

Parenteral nutrition



Who is this leaflet for?

This leaflet is for patients who need parenteral nutrition (PN). The booklet has been developed to help you to understand what PN is and how it may affect you. It also aims to answer some commonly asked questions.

Why do I need PN?

There are many reasons for needing PN but usually it is because you are having difficulty eating and/or you are not receiving enough of the essential nourishment that your body needs to get well. This may be as a result of surgery where sometimes the gut can become sluggish (ileus) or food cannot get through because of a blockage or there is a leak in your gut. Alternatively it may be that you may need your nutrition optimised prior to planned surgery to improve your post operative recovery. The specific reason why you require PN will be explained to you by your medical team or by the Nutrition Team.

What is PN?

PN is a form of liquid food (milky-looking, sometimes this may be a pale yellow colour) given directly into a vein. It is an alternative way of providing you with a well balanced diet if you are unable to eat adequately or when the gut is not working properly or needs resting. It contains all the nutrients and fluid your body requires for health, healing and growth. PN may be necessary to speed your recovery.

You may need vitamins before you start PN if you have been a long time without food. The Nutrition team will discuss this with you if required.

What does PN contain?

- **Glucose** – for energy
- **Protein** – to grow and maintain healthy body tissues
- **Fat** – for energy and to provide essential fatty acids.
- **Electrolytes (salts)** – to replace those lost each day and keep your body healthy and functioning correctly.
- **Vitamins and minerals** – to keep your body healthy and working correctly.

The nutrients are combined with water to make the complete volume. the nutrition team Dietitian will calculate how much PN you will require.

PN is prepared under sterile conditions by the Pharmacy Technical Services Unit.

Are there any alternatives?

There are no alternatives if you need to rest your gut or if your bowel is obstructed.

How is it given?

To provide this form of nutrition a small sterile tube (catheter) will be inserted into a vein.

- **PICC (peripherally inserted central catheter)** is the most common catheter that is used to deliver PN. It is placed in a deeper vein in your arm (usually right arm) at the bedside by the vascular access nursing team using an ultrasound scanning machine. A PICC is normally OK to use straight away as the position is confirmed by a special machine. Only occasionally it may need an X-ray to check the position before it can be used for PN.
- **Central line** - a short term catheter (7-10 days) is inserted into a large vein in your neck or chest under local anaesthetic to help minimise any pain or discomfort and / or sedation if anxious. It is placed under sterile conditions in the operating theatre. You will have a chest X-ray afterwards to check the catheter is in the correct position.
- **Peripheral (midline)** – a catheter is inserted into a vein in your arm at your bedside.
- **Hickman** - a central catheter that is placed on the right or left side of your chest wall into a vein in the chest and ends in a larger vein just above your heart. A Hickman line is used long-term to access your veins. It is placed in theatres or in the radiology department.

This catheter site will need to be cleaned 24 hours after it is placed and thereafter each week, or sooner if the dressing is peeling off. This is to reduce the chance of an infection.

PN must be connected to the catheter under aseptic conditions to reduce the risk of bacteria entering the bloodstream. Only nurses who have had the necessary training will be able to connect the PN. You may need to be transferred to a different ward so that appropriately trained Nurses can look after the catheter.

Are there any risks or complications?

Catheter infection

Fever or chills may mean that there is an infection in the catheter, especially if this happens when the PN is started. Please let the nursing staff know.

If you get an infection you may have to stop PN for a while and you may need antibiotics in a different catheter. The PN catheter may need to be removed and another one inserted if you become unwell have persistent fever, or there is redness, pain or swelling around the insertion site. The nutrition nurse and ward nurses/ doctors will check the catheter every day. It should be cleaned 24 hours after insertion and then weekly or more often if required to ensure the integrity of the catheter.

Liver problems

PN is rich in glucose and fat which can be stressful for the liver. Your blood tests will be checked regularly so that any abnormality in liver function can be detected. If this occurs, your PN may be changed or given over less time – this will be decided by the nutrition team.

Re-feeding syndrome

If you have a long time without eating, starting PN too quickly can cause some of the salt levels in your body to drop. To reduce the risk of this happening the PN will be started slowly and will be gradually increased over a few days so your body can adjust. You will have your bloods checked regularly so any problems can be corrected.

Blood clots

Inserting a catheter into a blood vessel for PN can cause irritation. This can increase the risk of blood clots forming. Please alert a member of the team if you experience pain or swelling of the arm which has the catheter in you may be given medication to break the clot up if required.

