

Adult Parenteral Nutrition

Key Points

- All patients who require assessment for parenteral nutrition (PN), must be referred to the Nutrition Support Team or Ward Dietitian.
- Nutrition ward rounds occur weekly; Tuesday at WPH Monday & Thursday at FPH.
- PN should not be initiated out of hours in the absence of the nutrition MDT.
- Orders for PN must be submitted by 10am for action same day.
- Those caring for patients receiving PN must have undertaken a competency assessment.
- Patients receiving PN must only be cared for on PN competent wards*:

WPH: Ward 2 / Ward 3 / Ward 10 / Ward 11 / ICU / Eden / MADU / Parkside.

FPH: F7 / F8 / F9 / G1 / ITU (Critical Care) / SADU / MADU / CFU/ Parkside / Short Stay Surgery

*Additional wards may be risk assessed

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Key words: Parenteral Nutrition, Total Parenteral Nutrition, TPN, HPN, Nutrition

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Abbreviations

ANTT	Aseptic Non-Touch Technique
BMI	Body mass index = weight in kg ÷ (height in meters) ²
CBG	Capillary Blood Glucose
EN	Enteral Nutrition
GI	Gastro-intestinal
GM	Blood glucose monitoring
IVAS	Intravenous and Vascular Access Services
MCT/ low fat mix	A special medium chain triglyceride mix given to patients who cannot absorb fat very well, due to its ability to be absorbed directly across the gut without the use of lipases
NG	Naso-gastric
NICE	National Institute for Health and Clinical Excellence
NJ	Naso-jejunal
NST	Nutrition Support Team
PEG	Percutaneous Endoscopic Gastrostomy
PEJ	Percutaneous Endoscopic Jejunostomy
PICC	Peripherally Inserted Central Catheter
PN	Parenteral Nutrition
TPN	Total Parenteral Nutrition (caution: although this term is often taken to mean centrally administered parenteral nutrition, it encompasses both central and peripheral administration)
VIP score	Visual Infusion Phlebitis score
VRIII	Variable rate intravenous insulin infusion

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1. Introduction

a. Scope of the document

The following guideline has been developed to provide information on the use of Parenteral Nutrition (PN), including how to prescribe, monitor and utilise PN in appropriate patients.

b. Definitions

PN is the provision of nutrients through intravenous administration including amino acids, glucose, lipids, electrolytes, vitamins and trace elements. PN is given centrally via a central venous line. Peripheral parenteral nutrition is not administered to adults in FHFT.

TOTAL PARENTERAL NUTRITION (TPN): the patient's complete nutritional needs are provided by the PN (all macro and micronutrients) and nutrition is not given by any other route than intravenously.

SUPPLEMENTAL PARENTERAL NUTRITION (SPN): nutrition is provided in addition to PN by any other route other than intravenously. For example, this situation may arise when the oral or enteral tube routes cannot independently achieve the nutritional care plan target.

HOME PARENTERAL NUTRITION (HPN): Patients on HPN are dependent on the provision of IV nutrition and hydration. They will have a dedicated long-term CVC for an individualised PN prescription and be under the care of a tertiary PN centre.

SCRATCH BAGS: These are bespoke formulations for specific patients. These are only used under the advice of the Nutrition Support Team (NST)/Ward Dietitian.

c. Responsibilities

The NST will review all the patients referred to them and currently receiving PN on a weekly ward round.

It is the responsibility of the medical/surgical team looking after the patient to make a PN referral to the dietitians on Epic. Referrals should be made in a timely manner to ensure that patients can be reviewed and assessed appropriately, and an effective plan put into place to best meet their needs.

The NST/Ward Dietitian will provide advice on the individual nutrition needs and where PN is indicated they will provide an appropriate prescription.

2. Indications and Contraindications for Parenteral Nutrition

The process of administering PN is not physiologically normal and therefore should only be used if the gut does not work or cannot be accessed.

