

British Intestinal Failure Alliance (BIFA) Guidance

Standardised Parenteral Support Catheter Guidelines

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This guidance on connecting, disconnecting and changing the dressing for parenteral support (includes nutrition and fluid) catheters, was requested by NHS England, supported by BAPEN, NNNG, BIFA, BSG and PINNT. The reason for needing it is that the many different procedures in use in England have been making care at home and between hospitals unnecessarily complex, which can be confusing for patients and staff.

These guidelines were initially agreed between St Mark's and Salford Royal IF units and then circulated to NNNG, BIFA committee and PINNT for comments.

The 3 procedure documents aim to give the principles of the procedures and assume a basic understanding of asepsis. Therefore, much of the detail seen in other documents has been omitted. Other procedures relating to a parenteral support catheter (for example administration of intravenous medication, obtaining blood cultures) can be undertaken using these guidelines.

The procedure documents are not intended to replace training, but will act as a quick reference guide during and after training. A comprehensive training manual is being developed to be used alongside the national framework competency documents for patients and nurses. The documents are based upon the current evidence and aim to simplify and standardise the procedures showing only the key steps. The principles are applicable to both adults and children. They were designed to be used with patients starting Home Parenteral Nutrition (HPN). Existing HPN patients will not be required to change the way they do their procedures. They are a guide for home care nurses, patients/carers and other appropriately trained staff doing the procedures (e.g. staff in an integrated IF unit, HPN centre or wherever PN is being used).

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Connecting a Parenteral Support (PS) Infusion

Key Principles of Care and Management of Central Venous Catheters

Identify the key parts.

Ensure no touching of any key parts during the procedure.

Apply alcohol hand rub directly to hands during the procedure if touching any non-sterile contents and/or if there is any risk of contamination.

Social Handwash

Step 1 – Gather & Check Equipment

- Bag of parenteral support (PS) (Check PS prescription, integrity of bag & expiry date)
- Trolley/tray
- Detergent wipes (or paper towel, soap and water)
- 2% CHG & 70% IPA disinfectant wipes
- Sterile dressing-pack or dressing towels
- Gloves of choice (as recommended by HPN Centre)
- 10mL pre-filled syringe(s) 0.9% sodium chloride for injection
- Alcohol hand rub
- Sterile intravenous giving set
- Surgical tape
- Infusion pump, stand/rucksack

Step 2 - Aseptic Handwash

Step 3 - Prepare Equipment

- Clean & disinfect trolley/tray surface
- Attach strips of tape to the edge of the trolley/tray
- Open sterile dressing pack/towel onto trolley/tray surface to create an aseptic field
- Open equipment needed onto aseptic field
- Using gloves (as recommended by HPN Centre) spike bag of PS and prime giving set

Step 4 - Prepare Patient & Catheter

- Open sterile towel & place under catheter. Tape in place.
- Remove any outer dressing covering the catheter (if used) & port protector (if used)

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Step 5 - Access Catheter

- Put on gloves
- Disinfect needle-free device (The order of these first 2 steps can be interchanged depending on HPN Centre recommendation)
- Prime pre-filled syringe(s)
- Attach syringe to needle-free device and flush catheter using push pause flushing and positive pressure clamping technique (as recommended by HPN Centre)
- Attach giving set

Step 6 – Start infusion & Secure Catheter

- Ensure giving set & catheter clamps are released
- Start infusion at prescribed rate
- Remove gloves
- Secure catheter (as recommended by HPN Centre)

Step 7 – Clear away

- Complete any documentation

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Disconnecting a Parenteral Support (PS) Infusion

Key Principles of Care and Management of Central Venous Catheters

- Identify the key parts.
- Ensure no touching of any key parts during the procedure.
- Apply alcohol hand rub directly to hands during the procedure if touching any non-sterile contents and/or if there is any risk of contamination.

