PARENTERAL NUTRITION GUIDELINES

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

INTRODUCTION

This guideline has been developed to advise all healthcare professionals on aspects of parenteral nutrition delivery to patients. This includes reasons for PN, access routes, monitoring, complications, supply and administration along with contents of PN bags.

THIS GUIDELINE IS FOR USE BY THE FOLLOWING STAFF GROUPS:

Qualified Doctors, Qualified Nurses, Pharmacists, Dietitians

Lead Clinician(s)

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Approved by Nutrition and hydration committee on:	13th July 2021
Ratified by Medicines Safety Committee on:	14th July 2021
Review Date: This is the most current document and is to be used until a revised version is available	22nd May 2025

Key amendments to this Document:

Date	Amendment	By:
March 2011	Inclusion of Parenteral Nutrition referral form Reference to NCEPOD report: PN A mixed bag (2010) Updated information on the supply of PN outside of Pharmacy opening hours Additional options for managing PN patients with liver dysfunction	KH
April 2013	Reference to Critical Care Nutrition Guidelines WHAT-CRI-006 Rewording of glutamine supplementation section Rewording of PN referral form	KH
May 2015	Additional reference to MDT assessment	

August 2017	Document extended for 6 months as per TMC paper approved on 22nd July 2015	TMC
December 2017	Sentence added in at the request of the Coroner	
December 2017	Document extended for 3 months as per TLG recommendation	TLG
March 2018	Document extended for 3 months as approved by TLG	TLG
June 2018	Document extended for 3 months as per TLG recommendation	TLG
November 2017 `	Additional information included from NICE guidance update 2017 • Inclusion of legal and ethical issues for consideration • Update to management of patients at risk of refeeding syndrome • Updated monitoring table	KH
3rd March 2020	Document extended until the end of October whilst under review	KH
October 2020	Update to the procedure for the supply of PN outside of Pharmacy hours. Removal of statement 'standard bags are kept on critical care units' Addition of Smofkabiven 16 to standard regimen list Removal of information relating in WAHT Pharmacy Aseptic compounding service. Removal of glutamine supplementation information Additional information for the administration of PN Additional information for the management of Catheter related blood stream infections	KH
April 2021	Addition and rearrangement of appendices as follows: Addition of Appendix 1 "Guidance for daily cleaning, inspection and redressing the PN line insertion site and exit site" added. Step by step table added. Extension to Appendix 2 "Guidance for administering parenteral nutrition". Step by step table added. Reference sources updated Updated section on standard regimens.	ML/KH
July 2021	Document reviewed and approved	MSC
September 2021	Change to the treatment of catheter related sepsis to bring in line with new trust guidance 'Antimicrobial treatment of vascular access device infections in adults'	KH
August 2022	Update to standard regimen table in response to change of preferred supplier	KH
30th July 2024	Document extended for 3 months whilst under review	KH
22nd November 2024	Document extended for 6 months whilst review process is completed	KH

CONTENTS

PARENTERAL NUTRITION GUIDELINES

INTRODUCTION REGARDING MALNUTRITION AND NEED FOR GUIDANCE

The need for guidelines in nutrition support

Malnutrition is a state in which a deficiency of energy, protein and/or other nutrients causes measurable adverse effects on tissue/body form, composition, function or clinical outcome. It is both a cause and a consequence of ill-health and is common in the UK. Since malnutrition increases a patient's vulnerability to ill-health, providing adequate nutrition support to patients with malnutrition should improve outcomes. Guidelines are therefore needed to emphasise the following:

1. Malnutrition is common

Many people who are unwell are likely to eat and drink less than they need. This impairment of food and fluid intake may be short-lived as part of an acute illness, or prolonged if there are chronic medical or social problems. If impaired food intake persists for even a few days, a patient can become malnourished to a degree that may impair recovery or precipitate other medical problems. This is especially true if the patient was malnourished before they became unwell.

2. Causes of malnutrition in hospital patients

- Reduced intake where patients physically cannot or will not eat enough e.g. dysphagia, oesophageal disease, unconsciousness, repeated fasting, nausea and vomiting.
- Increased requirements e.g. fever, major trauma, burns and major surgery
- increased losses and/or malabsorption e.g. in inflammatory bowel disease, high ileostomy output.

3. Malnutrition increases vulnerability to ill-health

The consequences of malnutrition include vulnerability to infections, delayed wound healing, impaired function of heart and lungs, muscle weakness and depression.

As a consequence people who are malnourished go to hospital more often for longer periods, and have higher complication and mortality rates for similar conditions. If poor dietary intake persists for weeks, the resulting malnutrition may be life-threatening in itself.

The objective of this guideline is to improve the practice of nutrition support by providing guidance to assist health care professionals to correctly identify and manage patients who require parenteral nutrition.

INDICATIONS FOR PARENTERAL NUTRITION (PN)

Parenteral nutrition (PN) should be used to prevent or treat malnutrition when the gastro-intestinal tract is unavailable for use or the intestinal function is inadequate.

PN should only be given when enteral nutrition has been considered and excluded

Patients who cannot maintain adequate nutritional intake via the gut for:

- 3-5 days and are at high nutritional risk e.g.
  - a BMI of less than 18.5kg/m2
  - unintentional weight loss greater than 10% within the last 3-6 months
  - a BMI of less than 20kg/m2 and unintentional weight loss greater than 5% within the last 3-6months
  - hypercatabolic, septic, major trauma or under metabolic stress
- 5-7 days for patients at low nutritional risk

Remember some patients will need PN exclusively, but most patients should have a small amount of enteral nutrition also to maintain gut integrity.

Possible indications for PN are:

- Patients with severe inflammatory bowel disease.
- Paralytic ileus
- Intestinal atresia.
- Radiation enteritis.
- Motility disorders such as scleroderma.
- Extreme short bowel syndrome.
- Patients with multi organ failure where nutritional requirements cannot be met by enteral nutrition alone.