Although not exhaustive, the following lists provide some of the common indications and contraindications for the use of PN:

Indications

- Paralytic ileus
- Gastro-intestinal obstruction e.g. oesophageal cancer, gastric outflow, small bowel obstruction where the obstruction cannot be bypassed by enteral feeding tube.
- High output enteral fistula
- Short bowel syndrome
- Severe acute pancreatitis where post-pyloric feeding is not tolerated
- Severe emesis where post-pyloric feeding has failed
- Peri-operative feeding in severely malnourished patients where enteral access is not possible (usually with upper GI cancers)

Contraindications

- Functioning gastrointestinal tract.
- Treatment anticipated for less than 5 days in patient without severe malnutrition prior to critical illness
- Prognosis doesn't warrant support

Contraindications to lipid emulsions

- Severe egg allergy
- Nut allergy
- Soya allergy
- Known abnormal lipid metabolism

In addition to the contraindications to the use of PN, the list below provides examples of when caution would be required prior to and during the feeding period:

- Fluid/electrolyte disturbance – ideally these should be corrected prior to starting PN/flagged up with the Dietitian
- Liver insufficiency
- Renal failure
- Coagulation disorders
- Inborn errors of amino acid metabolism
- Hyperglycaemia - this may require a variable rate intravenous insulin infusion regimen
- Marked hyperlipidaemia
- Hypersensitivity to egg, nuts, soy protein or any of the ingredients of the parenteral feed
- Metabolic acidosis
- Lidocaine (Lignocaine) infusion running

To avoid further aggravation of any of the above conditions, and as with all patients on PN, the need to remain on it should be reviewed daily by the clinician in charge of the patient's care. The close monitoring and review of these patients remains the responsibility of the clinician in charge of the patient, with the advice of the NST.

3. Making a Referral for Parenteral Nutrition

FHFT does not support the initiation of PN in the absence of an MDT assessment. If it is felt that a patient will require PN in the absence of the NST or dietitian being available, i.e., at the weekend, then a referral should be made to ensure timely assessment on the next working day.

All patients who are considered a potential candidate for PN should be referred electronically for full assessment before prescribing can take place. The team responsible for the care of the patient need to raise an order to the Dietetic department on Epic, citing PN as the reason for referral.

Once the order has been received by the dietitian's the patient will be assessed by the Ward Dietitian and/or the NST to assess their suitability to receive PN.

PN is provided by Pharmacy via an external Aseptic Unit therefore orders for PN are routinely completed by 10am every working day morning.

Nutrition Support Team Ward Rounds

FPH: Tuesday AM & Thursday AM

WPH: Tuesday AM

Frimley Park Hospital Contact details:

Lead Surgical Dietitian	Natasja Longo Ext 131743
Intensive Care Dietitian	Kath Reddy Ext 131075
Consultant Dr Ramu	Call via Switchboard
Lead Pharmacist – Nutrition (Nor Syakira Mahfuzh)	Ext 133744 (Main dispensary Ext 132319 / 134724)
Nutrition Support Nurses	Ext 139287 Mobile: 07584 142350
IV Access Nurse Specialists	Bleep: 5894 Mobile: 07393 243071

Wexham Park Hospital contact details:

Lead Surgical Dietitian	Natalie Callue Ext 153232
Consultant Miss Low	Call via Switchboard or Epic message
Nutrition Team Pharmacist	Contact via Epic message
Nutrition Support Nurse	07775 008920
IV Access Nurse Specialists	07920 756619 / 07917 070523 / 07584 443196

Out of Hours (Weekends and Bank Holidays)

'PN is not an emergency intervention in adults and there is rarely an indication for it to be started out of hours.' (NCEPOD 2010). 'Patients deemed to require parenteral nutrition should have their nutritional requirements determined by healthcare professionals with the relevant skills and training in the prescription of nutrition support, thus an MDT assessment is recommended to minimise complications' (NICE).

If it is felt that a patient will require PN in the absence of the NST or Dietitian being available, i.e., at the weekend, then a referral should be made to ensure timely assessment on the next working day.

During this time, it is advised that the surgical/medical team caring for the patient ensure that the patient is adequately hydrated, and correction of electrolyte disturbances has occurred in preparation for nutritional assessment on the next working day

The only circumstance where PN will be available out of hours will be over a four-day bank holiday. In this situation an out of hours bank holiday regimen will be available and this will be managed by Pharmacy. The patient will still need to be referred for PN in the usual way and will require an assessment to determine their suitability for PN. The assessment will be undertaken by a pharmacist on site.

