

## Parenteral Nutrition - Full Clinical Guideline - DERBY

Reference no.:CG-GASTRO/2018/022

### Introduction and scope of guidelines

This guideline is for use within Derby Teaching Hospitals NHS Foundation Trust. It has been developed in collaboration with the Nutrition Team, Gastroenterology Consultants, Surgical Consultants and Critical Care. Parenteral Nutrition (PN) will be given under the direct supervision of the Nutrition Team only.

### Abbreviations

PN Parenteral Nutrition

EN Enteral Nutrition

GI Gastrointestinal

CVC Central Venous Catheter

CRBSI Catheter Related Blood Stream Infection

CRP C-reactive protein

LFTs liver function tests

CBG capillary blood glucose

NG nasogastric

### Indications

Gut failure, due to non-function, proximal enterocutaneous fistula causing nutritional and/or fluid deficit or surgical resection, with an expected requirement of at least 7 days

Inaccessible GI tract expected to be longer than 7-10 days.

Post-operative patients who can not meet their nutritional requirements enterally after 5-7 days.

PN will be considered pre-operatively in malnourished patients/at severe nutritional risk where nutritional requirements cannot be adequately met orally or by enteral nutrition (EN).

### Referrals

Referrals are made using ICM, search for "Parenteral". [Appendix 1](#). Refer before 9.30 to be seen the same day. This is a Monday to Friday service during standard working hours only. Out of hours PN is not available. PN will only be started by the Nutrition Team. Urgent referrals should be phoned to the current Nutrition Consultant

### Pre-assessment

Pre-assessment should be done by the requesting team and includes

- Premorbid and current weight,
- Blood test including U+E, Mg, PO<sub>4</sub>, Ca, FBC, Clotting, LFTs, CRP and micronutrient profile and urine sodium, orderset on ICM "[Nutrition TPN Baseline](#)". [Appendix 2](#)
- Accurate fluid balance chart needs to be completed as well as a food chart if relevant.

- Consideration of route of administration needs to be made. Do not request line placement until PN is agreed by the Nutrition Team. If it is anticipated that PN may be required i.e at laparotomy with major small bowel resection, and central access is being placed, reserve a lumen of the central line for future PN use ONLY

### **Route of administration**

In this Trust we do not administer PN peripherally due to the high incidence of complications. PN is delivered via a PICC line, a dedicated single lumen central line / central venous catheter (CVC) or unused, clean lumen of an existing CVC (Pittiruti, Hamilton, Biffi, MacFie, & Pertkiewicz, 2009) (National Institute for Health and Clinical Excellence, 2006). The tip of the CVC must lie in between the lower third of superior vena cava and upper third of right atrium to minimise the risk of thrombosis. If a PICC line is required for PN this will be organised by the Nutrition Team, once PN provision is agreed

PN must be administered using aseptic technique to reduce the risk of catheter related blood stream infection (CRBSI) (Ryder, 2006) (Boyce & Pittett, 2002). PN is very high risk for CRBSI. [See Trust Parenteral Nutrition Policy.](#)

Once connected, PN should not be disconnected and re-connected under any circumstances due to the risk of CRBSI. If disconnected, the PN bag and giving set must be disposed of and the volume infused recorded on the fluid chart and in the medical notes.

PN can only be administered on ICU, SDU, ward 309 or ward 305, due to the high risk nature of the infusion and specialist training required.

### **Prescription**

The PN prescription will be developed by the Nutrition Team dietitian, pharmacist and consultant and signed by the consultant or nominated deputy from the Nutrition Team.

### **Monitoring**

Monitoring blood tests will be performed daily until stable and then twice per week. All blood tests required for monitoring of PN will be requested by the Nutrition Team. Additional blood tests should only be requested if required for other clinical reasons. The ward team are responsible for ensuring the necessary blood tests are taken. All blood tests should be taken early in the morning as if no blood tests results are available by 12:30 it may not be possible to make up PN.

At weekends the ward doctors are responsible for acting on the blood results and correcting any electrolyte derangements. The current PN prescription with the electrolyte content is filed in the nursing cardex.

The patient will be seen daily Monday-Friday by the Nutrition Team with twice weekly Nutrition Consultant review.

Capillary blood glucose should be measured 1-2 times per day, or more if needed until stable during PN and off PN by ward staff to ensure there is adequate pancreatic endocrine function to manage the glucose load of the PN. More frequent CBG may be required if the patient is diabetic or exhibits impaired glucose tolerance. Equally, once stable and particularly in home PN patients the frequency can be reduced as advised by the Nutrition Team.

Observations, temperature, pulse, BP and respiratory rate to be measured every 6 hours at a minimum. An accurate fluid balance chart should be kept to include all oral and iv intake and all output including vomit, NG, stoma, fistula, drain, urine and stool measurements.

The patient should be weighed daily by ward staff. Then weekly once stable.

Urine sodium should be performed twice per week, requested by Nutrition Team until stable.