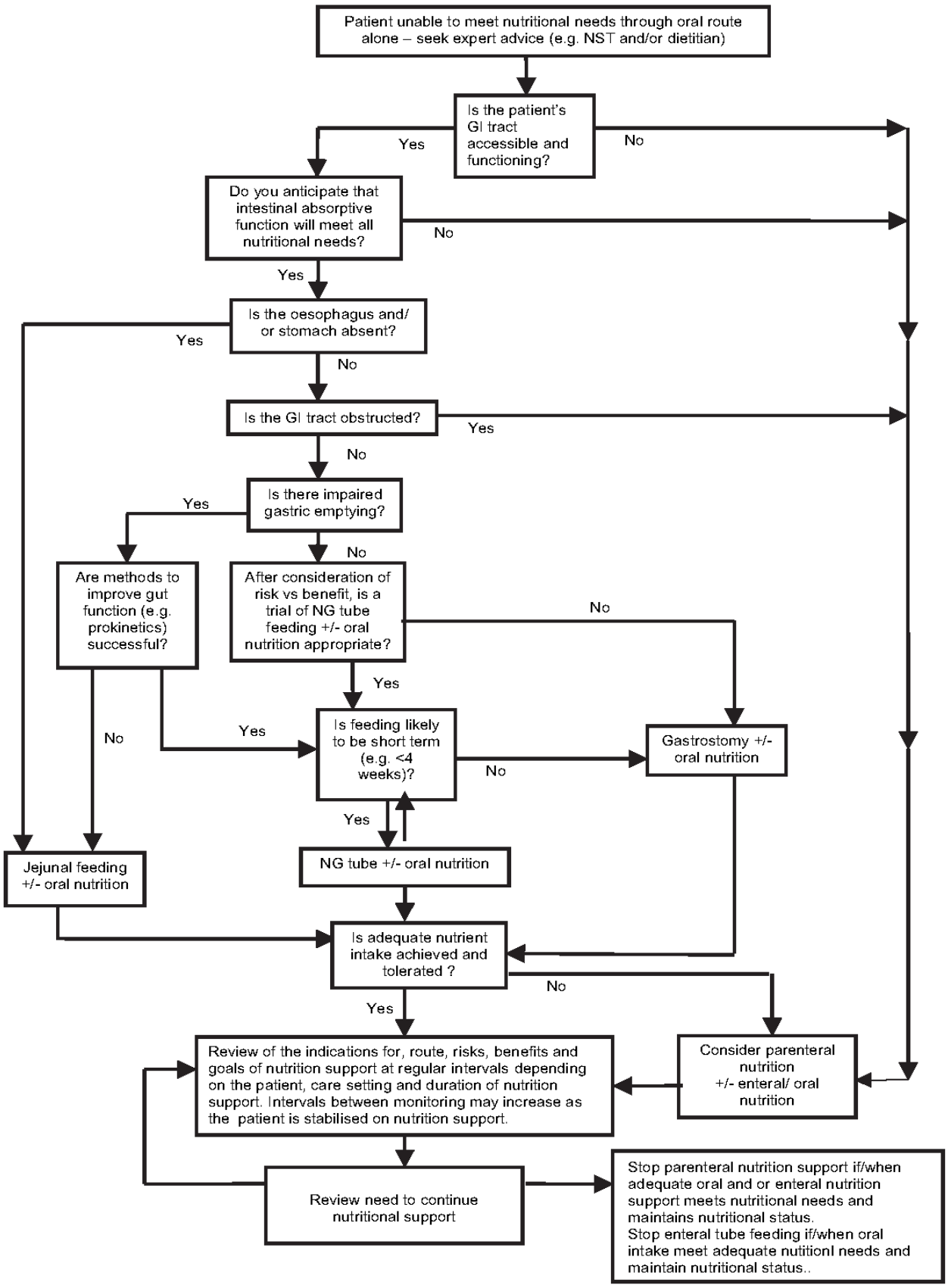
Lack of access for delivery of enteral nutrition to a functioning gastro-intestinal tract is not in itself an indication for PN. Every attempt must be made to gain access e.g. NG, NJ, PEG or PEJ tube in a timely manner to prevent further malnutrition.

Where the possibility exists that a patient may require PN this should be recognised early.

There is rarely, if ever, an indication to start adult PN outside of normal working hours

NOTE – Albumin is not a good indicator of nutritional status or the effect of PN feeding. A low plasma albumin is *never* in itself an indication for parenteral nutrition.

If a patient does not have an intact and/or functional gastrointestinal tract, parenteral nutrition should be instituted within 7 days of their last meal. Critically ill patients may come to no harm if feeding is withheld for up to a week if the patient was previously nutritionally complete.



National Institute for health and Clinical Excellence: Nutrition support in adults Clinical Guideline 2006

Ethical and Legal issues

Healthcare professionals involved in starting or stopping nutrition support should:

- obtain consent from the patient if he or she is competent
- act in the patient's best interest if he or she is not competent to give consent
- be aware that the provision of nutrition support is not always appropriate. Decisions on withholding or withdrawing of nutrition support require a consideration of both ethical and legal principles (both at common law and statute including the Human Rights Act 1998)

When such decisions are being made, the General Medical Council's treatment and care towards the end of life: decision making and the Department of Health's reference guide to consent for examination or treatment, second edition 2009 should be followed.

Healthcare professionals should ensure that people having nutritional support, and their carers, are kept fully informed about their treatment. They should also have access to appropriate information and be given the opportunity to discuss diagnosis and treatment options.

Patients who may require long term PN e.g. short bowel patients who will require home PN should be identified early and referred to a tertiary centre who are authorised to manage home PN patients. NB WAHT is only able to supply PN to wards within the acute trust.

NUTRITIONAL ASSESSMENT

The requirement for nutritional support should be recognized early. Please refer to the Trust Nutrition Screening Tool for identification and recommended action for patients at risk / with poor nutritional status.

The requirements for energy, nitrogen and most vitamins and minerals are quantitatively the same for both parenteral and enteral nutrition. These can be calculated on body weight and using the Parenteral and Enteral Nutrition Group (PENG) Guidelines. With parenteral nutrition, however, there are distinct differences in determining fluid and electrolyte balance. Consequently, the monitoring of these parameters is dependent on daily clinical opinion and biochemical monitoring.

The role of the medical team:

- Identify patients at risk of continuing nutritional compromise and refer appropriate patients for PN to the pharmacist/dietitian.
- Ensure appropriate ongoing monitoring including the required biochemical tests
- To work collaboratively with members of the Nutrition Support Team to ensure appropriate and effective nutrition support

The role of the dietitian therefore concentrates on:

- Take referrals for PN and assess the appropriateness of the use of PN in that patient.
- Initial assessment of PN requirements – recommend suitable parenteral nutrition formulations according to nutritional requirements and refeeding risk.
- Monitor patients receiving PN support with particular reference to biochemistry, signs of infection, fluid balance, and blood sugar levels and determining changes to PN regimen as necessary together with the pharmacist.
- The overseeing of the transition from PN to enteral nutrition.

- Assessment of each individual patient's nutritional status and requirements for enteral nutrition, once the gut can be used.
- Monitor patients receiving PN and determining any changes to the regimen as necessary
- Educate colleagues and ward staff in the dietetic aspects of PN

The role of the pharmacist:

- Take referrals for PN and assess the appropriateness of the use of PN in that patient.
- Advise on appropriate nutritional support (EN or PN) liaising with the dietitian and other members of the nutrition steering committee as necessary.
- Recommend suitable parenteral nutrition formulations e.g. electrolyte additions.
- Co-ordinate the supply of PN from Pharmacy.
- Advise on the administration of PN e.g. flow rate.
- Advise on the management of problems arising from parenteral feeding.
- Monitor patients receiving PN support with particular reference to biochemistry, signs of infection, fluid balance, and blood sugar levels and determining changes to PN regimen as necessary, together with the dietitian.
- Educate colleagues and ward staff in the pharmaceutical aspects of PN.
- Provide advice and information to patients and their relatives regarding intravenous feeding.