4. Patients Admitted Receiving Home Parenteral Nutrition (HPN)

Most HPN patients will have a diagnosis of Intestinal Failure and therefore are dependent on the provision of IV nutrition and hydration irrespective of any oral/enteral nutritional intake. Patients receiving HPN will have a dedicated long-term CVC for an individualised PN prescription which may also include additional IV fluid and electrolyte provisions.

- The dedicated PN line should NOT be used for any other fluid/medications
- Information on a patient's usual prescription should be obtained from their home care providers or tertiary centre.
- All patients on PN should be referred to the Dietitian/NST for full assessment and advice on an appropriate PN prescription
- If the patient has been admitted due to suspected line sepsis – hold PN and obtain line cultures as per section 12 'Line Care'.
- The Dietitian will liaise with the team from the referring hospital who are responsible for the patient's PN at home to make them aware of the admission.

5. Appropriate IV Access

Central PN mixtures are optimal in providing IV nutrition therapy. In addition to meeting nutrition, fluid and electrolyte requirements, centrally administered PN has the potential to decrease the risk of thrombophlebitis compared with peripherally administered PN (NCEPOD 2010).

A tunnelled cuffed catheter or a double lumen PICC (of which one lumen will be dedicated) which is clearly labelled for such purpose should be used in every case where PN is administered. This dedicated lumen/line should not be used for co-infusing drugs or other fluids and electrolytes, as this can lead to serious complications. A PN microclave should be used to identify the PN lumen. This should be replaced weekly as per care plan

Catheter related sepsis is one of the most common complications of PN, meaning strict asepsis should be employed when inserting lines and surgical aseptic non touch technique (ANTT) used in their aftercare.

Signs and symptoms of catheter related infection should be taken seriously and acted upon as per the Sepsis pathway. Please see the trust guidance for 'Long Term Central Venous Catheter Complication Protocols' and the 'Adult SEPSIS SCREENING TOOL & BUNDLE' available on the intranet.

5a. Central PN (PICC, CVC, Tunnelled line)

Non-tunnelled central venous catheters (CVCs), as well as peripherally inserted central catheters (PICCs) are suitable for inpatient PN (ESPEN 2009).

Ideally a double lumen PICC line will be placed for PN infusion; this should be requested by referring to the Vascular access on EPIC. One of the Doctors in the team must make an order for an inpatient consult to vascular access.

The blue/purple lumen of a double lumen Power PICC should be dedicated for PN and capped with a microclave PN needle free connector. Where a triple lumen PICC is in situ the grey or white lumen should be dedicated for PN and capped with a microclave PN needle free connector.

Although it is also possible to use a dedicated port on a multiple lumen CVC; these are usually removed within 7-10 days of insertion to reduce the risk of catheter associated infection.

Home PN usually requires a PICC or if planned for an extended or unlimited time; long-term venous access devices such as tunnelled cuffed catheters

6. Prescribing Parenteral Nutrition

All PN must be prescribed on the Medications Administration Report (MAR) on Epic. (Appendix 2). PN is categorised as an IV drug and requires legal checks, i.e., signatures prior to administration.

Dietitians will order PN as appropriate following assessment of the patient and then contact the treating team to sign the PN prescription. PN bags are manufactured off-site, therefore **for PN to be dispensed on the same day, orders must be signed off by 11am for a standard product, or 10.15am for a tailor-made 'scratch bag'**. To comply with this time frame, it is suggested that initial referrals to the Dietitian/NST are made at the earliest opportunity.

No additions or manipulations can be made to PN bags on-site at FHFT. If additional fluids or electrolytes are required, this should be prescribed as a separate infusion to PN, ensuring total fluid, and electrolyte contributions have been accounted for. Tailor-made PN 'scratch bags' can be arranged for patients requiring longer term electrolyte or fluid manipulations in agreement with the NST.

7. Ordering and Storage of Parenteral Nutrition

Ordering process:

- 1) The dietitian will place an order for PN on Epic, and leave the order unsigned
- 2) Dietitian will contact the treating team to sign the prescription and will liaise with the nominated PN pharmacist
- 3) A doctor from the treating team must sign the prescription by 11am (for standard products) or 10.30am (for tailor-made scratch bags)
- 4) PN bags are typically delivered to pharmacy in the afternoon after 4pm and will then be dispensed for each patient. Ward staff can check order history on Epic to see when it is ready to collect. Alternatively, PN bags will be sent to wards via porters by the end of the day.