Social Handwash

Step 1 – Gather & Check Equipment

- Trolley/tray
- Detergent wipes (or paper towel, soap and water)
- 2% CHG & 70% IPA disinfectant wipes
- Sterile dressing-pack or dressing towels
- Gloves of choice (as recommended by HPN Centre)
- 10mL pre-filled syringe(s) 0.9% sodium chloride for injection
- Alcohol hand rub
- Port protector (as recommended by HPN Centre)
- Surgical tape

Step 2 - Aseptic Handwash

Step 3 - Prepare Equipment

- Clean & disinfect trolley/tray surface
- Attach strips of tape to the edge of the trolley/tray
- Open sterile dressing pack/towel onto trolley/tray surface to create an aseptic field
- Open equipment needed onto aseptic field

Step 4 - Prepare Patient & Catheter

- Switch off pump and close clamp on giving set
- Open sterile towel & place under catheter. Tape in place.
- Remove outer dressing (if present) to release catheter and clamp catheter (if present and recommended by HPN centre)

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Step 5 - Access Catheter

- Put on gloves
- Disconnect giving set from needle-free device (The order of these first 2 steps can be interchanged depending on HPN Centre recommendation)
- Disinfect needle free device
- Prime pre-filled syringe(s)
- Attach syringe(s) to needle-free device and flush catheter using push pause flushing and positive pressure clamping technique (as recommended by HPN Centre)
- Attach port protector (as recommended by HPN centre)

Step 6 –Secure catheter

- Remove gloves
- Secure catheter (as recommended by HPN Centre)

Step 7 – Clear away

- Complete any documentation

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Changing the Parenteral Support (PS) Catheter Dressing

Key Principles of Care and Management of Central Venous Catheters

- Identify the key parts.
- Ensure no touching of any key parts during the procedure.
- Apply alcohol hand rub directly to hands during the procedure if touching any non-sterile contents and/or if there is any risk of contamination.
- This procedure should not be incorporated into any other procedure in which the catheter hub is manipulated so keeping the risk of cross contamination to a minimum.
- Dressings need to be changed every 7 days, if they are soiled or have become loose. A fabric island type dressing is recommended if there is discharge from the exit site.

Social Handwash

Step 1- Gather & Check Expiry Dates of Equipment

- Trolley/tray
- Detergent wipes (or paper towel, soap and water)
- 2% CHG & 70% IPA disinfectant wipes
- Sterile dressing-pack or dressing towel
- Gloves of choice (as recommended by HPN Centre)
- Single use 2% CHG & 70% IPA sponge applicator(s)
- Sterile dressing(s) of choice
- Alcohol hand rub
- Suture-less securement device (if required)

Step 2 - Aseptic Handwash

Step 3 - Prepare Equipment

- Clean & disinfect trolley/tray surface
- Open sterile pack/towel and create an aseptic field
- Open equipment needed onto aseptic field

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Step 4 - Prepare Patient & Catheter

- Remove existing dressing(s) &/or suture-less securement device
- Attach anchoring strip (if present) from suture-less securement device

Step 5 - Access Catheter

- Put on gloves of choice (as recommended by HPN Centre)
- Disinfect skin with single-use 2% CHG & 70% IPA sponge applicator(s)
- Apply dressing(s) &/or suture-less securement device as per manufacturer's recommendation

Step 6 –Secure Catheter

- Remove gloves
- Secure catheter (as recommended by HPN Centre)

Step 7 – Clear away

- Complete any documentation

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Glossary of terms for Parenteral Support (PS)

Alcohol hand rub. An alcohol containing product (gel or foam) designed to reduce the number of micro-organisms on the hands. It should be applied to clean, dry hands, and the hands rubbed together, following the steps in the aseptic hand washing technique, until they are completely dry.