ORDERING OF PN

- To start a patient on PN, complete a parenteral nutrition referral form (appendix 4) and contact either the clinical pharmacist for that ward or the dietitian. This should be as early as possible, but preferably no later than 11am to ensure same day initiation PN (Monday to Friday).
- The medical team accept input from members of the Nutrition Support team to facilitate appropriate and safe use of parenteral nutrition
- The parenteral nutrition must be prescribed on the dedicated prescription chart (Service point order code WR1799) which is kept on the wards most likely to have parenterally fed patients (i.e. general surgery wards and Critical Care Units).
- The decision on PN supply rests with members of the nutrition team (usually a nutrition pharmacist, dietitian +/- nutrition lead consultant gastroenterologist). The regimen which is supplied will depend on:
    - Access for PN (peripheral administration limits the amount of calories and nitrogen in the feed).
    - Nutritional requirements (decision by pharmacist/ clinician/ dietitian). A patient should undergo a detailed nutritional assessment by a dietitian as soon as possible.
    - Electrolyte requirements from biochemical results.
    - Fluid requirements e.g. if fluid restricted.
    - Previous nutritional status, see re-feeding syndrome in complications of PN section (p16).
- The pharmacist will liaise with the clinician and dietitian on a regular basis as agreed between them to check requirements for the patient.

- It is essential that one team of clinicians takes responsibility for PN care of a patient. If there is dual responsibility for a patient, this must be agreed before beginning PN.

- The nutrition team retains the right after discussion with clinicians to veto the supply of PN for a patient.

- Vitamins (water and fat-soluble) and trace elements will be added to PN bags on a daily basis.

PROCEDURE FOR SUPPLY OF PN WHEN PHARMACY IS CLOSED

It should be noted that there is rarely, if ever, an indication to start PN outside of Pharmacy hours. Administration should be delayed until the patient has been assessed by a member of the nutrition team and the nutrition plan results in a tailored PN regimen for the patient.

In rare situations where it is desirable to commence PN out of hours, contact the on call pharmacist who will seek advice from a PN trained pharmacist. As PN is not a time critical medicine, supply will be made at the next available opportunity e.g. the following morning (within 24 hours)

NB Only refeeding bags will be supplied and these contain standard amounts of vitamins and trace elements. Patients must be assessed for risk of developing refeeding syndrome and managed accordingly. Refer to the 'Guideline for re-feeding syndrome' (WAHT-NUT-006).

Serum electrolytes 'refeeding profile' should be checked and corrected prior to commencing PN. No additions must be made to the bag.

To prevent refeeding syndrome for those patients at risk, PN to commence at no more than 50% of the patient's requirements for one or two days before increasing thereafter. Refer to the 'Guideline for re-feeding syndrome' (WAHT-NUT-006).

Estimation of requirements

- The patient's energy and nitrogen requirements are based on body weight (kg) and calculated by the dietitian using the PENG 2018 guidance.
- At present, use Fresenius Kabiven PN bags, and refer to table below for "best fit regimens".
- These standard regimens will provide 20-30 kcal/kg body weight and a minimum of 1g protein (0.16 gN_2)/kg body weight.

To prevent refeeding syndrome, patients will usually receive approximately 50% of their nutritional requirements for the first 24 to 48 hours with the rate of infusion increased as appropriate. For patients at high risk of refeeding syndrome lower initial rates of feed delivery will be advised. Please refer to the 'Guideline for re-feeding syndrome' (WAHT-NUT-006).

Standard formulations

Constituent	Kabi refeeding	Peri Omeflex 1875	Omeflex special 1250	Omeflex special 1875	Smofkabiven Extra nitrogen
IV route	Peripheral or central	Peripheral or central	Central Only	Central Only	Central Only
Nitrogen (g)	5.14	8.6	10	15	21.2
Calories (total Kcal)	661	1435	1475	2215	1800
Volume (ml)	1065	1875	1250	1875	2045
Sodium (mmol)	52.9	75	67	100.5	82.6
Potassium (mmol)	40	45	47	70.5	61.9
Calcium (mmol)	3.3	4.5	5.3	7.95	5.2
Magnesium (mmol)	6.8	4.5	5.3	7.95	10.3
Phosphate (mmol)	18.15	11.25	20	30	25.9

Provision of Nutrients in PN solutions

- Energy, as carbohydrate (glucose) and fat (lipid emulsions) are used
- Nitrogen – a solution of essential and non-essential amino acids is used
- Micronutrients – these are included in PN solutions procured by Pharmacy
- Electrolytes – NB tailoring of electrolytes is only feasible for long term stable patients as these have to be bought from a licensed compounding units (WAHT Pharmacy is unable to provide this service)
- Fat soluble vitamins A, D2, E and K.
- Water-soluble vitamins B1, B2, B6, B12, nicotinamide, biotin. pantothenic acid, folic acid, ascorbic acid.
- Trace elements

CHOICE OF ACCESS FOR PN

General Principles

ALWAYS USE A DEDICATED LINE WHICH MUST BE LABELLED FOR TPN

ALWAYS OBSERVE STRICT ASEPTIC TECHNIQUE

ALWAYS FOLLOW TRUST PROTOCOLS FOR INSERTION AND CARE OF VASCULAR DEVICES

- When using single lumen parenteral nutrition catheters, use only for the PN i.e. no other fluids, drugs or blood sampling through the same line.
- For multi lumen catheters, use one designated port for PN and do not use for other fluids, drugs or blood sampling.
- Use a new or previously unused line for PN. If there are no new/unused lines available, insert a new line.
- Use single lumen catheters wherever possible.
- Do not use the line for taking blood samples.
- Do not use of three way taps on the line.

Choice of Catheter

- Small cannula (18FG) inserted into a peripheral vein may be used **for short term use only e.g. no more than 3 days**. Nutrient delivery is restricted via a peripheral vein and risks underfeeding patients. Attach a short extension set. Follow the Trust Policy for the Administration of Injectable Medicines and assess site and phlebitis score daily.
- A **mid-line** device i.e. fine bore catheter inserted into a vein in the antecubital fossa such as a nutri line 15cm, 23G catheter. These are appropriate for use when feeding is to continue for no more than 2 weeks. Do not use when the patient is likely to have high nutritional requirements or fluid restriction as high osmolarity bags can not be used through these lines.

- **PICC (centrally inserted central line)** Line of choice for patients who don't already have a CVC or are planned for a tunnelled central line.

- **Central venous catheter**. This should be wherever possible a tunnelled line, dedicated to PN feeding. Appropriate for use when:-
    - PN is expected to continue for more than 2 weeks
    - Unusual needs e.g. marked fluid restriction
    - In need of high amount of calories or nitrogen to meet nutritional needs.
    - Patients who already have a central line in situ e.g. Critical Care patients

ADMINISTRATION OF PN

- Refer to Appendix 2 for full step by step guide on administration
- PN must be prescribed before administration.
- Before attaching the PN to the patient, check the following:-
    - Prescription
    - Patient name
    - The unit number and date of birth- if stated on the bag
    - The date of administration- if stated on the bag
    - The expiry date on the bag
    - Route of administration (i.e. central or peripheral)
    - Site and line for administration
- Gently shake the bag (the bag should look smooth i.e. no separation of the bag- if in any doubt, contact the pharmacist).
- Attach the bag to the dedicated feeding line using **strict aseptic non-touch technique.**
- Always use a volumetric pump, setting the rate as detailed on the PN bag.
- Do not speed up the rate of the PN if the bag is running late, but do inform your ward clinical pharmacist on the next working day.
- On the intravenous infusion chart, record the time and date the PN started.
- Complete infusion rate on the fluid balance chart.
- PN bag and giving set must be changed every 24 hours, unless otherwise agreed.
- If the bag is detached from the patient for any reason e.g. re-siting of a line, never re-attach the same bag. Prescribe intravenous fluids to maintain hydration until the next bag of PN is available.
- If a proportion of the bag is prescribed, discard the remaining feed after 24 hours.