It is the responsibility of doctors to ensure the appropriate prescribing and monitoring of PN. The NST welcomes any opportunity to provide informal education about PN.

It should be noted that patients may not require the full volume of the PN bag supplied.

Please refer to the MAR for exact volumes to be infused. Any remaining volume must be discarded at the end of the set infusion period. **Infusions must not run for more than 24 hours.**

NOTE

Most compounded PN is unlicensed and supplied by companies who hold 'manufacturing specials (MS) license'. PN is classed as Unlicensed if it is a bespoke scratch bag or a standard licenced bag with additions e.g., vitamins/minerals.

Storing Parenteral Nutrition

All PN should be kept in a dedicated, monitored medication fridge - PN must not be stored in a kitchen food fridge.

8. Administration of PN

PN should only be administered by staff who have received adequate training and have a FHFT signed PN competency

PN must only be administered on PN competent wards.

It is not acceptable for a member of staff from a competent PN ward to connect and disconnect PN on a non-competent ward. Liaison with the bed managers to transfer the patient must occur.

Frimley Park Hospital	Wexham Park Hospital
ICU	ICU
SADU	MADU
MADU	Parkside
Parkside	Ward 10
F7	Ward 11
F8	Ward 2
F9	Ward 3
Short Stay Surgery	Eden Ward
G1	
CF Unit	

Once the PN has been removed from the fridge:

- Ensure the bag has the correct patient's name and prescription.
- Check that the contents of the bag have not turned yellow – please contact pharmacy if this occurs. Do not use the bag.
- Check that the fat and non-fat contents of the bag have not separated into two layers (cracked) or partially separated (creamed) – please contact pharmacy if this occurs. Do not use the bag.
- Check that the chambers of the bag have been fully separated in order that the PN solution is mixed.
- Allow the bag to come to room temperature before administration (minimum of 60 minutes).
- All PN should be administered using surgical ANTT technique. Please refer to **Appendix 3 'Procedure for Setting up and Administering PN'**
- Check the Epic prescription on the MAR and the Dietitian's notes for confirmation of the correct infusion rate, type of feed and rest period (if applicable).

Once the PN has been connected:

- NEVER RECONNECT PARENTERAL NUTRITION ONCE DISCONNECTED. Every time a line is manipulated there is a risk of line related infection. This risk is SIGNIFICANTLY INCREASED by reconnecting PN lines. If PN is disconnected, discard the bag.
- If your patient must leave the ward for investigations, e.g., X-Ray/CT scan DO NOT STOP OR DISCONNECT the feed. Instead ensure this information is handed over to the department that the patient is attending.
- Protect the bag from light at all times using the cover provided.
- Do not infuse the same PN bag for more than 24 hours any remaining volume in the bag must be discarded.
- Ensure the giving set is changed every 24 hours with each new PN bag.

9. Refeeding Syndrome

'Refeeding syndrome can be defined as a group of biochemical shifts and clinical symptoms that can occur in the malnourished or starved individual upon the reintroduction of oral, enteral or parenteral nutrition (Solomon and Kirby 1990) (PENG 2018).'

Refeeding syndrome can be prevented by identifying those at risk and starting to correct any biochemical abnormalities prior to initiating PN/IV glucose.

Identification of patients at risk of refeeding syndrome:

High Risk of Developing Refeeding Syndrome	
One or more of the following: • Body Mass Index less than 16kg/m² • Unintentional weight loss greater than 15% within the last 3-6 months • Little or no nutritional intake for more than 10 days • Low levels of potassium, phosphate or magnesium prior to feeding	Two or more of the following: • Body Mass Index less than 18.5 kg/m² • Unintentional weight loss greater than 10% within the last 3-6 months • Little or no nutritional intake for more than 5 days • A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics
Extremely High Risk of Refeeding Syndrome • Very low Body Mass Index < 14kg/m² • Not eaten for > 15 days	

Recommendations for commencing IV glucose/IV nutrition in those identified at risk:

- Check baseline biochemistry as per Total Parenteral Nutrition order set on EPIC & prescribe electrolyte replacements as appropriate and repeat bloods daily
- Prescribe Pabrinex I+II ampoules once daily, to be given 30 minutes prior to commencing IV glucose or PN
- Daily monitoring as per Table 1 (page 10)

