

## Preventing Catheter Infection

Catheters require proper care and attention to prevent infection. Many signs of catheter infection can be remembered by using the acronym **TRIPS**. If any of these signs near the catheter site are seen or experienced, a doctor or caregiver should be immediately alerted:

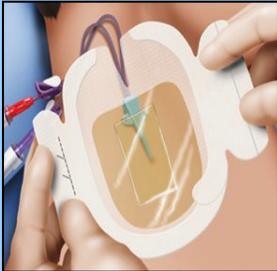
- Tenderness or temperature (warmth)
- Redness
- Irritation
- Pain
- Swelling (or drainage)

There are other important signs of a catheter infection, including fever. Taking care of the catheter and skin around the catheter site can minimize the chances of infection. Always follow the instructions exactly as given by the doctor or nurse.

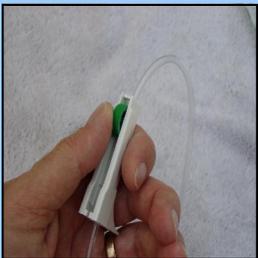
**Clean**



**Covered**



**Clamped**



**Capped**



**Prevents Catheter Infection!**



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SBS Foundation

*Educational Series*

## Parenteral Nutrition



Short  
Bowel  
Syndrome  
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*Empowering patients to live  
fuller lives, creating a lifeline of*

## Introduction

Parenteral nutrition (PN) is liquid food containing nutrients such as proteins, carbohydrates, fats, vitamins, or minerals. Usually delivered through a catheter directly into the bloodstream instead of through the stomach and small intestine, PN is often customized to deliver specific nutritional needs. PN can deliver many of the nutrients needed to sustain life in people with SBS, it has been the standard treatment for decades. Most people are familiar with PN delivered in the hospital setting, but many people with SBS receive their PN at home, referred to as home parenteral nutrition, or HPN.

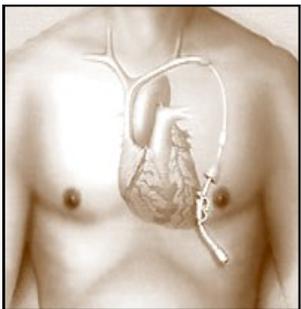


Some patients may only require intravenous (IV) fluids and electrolytes administered through a catheter. The catheter is a thin tube that is surgically inserted into the body, usually in a large vein in the chest or arm for the purpose of delivering PN and fluids. When all of a person's nutrition is supplied from this route, it is sometimes called total parenteral nutrition, or TPN.

Many people with SBS take their PN at night. To administer the PN, a pump and an IV bag containing the PN are placed on an IV stand by the side of the bed. Some people keep the pump and PN inside a backpack. Administration of PN varies by patient; some receive continual nutrition 24 hours a day. Frequent trips to the bathroom may disrupt sleep or daily activities.

## Commonly Used Catheters

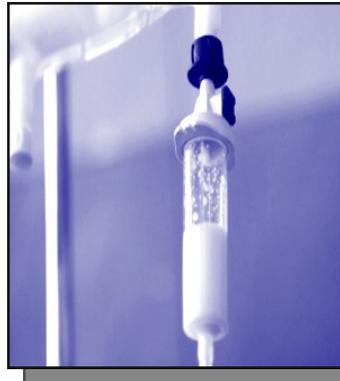
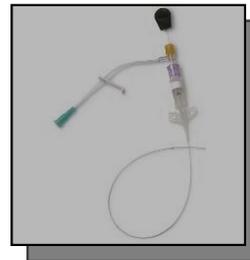
A variety of catheters are available, and a doctor will help to decide which catheter is best for each patient. Two common types of catheters used in SBS are the Hickman® Catheter and the peripherally inserted central catheter (PICC). Others are available, including the subcutaneous infusion port (SIP) and the Groshong® Catheter.



Here is how the Hickman catheter and the PICC are used:

A **Hickman catheter** is fit into a vein just below the surface of the skin and just above the heart.

A **peripherally inserted central catheter (PICC)** is inserted into the arm, just above the elbow.



## Complications of Parenteral Nutrition

- **Skin infections at the catheter entry site** can cause bacteria to enter the bloodstream and cause a serious blood infection (sepsis), which could require hospitalization.
- **Contaminations in the catheter tubing or improper handling** of PN or intravenous solutions can also lead to serious blood infections and hospitalization.
- The presence of a catheter can cause a **blood clot** that can block the device or potentially lead to a venous thrombosis or embolism.
- **Hyperglycemia** (high blood sugar) can occur when PN is given too fast or if the body cannot process the sugar.
- **Hypoglycemia** (low blood sugar) can occur when PN fluids are discontinued suddenly.
- **Liver abnormalities and liver disease** are recognized complications of long-term PN use. They may become apparent in a variety of ways including:
  - **Steatosis**—the buildup of fat in the liver cells
  - **Cholestasis**—a condition in which bile cannot flow from the liver to the duodenum
  - **Cirrhosis**—scarring of the liver that can occur over time and result in poor liver function
- **Gallbladder disease** is sometimes seen in patients receiving long-term PN. Although not totally understood, one likely reason for this occurrence is that bile in the gallbladder may remain motionless in patients with SBS potentially due to the decrease in oral intake. This can lead to gallstones (lithiasis).
- Fluid/mineral imbalance can occur through a loss of water and minerals due to diarrhea or vomiting.