized Adult Patients. *Journal of Parenteral and Enteral Nutrition* 41(4) 535-549
DOI: 10.1177/0148607116667060

Boullata, J.I. et al (2014) ASPEN Clinical Guidelines: Parenteral Nutrition Ordering, Order Review, Compounding, Labeling and Dispensing. Journal of Parenteral and Enteral Nutrition 38(3) 334-377
DOI: 10.1177/0148607114521833

Boullata, J.I. et al (2014) ASPEN Clinical Guidelines: Parenteral Nutrition Ordering, Order Review, Compounding, Labeling and Dispensing. Journal of Parenteral and Enteral Nutrition 38(3) 334-377
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This table must **not** be used independently from this Medical Directive

Order Table Form

Category	Order	Indication for use	Contraindication for use	Notes (Optional)
Continuous Infusion - administration is given at a continuous rate via infusion pump.	Parenteral Solution at 25-125 mL/hr via CVAD/PVAD for 24 hours .	Used with peripheral or central venous access on initiation of PN	Pt has a functioning gut and is able to meet their nutritional requirements enterally. Aggressive intervention not warranted or desired	Dextrose infusion rate of no more than 7g/kg/d Lipid infusion of no more than 1g/kg/d
Cyclic continuous - infusion for a specified period of time via infusion pump	Parenteral Solution at 25-200 mL/hr via CVAD for less than 24 hours	Abnormal liver function. Planning for discharge home Increasing mobility as part of goals of care	Pt with PVAD access only Pt has a functioning gut and is able to meet their nutritional requirements enterally. Aggressive intervention not warranted/desired	Dextrose infusion rate of no more than 7g/kg/d Lipid infusion of no more than 1 g/kg/d

Category	Order	Indication for use	Contraindication for use	Notes (Optional)
Amino Acids Dextrose				
5%Amino Acid 16.6% Dextrose Solution	5% Amino Acid with 16.6% Dextrose at 25-200 mL/hr via CVAD	Provision of energy and protein requirements in patients not able to meet their nutritional needs orally or enterally and have CVAD access	Paediatric patients Pt with PVAD access only Aggressive intervention not warranted or desired Pt has a functioning gut and is able to meet their nutritional requirements enterally.	Requires order for CVAD or patient has a CVAD
5% Amino Acid 10% Dextrose Solution (CVAD)	5% Amino Acid with 10% Dextrose at 25-200 mL/hr via CVAD	Provision of energy and protein requirements in patients not able to meet their nutritional needs orally or enterally and have CVAD access	Pt has a functioning gut and is able to meet their nutritional requirements enterally. Aggressive intervention not warranted or desired	
5% Amino Acid 10%Dextrose Solution (PVAD)	5% Amino Acid with 10% Dextrose at 25-200 mL/hr via PVAD	Provision of energy and protein requirements in patients not able to meet their nutritional needs orally or enterally and have PVAD access	Pt has a functioning gut and is able to meet their nutritional requirements enterally. Aggressive intervention not warranted or desired	

Category	Order	Indication for use	Contraindication for use	Notes (Optional)
Lipids				
SMOF Lipid	SMOF Lipid at 0-25mL/h via CVAD or PVAD	Provision of energy and essential fatty acids requirements in patients not able to meet their nutritional needs orally or enterally	Allergy to fish, soy, egg or peanuts	Clarify allergies; if true allergy to fish, use Intralipid
Intralipid	Intralipid at 0-15mL/h via CVAD or PVAD	Provision of energy and essential fatty acids requirements in patients not able to meet their nutritional needs orally or enterally	Allergy to egg, soy or peanuts	Use if patient has severe fish allergy Lipid infusion of no more than 1 g/kg/d
Electrolytes:				
Sodium(Na)	0-4 mmol/kg per 24 hours	Providing daily electrolyte requirements	NA	
Potassium (K+)	0-4 mmol/kg per 24 hours	Providing daily electrolyte requirements	NA	

Category	Order	Indication for use	Contraindication for use	Notes (Optional)
Magnesium (Mg)	0-25 mmol/kg per 24 hours	Providing daily electrolyte requirements	NA	
Calcium (Ca)	0-15 mmol/kg per 24 hours	Providing daily electrolyte requirements	NA	
Phosphate (PO4)	0-60 mmol per 24 hours	Providing daily electrolyte requirements	NA	
Trace Elements	0-1 mL per 24 hours	Providing daily trace mineral requirements	NA	
Multivitamins (Multi12)	0-10 mL per 24 hours	Providing daily vitamin requirements	NA	If already receiving multivitamins there may not be a need via PN
Vitamin K	0-3 mg IV minibag once per week, as per PN order set	Providing adequate vitamin K requirements	Abnormal INR Patient meeting Vitamin K needs through alternate source	Not to be ordered for patients on ongoing warfarin therapy
Thiamine (first dose administered prior to starting first day of PN)	100-300mg IV daily x 3 – 5 days	Risk of refeeding syndrome; Thiamine deficiency expected	Patient with documented allergy to thiamine Patient has pre-existing thiamine orders	

Category	Order	Indication for use	Contraindication for use	Notes (Optional)
Selenium	10-100 mcg/d	To ensure selenium requirements are met on PN	NA	