9. Monitoring

Parameter	Frequency	Rationale
Weight	Patients should be weighed prior to starting to feed and be recorded weekly thereafter unless concerns regarding fluid status.	To establish a baseline weight and enable an accurate calculation of their nutrient requirements as well as assessment of fluid changes.
Biochemistry TPN blood profile includes: • 'renal profile' (sodium, potassium, urea, creatinine, estimated GFR) • 'bone profile' (corrected calcium, phosphate) • 'liver profile' (bilirubin, alkaline phosphatase, alanine aminotransferase, albumin) • glucose • magnesium • triglyceride • C-reactive protein (CRP) • FBC Wherever possible the practice of taking blood from PN lines should be avoided as this could lead to distorted blood results. For guidance on obtaining blood samples from a multi-lumen PN line please refer to IVAS Part 4 Venepuncture guidelines.	Daily for the first seven days. When stable twice a week.	Rapid biochemical disturbances can occur in patients receiving PN. Although abnormal LFTs are a known complication of PN. they are not usually a problem in short-term feeding, i.e., <3 months and resolve on cessation of PN. If LFTs are of concern rule out alternative causes such as medications, sepsis, PMHx, obstruction and discuss with the Dietitian/NST to review. Hyperlipidaemia can also occur in patients receiving PN and adjustments to the PN prescription, i.e., lipid-free days may support the management, however this will be guided by the NST/Dietitian. The absence of any oral/enteral feeding can result in cholelithiasis and therefore ongoing consideration should be given to the appropriateness of introducing oral/enteral nutrition.

Observations	Record 4 hourly observations and NEWS scores to help detect early clinical evidence of infection Signs and symptoms of catheter related infection should be taken seriously and acted upon as per the Cross Site Vascular Access and IV Therapy Clinical Guidelines.	IV catheter related sepsis is the most common serious complication of PN but is easily prevented using strict aseptic technique and dedicated feeding lines. For further info, please refer to the Cross Site Vascular Access and IV Therapy Clinical Guidelines.
Blood glucose	Undertake capillary glucose monitoring; 6 hourly for the first 24 hours then twice daily thereafter, if stable. (Aim to keep levels between 4-9 mmol/l) If levels are consistently > 10mmol/L a variable rate intravenous infusion should be considered (VRIII). Patients known to have diabetes may need to have their usual medications reviewed by the diabetes team as alternative medication/dosing may be required. Please refer to the Diabetic Nurse Specialist for further advice.	Hyperglycaemia is common during PN infusions, even in non-diabetic patients. PN acts as a substrate therefore It is not necessary to run 5% dextrose with VRIII for patients receiving PN as there is glucose in the infusion. You must however be vigilant to the need to monitor blood glucose hourly whilst on VRIII and consider stopping the VRIII if the PN is stopped to minimise the risk of hypoglycaemia. Please note there are separate guidelines available on the use of a VRIII.
Fluid Balance	Accurate DAILY fluid balance charts	These are an essential part of the monitoring for this patient group to effectively and safely provide PN.
Catheter Site	VIP score should be carried out DAILY on each shift and the assessment section completed on the Epic LDA avatar. Assess IV access site for signs of infection, phlebitis, thrombus or leakage daily and record. If a central line is leaking seek advice from the Vascular Access Team Access Nurse Specialists. If gauze pad is placed onto insertion of PICC line the dressing should be changed after 24 hours and gauze pad removed so VIP can be monitored and recorded. See Section 12 for further information regarding line care.	IV catheter related sepsis is the most common serious complication of PN but is easily prevented by regular monitoring of the catheter site and the use of strict aseptic technique.

**Additional
Biochemistry;**
Zinc, Copper,
Vitamin B12, Folate,
Iron, Ferritin,
Selenium &
Manganese.

As per guidance from NST/Dietitian

10. Line Care

Line care must be meticulous; a surgical non-touch technique must be adopted at all times.

Assessment of the IV device should be undertaken three times a day and the long-term IV access device care bundle should be followed.

Dressings, securement devices and needle free connectors should be changed every 7 days or after 200 activations. If the dressing is soiled or failing to adhere to the skin, it should be changed at once and the seven-day period starts from that time.

PN should only be provided via a dedicated port and lumen.