Aseptic hand wash. A thorough hand wash procedure concentrating particularly on the areas of the hands where resident bacteria can be found. To be effective the handwash solution must come into contact with all of the surfaces of the hands and wrists. While there are many different hand washing techniques cited in the literature (with 6-13 steps) the principles are the same, to make sure all surfaces of the hands (including the wrists), are adequately washed, rinsed and dried, especially those areas which may be missed such as finger tips, thumbs and between the fingers.

Central venous catheter. A vascular access device whose tip lies in the lower third of the superior vena cava or the upper third of the inferior vena cava (ideally at the vena cava/right atrial junction). They can either be centrally inserted via the subclavian, internal jugular or femoral veins or peripherally inserted via the brachiocephalic veins. The femoral route, which may have a higher risk of infection, is chosen when the upper veins cannot be accessed.

Disinfectant wipes. Single use wipes containing 2% chlorhexidine and 70% isopropyl alcohol (2% CHG & 70% IPA). The combination of both disinfectants is thought to be more effective than when either is used alone.

Key part. Things which if touched directly or indirectly could result in the introduction of micro-organisms. They include the catheter hub, the end of the giving set, syringe tip and the skin surrounding the exit site.

Needle Free Device (NFD) A device which permits the connection of administration sets, and syringes to the hub of a vascular access device without the use of needles. They were introduced to reduce the incidence of needlestick injuries. They should be disinfected using pressure and friction for a minimum of 15 seconds, and allowed to dry for 30 seconds, prior to each time they are accessed.

Parenteral Support (PS). A term which covers both parenteral nutrition (PN) and parenteral fluids (PF).

Port Protector cap. A disposable single use disinfection cap that contains 70% Isopropyl Alcohol (IPA). The port protector twists onto the end of the NFD to passively disinfect and protect from cross contamination during infusion free periods.

Positive pressure clamping technique. The catheter is clamped while flushing with the last one millilitre of solution so as to seal a column of fluid within the catheter. This may reduce the backflow of blood and thereby the risk of occlusion.

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Push-Pause flushing technique. Flushing with a stop/start motion causes turbulence of fluid within the catheter that may help reduce the build-up of any deposits and reduce the risk of occlusion.

2% chlorhexidine gluconate (CHG) and 70% isopropyl alcohol (IPA) sponge applicator. These single use sponges contain 2% CHG and 70% IPA are designed to disinfect the skin around the exit site. By using gentle, repeated back and forth strokes for 30 seconds this provides an effective reduction on bacterial load on the skin. The skin needs to dry for 30 seconds before dressing is applied.

Social (or routine) hand wash. A general hand wash to remove transient microbes picked up on the hands during daily activities.

Sterile gloves. These have traditionally been advised as best practice for the administration of parenteral support however non sterile gloves can be used (see HPN Centre recommendation). Sterile gloves had been thought to reduce the risk of infection by reducing the transfer of micro-organisms to and from the wearer's hand. The wearing of gloves is not a substitute for handwashing.

Sterile towel. This can be either supplied separately or within a dressing pack. The towel is used to create the aseptic field onto which the sterile items are placed. A 2nd sterile towel is used to lie under the patient's catheter when accessing the catheter.

Key points to remember:

- Ensure all equipment required is present, and that there is a clean area in which to carry out the procedure.
- Open all sterile packs carefully to prevent contamination of the contents.
- Ensure only sterile items come into contact with the catheter, and that sterile items do not come into contact with non-sterile objects.
- Do not touch any key parts at any time.
- Wash, dry and disinfect hands effectively prior to all procedures.
- The wearing of gloves is not a substitute for handwashing.
- Needlefree devices should be disinfected using pressure and friction for a minimum of 15 seconds prior to each time they are accessed

Individual HPN centres may incorporate additional steps into the procedures if they have a strong belief that these steps enhance the efficacy of the procedure. For example: additionally, disinfecting the needle free device after flushing and before applying a port protector, or placing a sterile towel under the catheter during routine dressing change. It is recommended that patients are informed that these are additional steps and that it is not incorrect if someone else accessing their catheter does not perform them.

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