MONITORING OF PATIENTS ON PN

- See below for table of recommended monitoring of biochemical and other parameters.
- Where possible, take blood samples first thing in the morning to allow results to be available in time for manufacture/supply of PN. Please mark these samples as urgent for new PN patients or those with any biochemical derangement.
- **Monitor blood sugars minimum every 8 hours initially then every 12 hours. If:-**
  - Gradual onset of hyperglycaemia, prescribe sliding scale of actrapid insulin.
  - BM reads above 20mmol/l, stop PN until under control even if on insulin infusion.
- **Monitor and maintain good oral care whilst on PN**
- Weigh the patient before commencing PN and at least weekly whilst the patient is receiving PN support.

Weekend Monitoring

It is not possible to change content of PN bags. If a patient's blood results are unstable or their condition changes such that electrolyte requirements may significantly change, blood levels should be checked and if necessary PN stopped. This decision should be made by the doctor in charge of that patient. The patient should be maintained on fluids until PN can be reviewed on the next working day.

Monitoring Parameter	Frequency	Rationale	Interpretation
Sodium, potassium, urea, creatinine	Baseline, daily until stable, then 1 or 2 times a week	Assessment of renal function, fluid status, and Na and K status	Interpret with knowledge of fluid balance and medication. Urine sodium may be helpful in complex cases with gastrointestinal fluid loss
Glucose	Baseline, 1 or 2 times a day (or more if needed) until stable, then weekly	Glucose intolerance is common	Good glycaemic control is necessary
Magnesium, phosphate	Baseline, daily if risk of refeeding syndrome, 3 times a week until stable, then weekly	Depletion is common and under recognised	Low concentrations indicate poor status
Liver function tests including International Normalised Ratio (INR)	Baseline, twice weekly until stable, then weekly	Abnormalities common during parenteral nutrition	Complex. May be due to sepsis, other disease or nutritional intake
Calcium, albumin	Baseline, then weekly	Hypocalcaemia or hypercalcaemia may occur	Correct measured serum calcium concentration for albumin. Hypocalcaemia may be secondary to Mg deficiency. Low albumin reflects disease not protein status
C-reactive protein	Baseline, then 2 or 3 times a week until stable	Assists interpretation of protein, trace element and vitamin results	To assess the presence of an acute phase reaction (APR). The trend of results is important
Zinc, copper	Baseline, then every 2–4 weeks, depending on results	Deficiency common, especially when increased losses	People most at risk when anabolic. APR causes Zn ↓ and Cu ↑
Selenium	Baseline if risk of depletion, further testing dependent on baseline	Se deficiency likely in severe illness and sepsis, or longterm nutrition support	APR causes Se ↓. Long-term status better assessed by glutathione peroxidase
Full blood count and MCV	Baseline, 1 or 2 times a week until stable, then weekly	Anaemia due to iron or folate deficiency is common	Effects of sepsis may be important
Iron, ferritin	Baseline, then every 3–6 months	Iron deficiency common in longterm parenteral nutrition	Iron status difficult if APR (Fe ↓, ferritin ↑)
Folate, B12	Baseline, then every 2–4 weeks	Iron deficiency is common	Serum folate/B12 sufficient, with full blood count
Manganese	Every 3–6 months	Excess provision	Red blood cell or whole

POSSIBLE COMPLICATIONS OF PN & MANAGMENT

Nutrition Related Complications

RE-FEEDING SYNDROME

Hyperglycaemia and electrolyte imbalances can occur in patients receiving parenteral nutrition following a period of malnutrition (>5 days without feed).

Action: Refer to 'Guideline for re-feeding syndrome' (WAHT-NUT-006)
Start feed at reduced rate e.g. give 50% of requirements for one or two days, then increase thereafter. (In extreme cases, the starting rate may need to be reduced to less than 50% of requirements over 24 hours and the feed rate may need to be increased over a period of up to 7 days)
Supplement electrolytes as needed.
Ensure adequate vitamin B intake before starting feed (e.g. with IV Pabrinex or oral thiamine 200mg od and Vit B co strong 1 tds)
Prescribe sliding scale insulin for patients with diabetes or impaired glucose tolerance.

The reverse may also occur with hypoglycaemia being caused by stopping parenteral feeding too quickly.

Action: Halve the rate of PN administration on the last day.

OVER FEEDING

This may occur when parenteral nutrition exceeds the patients' nutritional requirement. Signs of overfeeding include raised plasma glucose and urea.

Action: Reduce the protein and glucose content of the PN regimen in discussion with a dietitian (dietitian to consider glucose oxidation rate).

PLASMA TURBIDITY/LIPAEMIA

This indicates that a patient's capacity to eliminate fat may be impaired.

Action: Reduce or delay the infusion of lipid and consider changing lipid formulation.

FLUID IMBALANCE

This is a common complication and can result in dehydration or fluid overload.

Action: Measure and record all fluid losses and/or weigh the patient daily. Allowing for insensible losses, balance fluid input with output.

ELECTROLYTE IMBALANCE

Action: Adjust composition of PN solution if possible or supplement separately..

LIVER DYSFUNCTION

Rises in liver enzymes may occur, they are usually benign, reversible and self limiting.

Action: If liver enzymes continue to rise, one or more of the following may be adopted:
Cyclical feeding i.e. giving feed over 18 hours to allow a "feed free time"
Use of fat free PN regimen
Changing the lipid used within the regimen.

Catheter Related Complications

THROMBOPHLEBITIS

A common complication with peripherally administered PN. Signs and symptoms include pain and erythema at the site of infusion. Prevention of thrombophlebitis is addressed in section III Delivery Technique.

Action: Remove line and re-site a new catheter.
The application of a GTN 5mg patch distal to the catheter insertion site may be considered, but beneficial evidence for this is not conclusive.

CATHETER OCCLUSION

May be due to line kinking, luminal deposits of lipid sludge or thrombosis.

Action: Perform chest x-ray to check line position. Providing the position is satisfactory, flush the line with 10ml of 20% ethanol solution. If lipid sludge is suspected, allow 3ml 70% ethanol injection to dwell in the catheter for one hour.

FIBRIN OCCLUSION

Action: Urokinase may be used to dissolve the occlusion.

CENTRAL VEIN THROMBOSIS

Central vein thrombosis may occur after several weeks of treatment.

Action: Confirm diagnosis by venography; refer to Trust policy on Central Venous Catheter line care management. Consider early use of thrombolytic therapy.

Catheter Related Infections

EXIT SITE INFECTION

Defined as erythema around or pus exuding from the central line exit site. Blood cultures are negative and there are no signs of systemic sepsis.