The red lumen can be used for blood sampling and other IV medications.

If suspected line sepsis:

- Seek advice from Vascular Access Team and refer to the Cross Site Vascular Access and IV Therapy Clinical Guidelines.
- PN should be withheld whilst awaiting blood culture results.
- Blood cultures need to be taken from all PICC lumens and marked as collected on Epic when collected to ensure the times are correct. This also allows staff to choose where the sample was taken from. All samples should be taken within a 30-minute window. It is important that the time and location of samples are accurate first time. This reduces the time patients are without nutrition.

11. Stopping Parenteral Nutrition

Before stopping PN, please contact your ward Dietitian/NST for advice.

PN should not be stopped until adequate oral or enteral nutrition is tolerated, and nutritional status is stable. Withdrawal should be planned and stepwise, with a daily review of the patient's progress.

Stopping suddenly should be avoided as this risks hypoglycaemia, especially for those on insulin. Close monitoring of blood glucose should continue once PN has stopped to ensure there are no rebound problems.

If stopping the feed abruptly is unavoidable, e.g. due to a line infection, blood glucose should be monitored every 4 hours for the next 24 hours and consideration should be given to initiate IV fluids. If a catheter infection is suspected, follow the relevant complications guideline. The patient should be cannulated peripherally for the IV fluids where possible.

12. Monitoring of Guideline

This guideline will be monitored through incident reporting and regular service audit.

13. Equality Impact Assessment

These guidelines have been subject to an Equality Impact Assessment and are not anticipated to have an adverse impact on any group.

14. References

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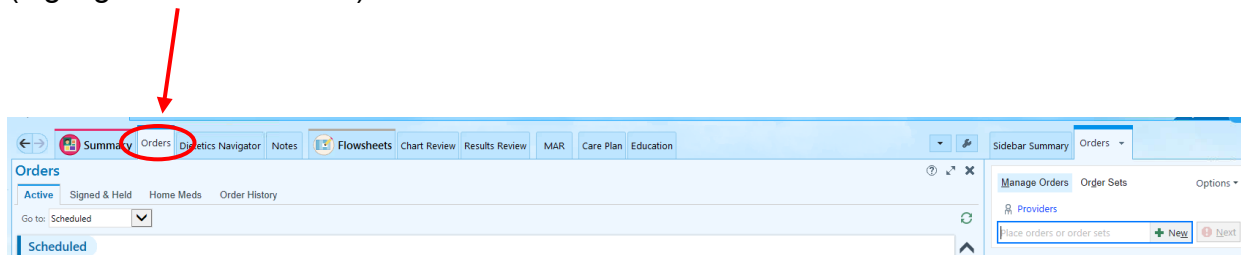
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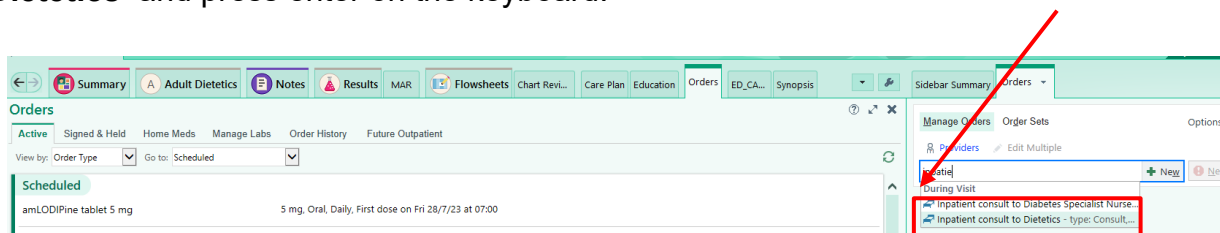
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Appendix 1: Epic PN referral process to Dietitian

Open the patient you want to refer on EPIC and then select the **orders** tab at the top of the page (highlighted in red below)



In search box in the side bar on the right-hand side of the page type in 'Inpatient consult to Dietetics' and press enter on the keyboard.