How is PN attached to me?

The solution comes in a special bag and will hang from a stand. It will be attached to your catheter via a pump, which will run constantly. The bag will be changed every 24 hours and should **not** be disconnected for any other reason. Once you are stable on the PN which is usually after about 1 week the nutrition

team will aim to gradually reduce the time the PN runs to 12 hours usually overnight. However, if you need to have long term PN you may be given a daily break. If you need to get up and move around the pump can be un-plugged and pushed with you. You can wash but please take care not to get the dressing on your catheter wet.

How does it work?

Unlike ordinary food that is absorbed from your gut, the PN is dripped directly into your bloodstream. The heart pumps it around your body in your blood so all the cells can take what nutrition they need. The PN will be started slowly and increased over several days to reach your daily nutritional target.

How am I monitored?

The nutrition team and medical staff will monitor you closely whilst you are receiving PN. You will have daily blood tests in the first week for any electrolyte imbalances, thus ensuring you have the correct amount of salts in your blood and to monitor your kidney and liver function. Any imbalances will be corrected. When the Nutritional Team is happy that your blood results are stable this may change to blood tests 2-3 times a week.

Blood glucose

You will have your blood glucose levels regularly monitored – this will be done through a finger prick test several times a day in the first few days until you reach your target nutrition. Sometimes PN can cause the blood sugar to be high and you may experience thirst and pass lots of urine. Some patients need insulin whilst they are receiving PN. If your blood sugar is stable after the first few days then it will only need to be checked once a day whilst you remain on PN.

Fluid balance

The nurses will monitor the amount of fluid that you take in and the amount that you pass (urine) to ensure that you do not become dehydrated or over hydrated. You may need extra fluid into another vein, which will be monitored by the nutrition team and your medical team. You may be asked for a urine sample to test for salts and electrolytes.

Will I still need to open my bowels?

The PN goes straight into the blood stream and will not have an effect on your bowel. However your bowel may continue to produce bowel motions that may be different to normal. PN does not cause side effects such as pain, diarrhoea, bloating or nausea. Some patients find that they need to pass urine more frequently when they are on PN.

Can I still eat and drink?

This largely depends on the reason that you are on PN. Sometimes it is necessary to completely rest the bowel by having nothing to eat or drink. For other reasons you may be allowed some water or food. Your medical team and/or nutrition team will advise you.

Will I feel hungry or thirsty?

The PN should fulfil your nutritional and hydration needs so you should not feel hungry or thirsty. However some patients experience hunger and thirst even though their body is receiving all the nutrients it needs. It may be possible for the contents of the PN bag to be changed to reduce this feeling. If you are constantly thirsty, let the nurse know as this may actually be detrimental to you and you may need extra fluid in your drip. Your mouth may feel dry and it is important to continue to brush your teeth regularly and use mouth wash if available.

How long will I need it for?

Your medical team and nutrition team will discuss this with you and it will be reviewed on a daily basis. Most patients will require PN for only a short time, such as to permit the digestive system to rest following surgery or illness or for a variety of reasons. Others may need PN longer term.

Most patients begin eating a few days or weeks after starting PN and go on to make an uneventful recovery. Food is usually reintroduced gradually with most people starting on fluids, progressing onto a soft and then a normal diet.

Can I go home on PN?

You will need to remain in hospital until your PN can be stopped. It is possible to arrange to have home PN. The Nutrition team will discuss if this is a suitable option for you but can take a while to arrange.

Depending on specific medical needs some patients may require oral nutritional supplements in addition to diet. Other patients may require a period of enteral feeding (feeding through a thin tube into the stomach) before progressing to diet. The ward Dietitian will be able to support and advise if this is the case.

If you are going to require PN long-term then the nutrition team will discuss this with you in greater detail when it is appropriate.

Any questions?

If after reading this leaflet you would like to ask more questions please ask a member of the ward or medical team. You can also ask a member of the nutrition team.

The Nutrition Team

Is a multidisciplinary team consisting of a Consultant Gastroenterologist, a Consultant Biochemist, a Nutrition Nurse Specialist, a Specialist Dietitian, a Pharmacy Technician and Specialist Pharmacist. The Nutrition team use their expertise to prepare a special formulation of PN for you and direct the ward team to administer this in a safe and appropriate way. A member of the nutrition team will visit you on the ward regularly, Monday to Friday.

If you would like this leaflet in large print, braille, audio version or in another language, please contact the General Office on 01872 252690