Action: Confirm diagnosis by sending line swab and peripheral/through line blood for culture.
Treat empirically with flucloxacillin 1g (or vancomycin if penicillin allergic or MRSA infection suspected e.g. patient known to be colonised with MRSA). Give flucloxacillin IV initially then switch to oral 500mg to 1g QDS to complete a seven day course. Amend therapy if required once culture results are available.
Clean daily with Chlorhexidine in 70% alcohol as in trust CVC policy (use povidone iodine solution for patients sensitive to chlorhexidine).
Remove the catheter if there is evidence of progression of infection. Removal may also be required to control infection with the following organisms:

- Staphylococcus aureus (including MRSA)
- Co-agulase negative staphylococci
- Pseudomonas sp. and other Gram negatives
- Mycobacterium sp.
- Fungi (including Candida sp.)
- Glycopeptide-resistant enterococcus (GRE)

(NB the line may be salvaged by surgical incision and drainage)

Intraluminal therapy (antibiotics “locks”) may be indicated for localised catheter related infection, which does not involve the above-mentioned microorganisms. They should not be used if there is evidence of progression to systemic sepsis, septic thrombophlebitis or septic emboli. In rare cases the salvaging of precious lines in patients with poor venous access may be indicated. The use of antibiotic “locks” must be discussed with the Antimicrobial Stewardship pharmacist or Consultant Microbiologist prior to use.

TUNNEL INFECTION

Defined as erythema and tenderness overlying a subcutaneous tunnelled catheter. Blood cultures are usually negative and there are no signs of systemic sepsis.

Action: Confirm diagnosis by sending central (through line) and peripheral blood for culture.
Treat empirically with flucloxacillin 1g (or vancomycin if penicillin allergic or MRSA infection suspected e.g. patient known to be colonised with MRSA) Administer intravenously for up to two days and then orally, if possible, with flucloxacillin 500mg to 1g qds (or doxycycline 200mg stat then 100mg OD PO) for 7-14 days or until resolution of the infection.
Modify antibiotic choice according to isolates.
If there is no clinical improvement within 7 days of treatment, treat as for catheter related sepsis.

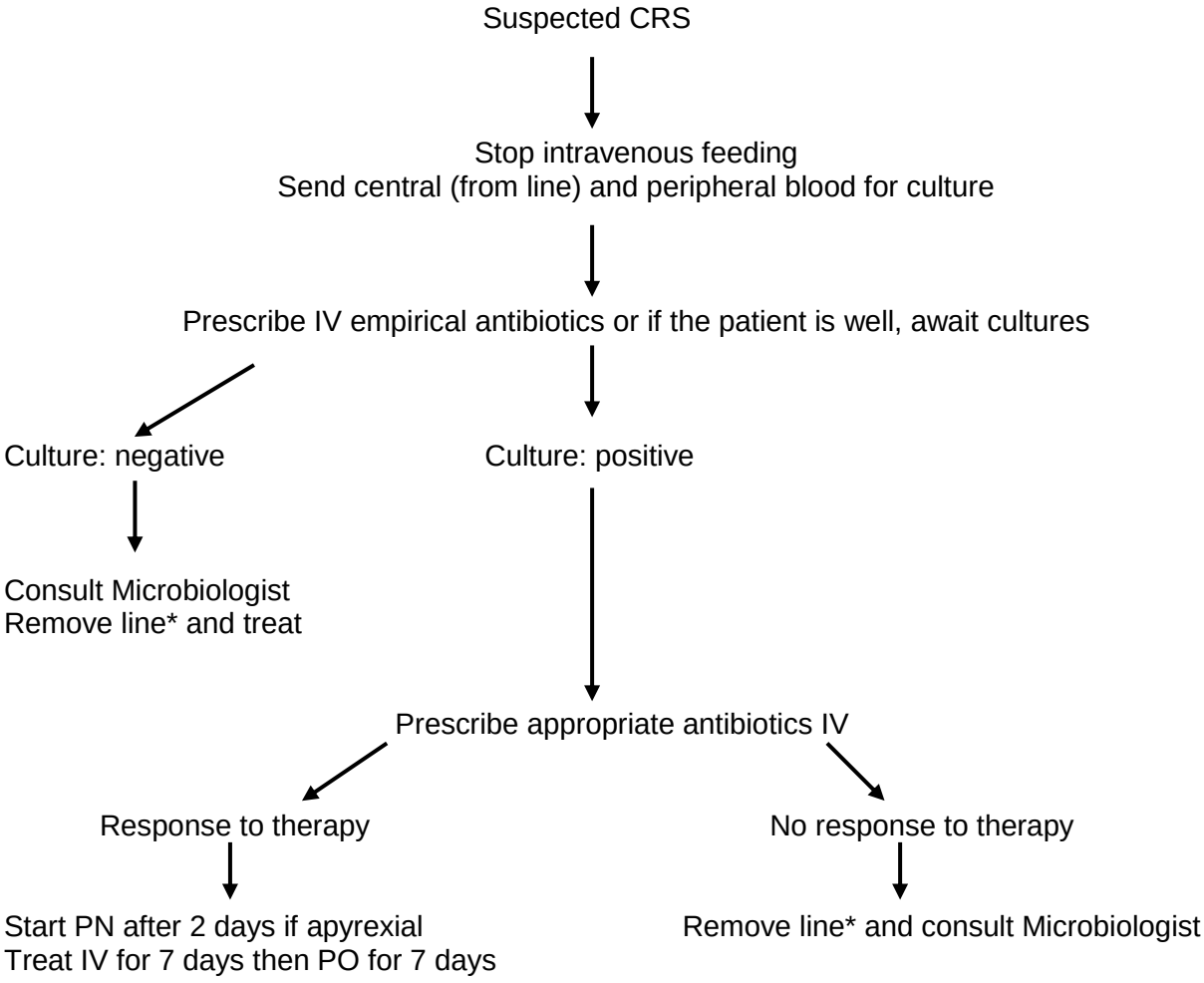
CATHETER RELATED SEPSIS (CRS)

Defined as clinical sepsis with positive blood cultures in the absence of infection elsewhere (e.g. chest, urinary tract etc.). CRS is difficult to diagnose and all possible causes of sepsis should be considered. CRS is confirmed when blood cultures yield the same organism as culture from the tip of the removed central line.

The Infectious Diseases Society of America (IDSA) recommend that long-term catheters should be removed from patients with Catheter Related Blood Stream Infection associated with any of the following conditions: severe sepsis; suppurative thrombophlebitis; endocarditis; bloodstream infection that continues despite >72 h of antimicrobial therapy to which the infecting microbes are susceptible; or infections due to S. aureus, Pseudomonas aeruginosa, fungi or mycobacteria.

A cardiac ECHO (trans-thoracic or trans-oesophageal) should be performed in any patient with a prosthetic heart valve, pacemaker/ICD and persistent bacteraemia and/or pyrexia 72 hour after initiation of appropriate antibiotic therapy and also performed if there is S aureus infection. If back pain is present, a spinal MRI should be considered. If there is a fungal infection, a thorough ophthalmological examination must be performed in case of spread to the eye which, if untreated, can cause blindness.

Action:



*Consider each case on an individual basis. In patients with poor venous access, salvaging precious lines may be indicated through the use of 'line lock' and/or systemic antibiotic therapy, consult microbiologist.