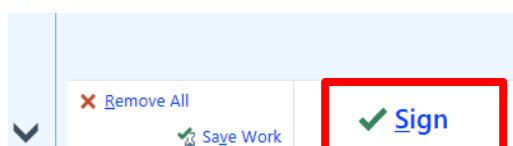
The

following page should appear:

Please complete the boxes appropriate stating 'PN' as the reason for consult, please 'add comments' to add detail as able. Then click on **Accept**

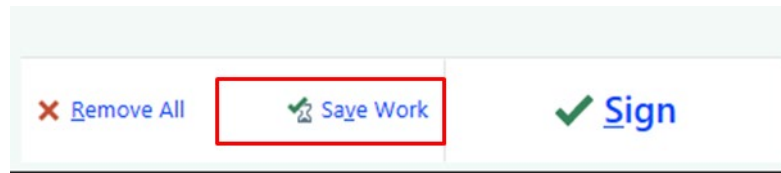
Now click on **sign** at the bottom right-hand side of the orders list. The referral will then be sent to

the dietetic department and triaged for assessment.

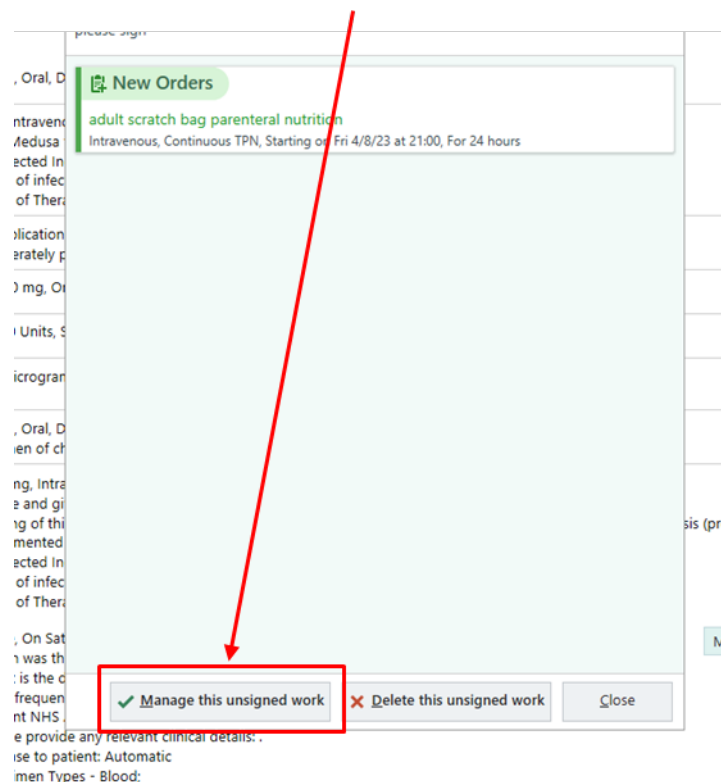


Appendix 2: FHFT Adult PN prescriptions on the MAR in Epic

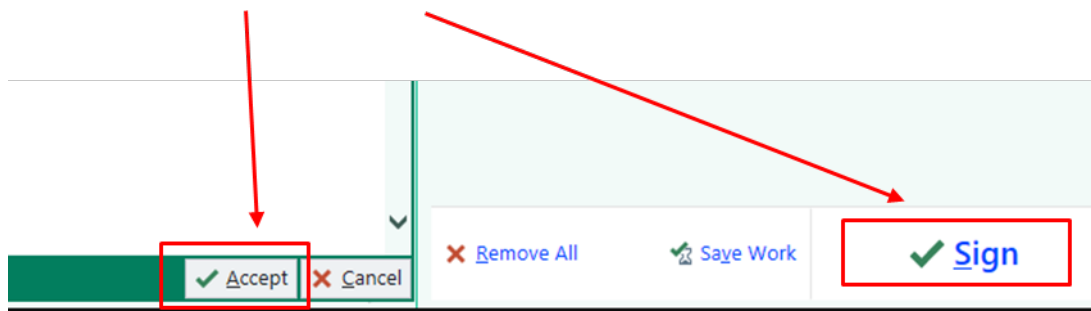
The dietitians will complete the PN bag rate and volume required and **Save Work** under orders.



This will **require signing by a prescriber** for it to appear on the MAR to be dispensed by pharmacy and administered by competent nursing staff. To do this please go to the Orders tab on Epic, and the pending request will show as 'Saved Work'. By clicking on this, a box should open. Please select '**Manage this unsigned work**'



The PN prescription chart should open, check that the prescription matches the regimen in the dietetic notes. Accept and Sign. This should complete the order.



