

Parenteral Nutrition Study

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Introduction

Parenteral feeding is the administration of nutrition intravenously. Parenteral nutrition (PN) is indicated in patients with a compromised nutritional status, where oral or enteral feeding is not an option ¹.

In an acute hospital setting, PN is administered to patients with a non-functional, inaccessible or perforated gastrointestinal tract ². It is also used to improve and maintain the nutritional status of severely malnourished patients who are being prepared for surgery, radiotherapy, or chemotherapy for cancer ³. PN is also used in a community setting: home parenteral nutrition (HPN). In the UK, HPN is the standard treatment for patients with severe intestinal failure ⁴. There are an estimated 500-700 patients on HPN at any one time in the UK ⁵.

PN is a complex process, requiring placement of an appropriate feeding line, care of the line, accurate calculation and administration of calorific requirements, monitoring of electrolytes and blood chemistry. It has the potential for many serious complications. Complications can be metabolic or non-metabolic. Metabolic complications relate to nutritional formula and include hyperglycaemia and hyperosmolarity. Non-metabolic complications are a consequence of delivery techniques. Pneumothorax formation, thromboembolisation and catheter-related sepsis are common non-metabolic complications of PN therapy ³.

The National Institute for Health and Clinical Excellence (NICE) have recently published guidelines for nutritional support in Adults ². There are no comprehensive guidelines for the nutritional requirements of children and adolescents requiring PN and practice in individual centres is predominantly based on clinical experience ⁶. This would be the first national study of PN and it could have a major impact on surgical and medical practice and engender radical change.

The main thematic areas that will be addressed in this study are:

- 1 Indication for PN
- 2 Type of PN
- 3 Prescribing PN
- 4 Line choice, insertion and care
- 5 Nutrition team
- 6 Complications

Aims and objectives

Primary aim: To carry out a national audit of parenteral nutrition.

The primary aim would be met by addressing the following factors: indications for PN; the type of line used; the ease of insertion of the line; complications associated with the line; duration of feeding; and complications of feeding.

Secondary aims

1. To establish the extent to which NICE guidelines are adhered to.

2. To determine national PN complication rates.

Sample size

The sample size is difficult to determine as there is no specific coding for PN. There are an estimated 3 patients prescribed PN per hospital per week.

A pilot study would be required to gain an estimate of the number of patients receiving PN and hence determine the length of study required to obtain sufficient information.

Method

All patients who received PN during the study period will be identified for inclusion in the study. Patients will be identified retrospectively via pharmacies. Pharmacies should be able to identify the patients receiving PN and the consultant at the time of discharge will then be identified via the hospital PAS system. That consultant will receive a questionnaire asking specifically about clinical issues around the administration of PN.

Population

All patients who received in-patient PN within the timeframe, regardless of age.

Exclusions

None

Timeframe

The study period of data collection will be determined from the pilot study.

Data Collection

- Organisational Questionnaire

For the purpose of this study, 'organisation' will be defined as a hospital/centre not a Trust. This will give a clearer picture of the facilities and care received by the patient at that particular site rather than by the Trust as a whole. An organisational questionnaire will be sent to the NCEPOD Local Reporter/study contact for each site. The questionnaire is designed to collect data on topics such as hospital/site facilities, staffing and clinical protocols.

- Clinician Questionnaire

A questionnaire will be sent to the clinician responsible for the patient at the time of discharge

- Photocopied Casenote Extracts

Photocopied casenote extracts for the relevant hospital episode will be requested at the time the clinician questionnaire is disseminated.

Sites

All hospitals that treat patients with PN in the National Health Service and Independent sector in England, Wales and Northern Ireland, and public hospitals in the Isle of Man, Jersey and Guernsey, will be included in the study.

Analysis and Review of Data

Advisors

A multidisciplinary advisory group will review the data collected and provide expert opinion on the process of care and management of patients receiving PN.

All identifiable information will be removed prior to review by the advisors, i.e. all data will be anonymised (see below).

Confidentiality and Data Protection

Once the data have been extracted by the NCEPOD researchers, the questionnaires and case notes will be anonymised to remove patient, clinician and hospital identifiers prior to review by the Advisory Group.

All electronic data are held in password protected files and all paper documents in locked filing cabinets. As soon as possible after receipt of data NCEPOD will encrypt electronic identifiers and anonymise paper documents. Section 60 approval has been obtained to perform this study without obtaining patient consent.

Approval for the study methods of all NCEPOD studies is granted by the Patient Information Advisory Group (PIAG) during an annual review.

Dissemination

On completion of the study a report will be published and widely disseminated.

Timescale

Main Event	Date
<i>Pilot</i>	<i>October – December 2008</i>
<i>Data collection</i>	<i>January - February 2009</i>
<i>Advisory Groups</i>	<i>2009</i>
<i>Data Analysis</i>	<i>2009-10</i>
<i>Publish Report</i>	<i>2010</i>

Ethical considerations

As the study methodology would be similar to previous NCEPOD studies, there would be no specific ethical considerations.

References

1. Nutrition Advisory Committee. *Clinical nutrition: A resource book for delivering enteral and parenteral nutrition for adults*. University of Washington, 1997
2. National Institute for Health and Clinical Excellence. *Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition*. NICE, 2006
3. Beers MH, Berkow R. *The Merck Manual of Diagnosis and Therapy*. 17th Edition. Merck & Co, 1999
4. Lloyd DA, Vega R, Bassett P, Forbes A, Gabe SM. Survival and dependence on home parenteral nutrition: experience over a 25-year period in a UK referral centre. *Aliment Pharmacol Ther* 2006; **24(8)**:1231-40
5. British Association for Parenteral and Enteral Nutrition (BAPEN). Press release: Inequalities in potential life-saving nutritional care revealed in report published today. Issued 10 December 2002 www.bapen.org.uk/res_press_rel5.html
6. Johnson T, Sexton E. Managing children and adolescents on parenteral nutrition: challenges for the nutritional support team. *Proc Nutr Soc* 2006; **65(3)**:217-21