Empirical choice of antibiotics

Vancomycin iv and 'extended interval' **gentamicin** iv (see Microguide for dosage advice and monitoring recommendations). Review all antimicrobial prescriptions after 48-72 hours with the patient's parent team and microbiology

TERMINATION OF PN

Parenteral nutrition should not be terminated until oral or enteral tube feeding is well established or if it has been deemed inappropriate to continue PN if the patient is dying. The patient needs to be taking a minimum of 50% of their nutritional requirements (as assessed by the dietitian) via the enteral route. It is important that all members of the multidisciplinary team are involved in the decision to terminate PN. It is advised to reduce the rate of the last bag of PN to half (i.e. 50% of the bag is given on the last day).

PN CHECKLIST FOR NURSING STAFF

(For further detail refer to main PN policy)

Use dedicated feeding line only for PN.

Don't add anything to PN bags, put anything through same line or take blood samples through the dedicated line.

If the patients condition has changed significantly since PN was ordered, contact Dr to check if still appropriate e.g. fluid balance or U&Es.

ADMINISTRATION

If stated - check name, unit no, DOB, date of admin and expiry on bag.

Gently shake the bag before giving.

Use a volumetric pump to administer PN.

Write the time and date PN started on prescription chart.

MONITORING

Monitor blood sugars minimum 8 hourly.

Keep accurate fluid balance.

Measure core temperature daily and respiration and pulse 6 hourly.

REMEMBER

Use strict aseptic technique. See Appendix 2 for step by step guide.

Monitor and record daily observations of exit site/tunnel for infection/inflammation as per trust policy.

Never speed up the rate of PN from that prescribed. (NB rate of infusion may be slowed with advice from pharmacy).

Change bag and giving set every 24 hours unless otherwise agreed.

If bag is detached, never re-attach the same bag. Discard the remaining solution.

PN CHECKLIST FOR MEDICAL STAFF

Wherever possible use the gastrointestinal tract for feeding.

Use dedicated feeding line only for PN.

Ensure that insertion details of line / cannula is recorded in the patient's medical notes or Trust peripheral vascular device record sheet.

Don't add anything to PN bags or put anything through same line.

Don't take blood through the same line.

If possible maintain a small amount of oral / enteral intake whilst on PN Refer to the dietitian.

If patients condition has significantly changed since PN was ordered consider if PN is still appropriate e.g. fluid balance, U&E's, oral intake.

Assess the risk of refeeding syndrome and manage appropriately (refer to Trust guideline WAHT-NUT-006)

ORDERING

Complete the PN referral form and contact pharmacy/dietitian ASAP when PN is indicated.

Out-of pharmacy hours – consider need (can the start be delayed?) Refer to and prescribe on dedicated parenteral nutrition prescription chart.

ADMINISTRATION

See main policy for choice of line.

Avoid using a venflon for feeding - See main policy.

MONITORING

See table for monitoring needed before starting PN.

Mark all biochem requests as URGENT- PATIENT ON PN.

Request blood samples for the morning.

See attached table for suggested monitoring.

REFERENCES

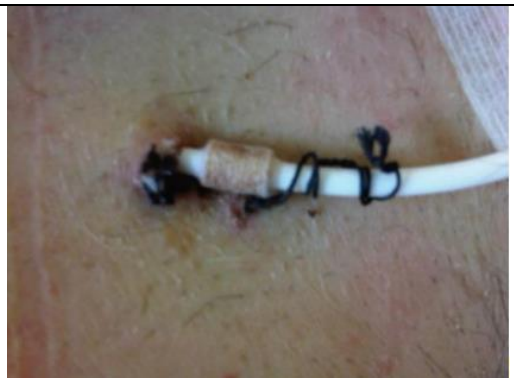
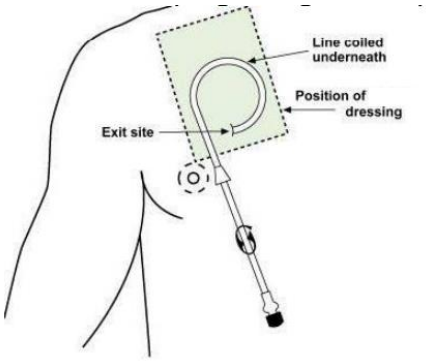
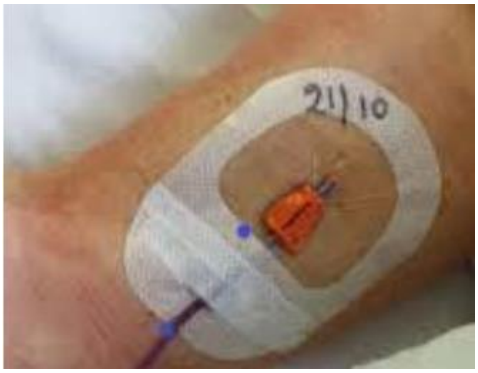
- The British Committee for Standards in Haematology 1997; Management of catheter related infections.
- Byrom S E; Dietitian's Pocket Book 1997; Amino Acid Books.
- Grimble G K, Payme-James J, Rees P G & Silk D B A; Nutrition Support: Theory and Practice; Medical Tribune UK Ltd; 1988
- Austin P, Stroud, M. Prescribing Adult Intravenous Nutrition. Pharmaceutical Press 2007.
- Pennington C R (ed.); Current perspectives on Parenteral Nutrition in adults, A BAPEN working party report; BAPEN; 1996. Last update 2012.
- Fresenius Kabi Ltd; Complete admixtures for parenteral nutrition; 2005.
- Todorovic C V, Micklewright A. (ed.); PEN Group: A pocket guide to Clinical Nutrition 3rd edition; 2004.
- Crook M A et al; The importance of the refeeding syndrome; Nutrition 17:632-637, 2001
- National Institute for Health and Clinical Excellence; Nutrition support in adults Clinical Guideline (CG32) August 2017
- Singer P, Berger M, Van den Berghe G et al. ESPEN guideline on clinical nutrition in the intensive care unit. Clinical Nutrition 38 (2019) 48-79
- National Confidential Enquiry into Patient Outcome and Death. A Mixed Bag; An enquiry into the care of hospital patients receiving parenteral nutrition 2010. http://www.ncepod.org.uk/2010report1/downloads/PN_report.pdf accessed April 2021.
- Mermel LA, Allon M, Bouza E, Craven DE, Flynn P, O'Grady NP, Raad I, Rijnders B, Sherertz R, Warren D. Clinical Practice Guidelines for the Diagnosis and Management of Intravascular Catheter-Related Infection: 2009 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2009 Jul;49(1):1–45.
- Lal S, Chadwick P, Nightingale J. and the BIFA Committee. British Intestinal Failure Alliance (BIFA) Recommendation: Management of Catheter Related Blood Stream Infections (CRBSIs) BAPEN January 2019.
- ESPEN guidelines for adult parenteral nutrition Clinical Nutrition 2009; 28:359-479
- University Hospitals of Leicester NHS Trust Parenteral Nutrition via Central Venous Catheter UHL Policy, B22/2015, Version 5, April 2020

APPENDIX 1: GUIDANCE FOR DAILY CLEANING, INSPECTION AND REDRESSING THE PARENTERAL NUTRITION (PN) LINE INSERTION SITE AND EXIT SITE

This procedure is for observation and replacement of the dressing and applies to nursing staff caring for PN patients.

The insertion and exit site of the PN line should be inspected daily.