Appendix 3: Procedure for setting up and administering PN

The only manipulations which should occur to the bag once on the ward are the fitting of a giving set and connection of the bag to the patient's intravenous line for administration.

The below outline is not a substitute for training but will act as a quick reference guide during and after training.

Equipment	
• Dressing trolley	• 10ml Sodium Chloride 0.9% flush
• 10ml Syringe	• 2 x Clinell wipes
• Dressing pack	• Giving set
• PN Bag	• Light protection bag
• Prescription	• Drip stand
• IV Infusion pump	• Sharps container
• Drawing up needle	

Key principles:

- **Identify the key parts**
- **Ensure no touching of the key parts at any point of the procedure**
- **Apply alcohol hand rub directly to the hands during the procedure if touching any non-sterile contents and/or if there is any risk of contamination**

Procedure for connection of PN infusion

1.	Ensure patient has the correct access; central venous access with a dedicated lumen if receiving central PN
2.	Remove PN from the fridge and allow to warm to room temperature (at least 60 minutes).
3.	Ensure PN bag is complete in line with prescription.
4.	Social hand wash. Gather and check equipment.
5.	Check PN bag and additives (where applicable) with a second nurse. Ensure bag is mixed thoroughly and there are no signs of precipitation. Ensure the bag has no leaks.
6.	Hang the PN bag on the drip stand and cover with the light protection bag provided.
7.	Clean dressing trolley in line with local policy and ensure dry before use.
8.	Clean your hands in line with Trust policy.
9.	Open sterile pack allowing inner pack to fall onto clean working area.
10.	Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.
11.	Place 0.9% sodium chloride (saline) near to the aseptic area.
12.	Empty two Pre-soaked chlorhexidine 2% and isopropyl 70% wipes onto sterile field (i.e. Clinell wipes).
13.	Ensure easy access to the needle free system.
14.	Clean your hands and put on gloves.

15.	Place sterile towel from the dressing pack under the line to create a sterile field in which to work. With a piece of sterile gauze pick up the Sodium Chloride 0.9% (saline) ampoule and draw up 10ml of solution. Dispose of needle directly in sharps container and place filled syringe on sterile area.
16.	Clean the needle free bung on the dedicated IV line using a new Clinell wipe and allow to dry.
17.	Flush the port with 10ml of Sodium Chloride 0.9% as per Trust policy.
18.	Prime the giving set and close the gate clamp.
19.	Attach to the giving set to the intravenous port using an aseptic non-touch technique.
20.	Remove gloves and clean hands.
21.	Load giving set into the infusion pump and set rate and volume as per prescription.
22.	Discard waste and clean trolley.
23.	Commence infusion and complete relevant documentation.
24.	Monitor patient as per PN guidelines.

The procedure for disconnection of the infusion should be executed with the same level of surgical ANTT.

Full version control record

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Guidelines Lead(s):	Katharine Reddy (Critical Care Dietitian FPH), Sarah Wheeldon (Acting Dietetic Lead WPH)
Contributor(s):	Natasja Longo, Francesca Kiting, Angela Hastings, Sarah Clarke
Lead Director / Chief of Service:	Melanie van Limborch, Chief of Nursing & Midwifery
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This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date. This guideline is for use in Frimley Health Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version History

Version	Date	Guideline Lead(s)	Status	Comment
1.0	October 2020	Katharine Reddy (Critical Care Dietitian FPH)	Final	First cross-site Adult PN guideline.
2.0	February 2024	Natasja Longo (Surgical Dietitian FPH) & Sarah Wheeldon (Surgical Dietitian WPH)	Final	Scheduled review. Reviewed by SMEs and discussed at EN/PN Forum 7/5/24; Therapies CG 21/5/24; NSG 11/6/24.
2.1	February 2025	Natasja Longo (Surgical Dietitian FPH)	Interim	Update to PN competent wards at FPH, update to contact details for FPH pharmacist and IVAs department. Update to setting up PN.

Related Documents

Document Type	Document Name
Competency	Signed PN competency (records held by Clinical Education) see section 9.0 Administration of PN
Guidelines	Vascular access guidelines

Guideline	Use of a Variable Rate Intravenous Insulin Infusion
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