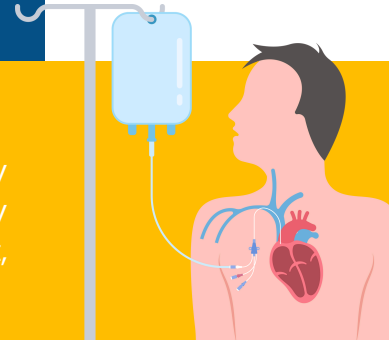


A GUIDE TO PARENTERAL NUTRITION



WHAT IS PARENTERAL NUTRITION?

Parenteral Nutrition (PN) is the provision of nutrition to patients intravenously via the veins in the form of a liquid infusion. The liquid infusion typically contains a nutritionally balanced combination of protein, carbohydrate, fat, minerals, electrolytes and vitamins.

WHO RECEIVES PARENTERAL NUTRITION ?



All age groups from preterm neonates to the elderly.



Patients who are malnourished or at risk of malnutrition due to:

- inadequate oral/enteral intake
- a non-functional, inaccessible or perforated (leaking) gastrointestinal tract



Treatment duration can range from a few days to long-term or even lifelong provision at home.



All hospitals involved with PN should have a multidisciplinary nutrition support team.²

PN is used by approximately

**2500 patients at home
in England¹**

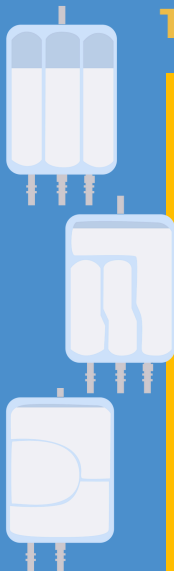


HOME PARENTERAL SUPPORT (HPS)

HPS is indicated for patients with ongoing intestinal failure (IF) (type 3) but who are well enough to return to their community. Supported by a homecare nursing team, many patients now live with a good quality of life on HPS.

Patients require a detailed care plan and good communication between the hospital multidisciplinary team (MDT) and the community support team is essential.

TYPES OF PARENTERAL NUTRITION ⁴



Licensed three chamber bags (3CB)

Carbohydrate, amino acids and fat sources are in three separate chambers and are mixed prior to use. Unmixed, the bags can be stored at room temperature. The bags require the addition of vitamins and trace elements, in an aseptic unit, to become complete PN.

Compounded standard bags

Macronutrients, micronutrients and electrolytes are mixed in an aseptic unit to a fixed 'recipe'. Similar to mixed 3CBs, these have a shorter shelf life and require refrigeration.

Compounded bespoke bags

These are manufactured in an aseptic unit to meet a patient's specific requirements and contain macronutrients, micronutrients and electrolytes. The majority of hospitals do not have such facilities and/or pharmacy staff to make up these bags.



PRESCRIBING PARENTERAL NUTRITION

PN is provided to patients on prescription. Until April 2016, PN treatment was recommended by a dietitian or a nurse and prescribed by an independent prescriber, such as a doctor or pharmacist. Changes to the Human Medicines Regulation in 2016 has allowed dietitians to qualify as supplementary prescribers, allowing advanced nutrition support dietitians to prescribe PN according to an agreed clinical management plan.⁵ In the hospital setting, specialised commissioning covers the cost of PN, whereas HPS is covered under Home PN (HPN) Framework.

STAFF INVOLVED IN PARENTERAL NUTRITION

PN in an acute hospital setting should be managed by a multidisciplinary nutrition support team (NST).

The central line will usually be inserted by the specialist nurse, while the bag of nutrient solution will be connected by ward nurses under aseptic conditions on a daily basis. The dietitian is responsible for calculating the patient's energy and nutrient requirements, which then informs the PN prescription. The pharmacist provides the PN prescription and checks the stability to ensure it is safe to give to a patient. The specialist nurse oversees the patient care and is involved in the training of ward staff. The chemical pathologists and microbiologists have an important role in the monitoring of the provision of PN.⁶

A nutrition support and intestinal failure service can provide treatment, support and advice to patients with complex gut disorders. This service can also offer a pharmacy aseptic service where all PN used throughout the Trust is prepared under sterile conditions by highly trained staff.⁷



THE NUTRITION SUPPORT TEAM (NST)

Not all hospitals administering PN have a NST

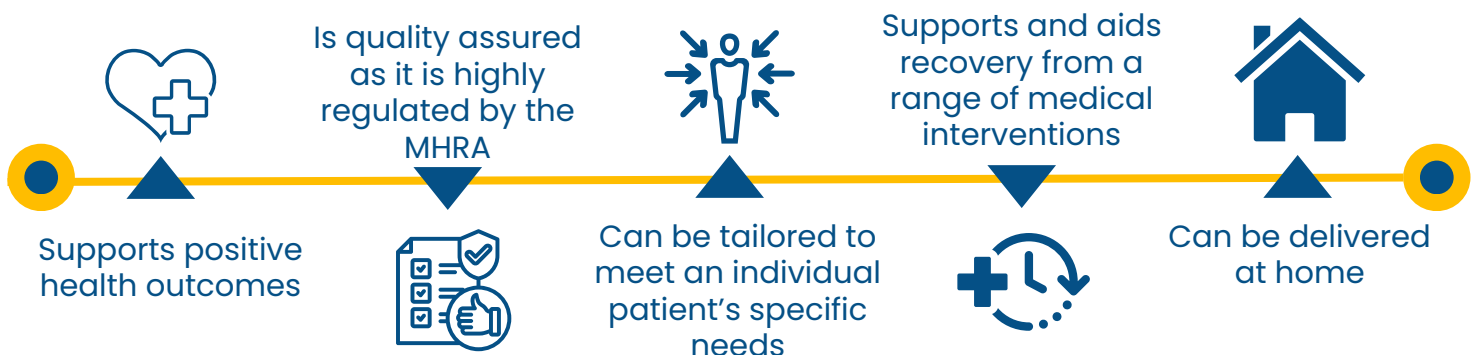


Having a NST has been shown to **improve patient outcomes and save cost**³



An NST may include **doctors, dietitians, specialist nutrition nurse, other nurses, pharmacists, biochemists and other allied healthcare professionals**

THE VALUE PN BRINGS TO PATIENT CARE



[1] NHS England. Severe Intestinal Failure Service (Adults). August 2023. Available at www.england.nhs.uk/wp-content/uploads/2019/07/170077-230701S-intestinal-failure-adults-serv-spec-v1.3.pdf. (Oct 2024) [2] Stewart JAD, Mason DG, Smith N, et al. (2010). A Mixed Bag. An enquiry into the care of hospital patients receiving parenteral nutrition. National Confidential Enquiry into Patient Outcome and Death (NCEPOD). Accessed at: www.ncepod.org.uk/2010report/downloads/PN_report.pdf (Oct 2024) [3] NICE Guideline [CG32]. 2006. Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition [4] Baker M, Harbottle L, 2019. 6.5 Parenteral Nutrition. In: Gandy J (ed.) Manual of Dietetic Practice. Oxford: John Wiley & Son Ltd [5] Statutory Instruments. 2016 No. 186. Medicines. The Human Medicines (Amendment) Regulations 2016 [6] Inayet N, Neild P. 2015. Parenteral nutrition. J R Coll Physicians Edinb, 45, 45-8 [7] BAPEN. Organisation of Nutritional Support Within Hospitals. 2007. Accessed at: www.bapen.org.uk/ofnsh/OrganizationOfNutritionalSupportWithinHospitals.pdf (Oct 2024)

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