Type of dressing	
1.	Use a semi-permeable transparent dressing which should be changed every 7 days or when moist. Gauze based dressing should only be used if: - there is moisture and/or exudate, - a moist semi-permeable transparent dressing has been removed, - if clinical staff feel it is indicated after assessment. Gauze type dressing should be changed daily.
Cleaning, inspection and redressing	
2.	Gather the following equipment: Dressing trolley Equipment cleaning wipes to clean the trolley Disposable apron Clean gloves Basic sterile dressing pack including sterile towel Alcohol hand rub Sterile gloves (if not already in dressing pack) 2% Chlorhexidine gluconate in 70% isopropyl applicator Semi-permeable transparent or gauze dressing if indicated (large enough to allow line to be looped underneath) Microbiology wound swab if required. (If site dry, include sterile water to moisten swab)
3.	Explain the procedure to the patient, ensuring privacy and comfort.
4.	Clean the trolley with cleaning wipes.
5.	Assemble equipment tidily, as above and place on bottom shelf of trolley / bedside 'work-surface'.
6.	Clean hands. Put on apron.
7.	Open dressing pack onto work surface, touching only outside and corners. This is now your aseptic field. Open all other sterile items onto aseptic field using aseptic non-touch technique.
8.	Remove old dressing without touching the line or insertion / exit site. Inspect site for sign of redness, tenderness, swelling or exudate. If it is a PICC line - note the line marking, hold the line and peel the dressing upwards. Observe the external lumen of the catheter for kinks or damage. Ask patient, (if possible), if there is any pain at the insertion / exit site or if they are experiencing any loss of function in their arm. If exudate, swelling, and redness noted; - Stop PN immediately. - Refer to the medical team. - Swab the site.
9.	If patient has a Hickman line check that the Dacron cuff on a Hickman line is not visible. Inform medical staff immediately if the cuff can be seen.

	 DO NOT USE THIS CENTRAL LINE
10.	Clean hands with alcohol and put on sterile gloves.
11.	Swab catheter exit site (if necessary) with culture swab before cleaning.
12.	Decontaminate the exit site with a single use application of 2% Chlorhexidine gluconate in 70% isopropyl applicators working away from the entry point. Allow to dry.
13.	Apply sterile dressing of choice with loop of PN line underneath to negate the need for further taping using an aseptic non-touch technique. PICC: Hickman:   www.securacath.com
Suture removal	
14.	If the patient has a tunnelled PN line the sutures at the incision site may be removed after 7 – 10 days The suture at the exit site may be removed at 21 days at the earliest providing the cuff is not at risk of slipping out when these are removed (it is common to allow these to grow out to avoid unnecessary tension on the cuff).
15.	The line marking in the PICC line should be noted at least once in a shift. If the line marking has moved more than 1 cm notify medical team
16.	Remove gloves and dispose of used materials in to a clinical waste bag. Discard clinical waste bag as per Trust Policy
17.	Clean the trolley with cleaning wipes. Return to storage.
18.	Clean hands.
19.	Note the date of the dressing change. All dressing changes should be recorded in the patient's medical notes with a proposed date for renewal.

APPENDIX 2: ADMINISTERING PARENTERAL NUTRITION

ADMINISTERING PARENTERAL NUTRITION IS A FULL ASCEPTIC PROCEDURE

PN Administration should be commenced using a dedicated (unused) labelled port 'FOR PN ONLY')

This procedure is used to change the PN feed bag. This applies to the nursing staff caring for a patient with PN.

Administration of PN bags should ideally be undertaken by staff who have completed PN training.

1.	**Gather equipment** Dressing Trolley Equipment cleaning wipes to clean the trolley Disposable apron Alcohol hand rub Basic sterile dressing pack including sterile towel Securing Tape (i.e., Micropore tape) Sterile gloves x 1 pair (if not in pack) 2% Chlorhexidine gluconate in 70% isopropyl wipe x 4 1x10 ml sodium chloride 0.9% ampoule 2x10 ml syringe Alcohol hand rub Transparent / Gauze dressing if required (large enough to allow line to be looped underneath) PN prescription chart signed by a Doctor or NMP. PN bag (must be checked against prescription which should be with the patient's bedside folder and the order form sent up with the PN bag, PN solutions should be removed from refrigeration two hours prior to infusion in order to reach approximate room temperature.) Giving set Sharps bin Cleaned charged volumetric infusion pump (on separate drip stand not attached to drip stand at bed head as this can pull out the central line)
2.	Take patient's temperature prior to hanging PN to aid identification of feeding line sepsis
3.	Clean hands. Put on apron.
4.	Clean the trolley with equipment cleaning wipes.
5.	Assemble equipment tidily, as above and place on bottom shelf of trolley or bedside "work surface"
6.	Explain the procedure to the patient, ensuring privacy and comfort.
7.	Two trained nurses who are IV trained and competent; • must check the PN bag details against the order form, PN prescription chart and patient wrist band at the patient's bedside.
8.	If previous bag still hanging, switch off pump and close roller clamp on giving set and remove bag from pump.
9.	Hang new PN bag (with light protection cover) on drip stand. Roll back light protective cover and expose bag connections. Snap off port cover.
10.	Remove gauze from patient's feeding line and **close clamp on double thickness part of line**, remove gauze flag and discard.
11.	Change apron and clean hands. Open dressing pack onto top of dressing trolley, touching only the corners. If a sterile waste bag is included in the pack, this may be pulled over one hand and used as a sterile glove to set out the contents of the tray. When the aseptic field is set the waste bag should be attached half way down the trolley for the clinical waste. Open all sterile equipment onto aseptic field using aseptic no-touch technique (ANTT). Using one 2% Chlorhexidine gluconate in 70% isopropyl wipe, clean the port of the PN bag for 30 seconds and leave to air dry for 30 seconds.
12.	Check 0.9% Sodium Chloride with another qualified nurse and then clean the whole ampoule with 2% Chlorhexidine Gluconate in 70% isopropyl wipe and leave in the sterile field without touching the sterile field.

13.	Open sterile gloves on a dry clean surface nearby – this should not be the aseptic field.
14.	Clean hands by applying alcohol hand rub and put on one pair of sterile gloves without touching outside of them.
15.	Pick up the new giving set on the aseptic field and close roller clamp space.
16.	Wearing sterile gloves pick up giving set chamber leaving most of the line on the aseptic field and insert giving set to the bag using ANTT principles.
17.	Prime the line. (N.B. Ensure no air bubble are present in the line).
18.	Remove the sterile field from the pack and place near to patient's line.
19.	Scrub the hub and needle-less port of the PN line for 30 seconds with 2% Chlorhexidine gluconate in 70% isopropyl wipe using different parts of the wipe, using a second wipe at the same time to clean the Hickman line and clip and PN line using different parts of the wipe (if attached). Allow to air dry for 30 seconds.
20.	Without placing the line down, manoeuvre the sterile field under the line.
21.	Remove first set of contaminated gloves and discard. Clean hands by applying alcohol hand rub and put on second set of sterile gloves once hands dry.
22.	Draw up 10 ml 0.9% Sodium Chloride into 10 ml syringe.
23.	Remove air bubbles from syringes.
24.	Using a separate 10 ml syringe aspirate 5-10mls from the line to ensure there is good backflow of blood.
25.	Attach the 10 ml syringe to needle-less port and flush the line with 0.9% Sodium Chloride using a brisk push-pause technique i.e. flush briskly, pausing briefly between each 1ml of fluid. Clamp the catheter while injecting the final 1ml of solution to maintain positive pressure and prevent backflow.
	While holding clean giving set securely in your hand, disconnect existing line from patient and discard.
27.	Connect to the dedicated feeding line to needle-less port (firmly but not tightly).
28.	The needle-less access device should be changed once a week.
29.	Wrap single layer of gauze around hub connection and secure with hypoallergenic tape with ends folded over.
30.	Observe and change dressing as indicated in Appendix 1
31.	Insert the giving set into volumetric pump and close door. Set volume and rate of infusion as prescribed. Open roller clamp and the clamp on the feeding line.
32.	Discard clinical waste into yellow bag. Discard syringe and ampoule into sharps bin. Drain PN bag down sluice before discarding into yellow bag. Discard giving set intact into sharps bin.
33.	Clean the trolley with equipment cleaning wipe and return to storage.
34.	Clean hands.
35.	Document bag change on prescription form and record procedure in nursing notes.