### Long-term PN

If PN has been required for 2 weeks, then the need for more long-term PN and potentially Home PN should be considered (Pironi, et al., 2015) This will be considered by the Nutrition Team.

### Referral to Nottingham Clinical Nutrition Unit

Referral to Nottingham CNU will be made in conjunction with the team responsible for the patient using the standard referral form, [Appendix 3](#). This will be completed and sent by the Nutrition Team

### References

- Boyce, J. M., & Pittett, D. (2002). HICPAC committee and HIC/SHEA/APIC/IDSA hand hygiene Task Force: guideline for hand hygiene in health-care settings. *MMWR Recommendations and Reports*, 1-44.
- National Institute for Health and Clinical Excellence. (2006). *Nutrition Support in Adults CG32*. London: NICE.
- Pironi, L., Arends, J., Baxter, J., Bozzetti, F., Pelaez, R. B., Cuerda, C., et al. (2015). ESPEN endorsed recommendations. Definition and classification of intestinal failure in adults. *Clinical Nutrition*, 171-180.
- Pittiruti, M., Hamilton, H., Biffi, R., MacFie, J., & Pertkiewicz, M. (2009). ESPEN Guidelines on Parenteral Nutrition: Central Venous Catheters (access, care, diagnosis and therapy of complications). *Clinical Nutrition*, 365-377.
- Ryder, M. (2006). Evidence-based practice in the management of vascular access devices for home parenteral nutrition therapy. *Journal of Parenteral and Enteral Nutrition*, S82-93.

### Documentation Controls

Development of Guideline:	Dr Catherine Fraser Consultant Gastroenterologist
Consultation with:	Carolyn Day Liz O'Dell Suzanne Smith
Approved By:	18 <sup>th</sup> May 2018 ICU 8 <sup>th</sup> June 2018 Nutrition Business Meeting Sept 2018 Medical Division
Review Date:	September 2021 - <b>Extended until April 2024</b>
Key Contact:	Dr Catherine Fraser

## Appendix 1

Referral Parenteral Therapy - F

Order: Referral for Parenteral Nutrition Order ID: 001NVS2wF

Requested By: Fraser, Catherine

Messages: [...]

Ordering Information

Conditional Order  Template Name: [...]

★ Has EN been attempted? [...]

★ Reason could not have EN [...]

Additional Info [...]

★ Estimated duration of PN [...]

★ IV access proposed [...]

★ Baseline bloods sent [...]

★ Decision made to refer for PN by [...]

\* For use by Referral Dept only

Comment [...]

OK Cancel Repeat Item Info Help

## Appendix 2

Order Entry Worksheet - Pearson, Margaret Rennie

Allergies: Drug: aspirin, doxycycline, erythromycin, metronidazole

Requested By: Me Other: [...]

Date: [...]

Time: [...]

Session Type: Standard Reason: [...]

Start Of Browse Contents of /Order Sets/Nutrition Order Sets

Dementia  
Gynaecology Order Sets  
Intensive Care Unit Order Sets  
MAU Order Sets  
Medicine Order Sets  
Nutrition Order Sets  
Obstetric Order Sets

Type here to enter order name

Order  
Nutrition TPN Baseline  
Nutrition TPN Mon/Thur  
Nutrition TPN Tues/Wed/Fri  
Refeeding  
Refeeding Syndrome Baseline

Add...  
View...  
Item Info...  
Message...  
Edit...  
Delete  
Copy...  
Add Specimen...

Submit Cancel Hide Worksheet Help

Appendix 3

**Nutrition Support Team Referral to Clinical Nutrition Unit Nottingham University Hospitals NHS Trust**

<b>PATIENTS DETAILS:Name, ADDRESS, DOB,NHS No</b>

<b>Consultant Gastroenterologist:</b>

<b>Consultant Surgeon:</b>

<b>GP NAME &amp; PRACTICE ADDRESS</b>

<b>Patient Location</b>	
Hospital	<input type="text"/>
Ward	<input type="text"/>
Ward Telephone	<input type="text" value="01332 7"/>
Patient Telephone	<input type="text"/>

<b>Diagnosis</b>

<b>Date and details of most recent surgery</b>

<b>Current anatomy</b>

<b>Summary of case</b>

Date PN started	CVC access	Date placed

**Current PN prescription**

Bag							
Days							
Duration							
Volume (ml)							
Non Nitrogen kcal							
Nitrogen (g)							
Glucose (g)							
Na (mmol)							
K (mmol)							
Mg (mmol)							
Phosphate (mmol)							
Ca (mmol)							
Vitamins trace elements							

**Medication**

Drug	Dose	Timing

**Follow up arrangements****Contact details**

Dr Andy Cole	07799337671	<b>Nutrition Nurses</b>
Dr Stephen Hearing	07971650891	Liz O'Dell (Lead) 01332 785775
Dr Catherine Fraser	07795290334	<b>Dietitian</b>
Dr Rajesh Krishnamoorthy	07823373883	Carolyn Day

email [derbynutritionssupportteam@nhs.net](mailto:derbynutritionssupportteam@nhs.net)