Do:

- CHECK LABEL – PATIENT NAME, DATE, INFUSION RATE(S)
- CHECK PN PRESCRIBED ON PN PRESCRIPTION CHART.
- EACH BAG HAS ONE GIVING SET, ONE CONNECTION and ONE DISCONNECTION.
- USE ONLY A DEDICATED LUMEN FOR PN – LABEL THE LUMEN FOR PN
- DISCARD ANY REMAINING FEED AFTER ALLOTED TIME (MAX 24 HOURS)
- Check Temperature, Pulse, Respiration and Blood Pressure twice a day.
- Check blood glucose four times daily. Inform the doctor if 2 readings are greater than 12 mmol/l and consider commencing insulin therapy.
- Weigh twice weekly.

Do Not:

DO NOT DISCONNECT THE PARENTERAL NUTRITION BAG

DO NOT RECONNECT A BAG IF IT HAS BEEN DISCONNECTED

APPENDIX 3:

MINIMUM MONITORING OF PATIENTS BEFORE STARTING AND DURING TPN ADMINISTRATION

BASE LINE- BEFORE STARTING TPN	MONITOR DAILY THROUGHOUT	MONITOR DAILY UNTIL STABLE	MONITOR TWICE WEEKLY THROUGHOUT	MONITOR WEEKLY THROUGHOUT	ONCE STABLE MONITOR 2-3 TIMES A WEEK
Sodium Potassium Urea Creatinine Phosphate Magnesium Calcium Glucose Liver function Serum albumin Total protein Full blood count Zinc Triglycerides Folate Vitamin B12	Fluid balance Enteral nutrition intake Temperature Pulse Respiration Glucose (8 hourly initially then daily)	Sodium Potassium Urea Creatinine Phosphate Magnesium	Liver function Serum albumin Calcium Full blood count Weight (if poss)	Triglycerides Zinc Other trace elements if on long term feeding-longer than 4 weeks (Selenium, Molybdenum, Chromium, Copper)	Sodium Potassium Urea Creatinine Phosphate Magnesium

Please attach patient sticker here or record:

Name:.....

NHS No: | | | | | | | | | | |

Hosp No: | | | | | | | | | | |

D.O.B:..... Male Female

Consultant:..... Ward:.....

Worcestershire NHS
Acute Hospitals NHS Trust

REQUEST AND CHECKLIST FOR PARENTERAL NUTRITION (PN)

Patient main diagnosis……

Please confirm indication for parenteral nutrition (PN)	**Yes**	**No**	**Advice**
	Please tick		
1. Will intestinal absorptive function meet the patient's nutritional needs?			Only if no is answered for both questions will PN be indicated (move on to question 4)
2. Is it expected that enteral nutrition will meet the patient's requirements within 5 days?			
3. If yes answered for Q1 and the patient is unable to swallow, can access be gained for enteral nutrition (e.g. NG, NJ, PEG tube as appropriate)			If yes, PN is not indicated and enteral feeding should be commenced.
4. Have a full set of bloods been taken in the last 24 hours? (U&Es, LFTs, calcium, magnesium and phosphate)			If no, must be done (and corrected*) prior to commencement of PN

*Please refer to Guideline for the management of re-feeding syndrome WAHT-NUT-006

Aid to choice of PN regimen	**Yes**	**No**	**Advice**
	Please tick		
5. Does the patient have a clean, unused CVAD (central venous access device) lumen?			If no, new CVAD must be placed for PN
6. Is PN likely to be required for < 2 weeks?			
If PN is likely to be required for > 2 weeks, peripheral access may be suitable in the short term but may result in the patient not meeting nutritional requirements. Recommend CVAD placement.			

The medical team accept advice from members of the Nutrition Steering Committee or their delegated representatives (for pharmacists/dietitians) to facilitate appropriate and safe use of parenteral nutrition support.

Signature of Requesting Doctor…….....…. Print:……..……

Designation…….……..... Bleep…… Date…….....…

On completion – contact the ward pharmacist to ensure your request is dealt with promptly (refer to ward notice board for bleep numbers). Please refer to a dietitian for a full nutritional assessment. Requests must be received by a pharmacist BEFORE 11am to ensure same day supply of patient specific PN

CONTRIBUTION LIST

Key individuals involved in developing the document

Name	Designation
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Jo Brown	Senior Dietitian
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Name	Directorate / Department
Mr Stephen Goodyear	Divisional Clinical Director Surgery
Dr Jasper Trevelyan	Divisional Medical Director Speciality Medicine
Dr Julian Berlet	Divisional Medical Director SCSD

Circulated to the chair of the following committee's / groups for comments

Name	Committee / group
Tania Carruthers	Director of Pharmacy
Alison Smith	MSO
Lisa Miruszenko	Deputy CNO and chair of the Nutrition and Hydration Committee

Monitoring Tool

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
8, 14	Management of refeeding syndrome	Audit of compliance with trust guideline WAHT-NUT-006	Once a year	Pharmacy/Dietetics	Nutrition and Hydration Steering committee	Once a year
15-17	Complications relating to intravenous catheters	Survey/audit	Once a year	Nutrition support team	Nutrition and Hydration Steering committee	Once a year

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	✓	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Keith Hinton	**Pharmacist**	**keith.hinton1@nhs.net**
Date assessment completed	**14.10.2020**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:** Parenteral Nutrition guidelines			
What is the aim, purpose and/or intended outcomes of this Activity?	This guideline is designed for Healthcare Professionals to select and manage adult patients receiving Parenteral Nutrition (PN) appropriately.			
Who will be affected by the development & implementation of this activity?	✓ ✓ ❑ ❑	Service User Patient Carers Visitors	✓ ❑ ❑ ❑	Staff Communities Other _____
Is this:	✓ Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			

What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	See references
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Circulated to key stakeholders including the relevant governance committees
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		✓		
Disability		✓		
Gender Reassignment		✓		
Marriage & Civil Partnerships		✓		
Pregnancy & Maternity		✓		
Race including Traveling Communities		✓		
Religion & Belief		✓		
Sex		✓		
Sexual Orientation		✓		
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic		✓		

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		✓		

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
		.		
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Keith Hinton
Date signed	14.10.2020
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval