



Lifecath Midline

A Nurses Guide to Lifecath Midline



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This booklet provides guidance in the care and maintenance of Midline catheters. It does not dictate medical practice, and you should always follow your local hospital or Trust policies.

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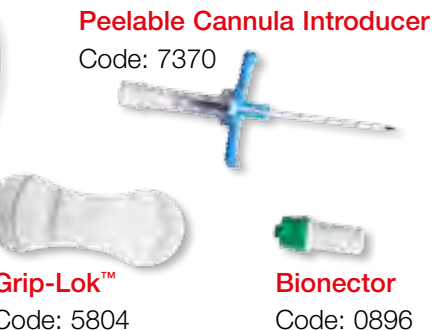
Open for Useful Information



Useful Information



Lifecath Midline Catheter
Code: 1296



Peelable Cannula Introducer
Code: 7370

Grip-Lok™
Code: 5804

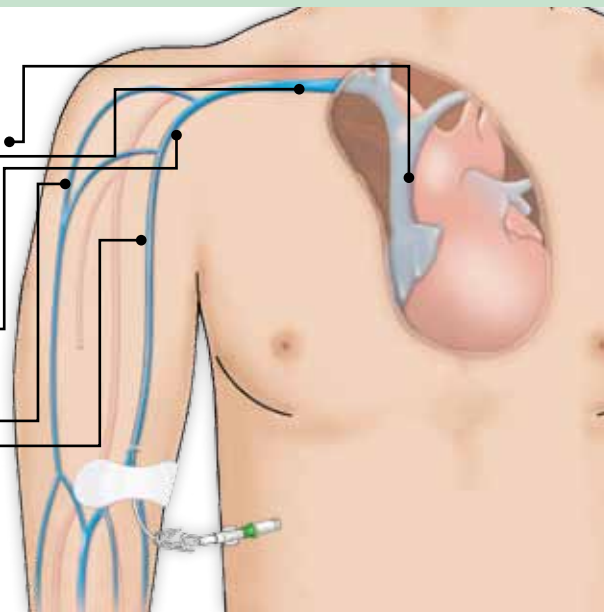
Bionector
Code: 0896

Also included:

- Patient labels
- 1 x Tape measure
- 1 x Midline identification label

Adult venous blood flow

- Superior Vena Cava**
2-2.5L/min
- Subclavian Vein**
1-1.5L/min
- Axillary Vein**
350ml/min
- Cephalic Vein**
150ml/min
- Basilic Vein**
200ml/min



Ordering Information

Product Codes		Lumen	Catheter Information				Flow Rate (ml/min)*	Priming Volume (ml)	Cannula Introducer Gauge	Unit of Sale	MST Introducer Order Code
Vygon	NPC		Product Description	Size (Fr)	Length (cm)	OD (mm)					
1296.13	FSU177	Single	X.R.O. Catheter (PUR)	3.0	25	1.0	4.4	0.30	17	10	G1146.037
1296.14	FSU178	Single	X.R.O. Catheter (PUR)	4.0	25	1.3	20.7	0.38	15	10	G1146.047
1296.15	FSU179	Single	X.R.O. Catheter (PUR)	5.0	25	1.7	70.0	0.46	14	10	G1146.057
1296.245	FSU180	Double	X.R.O. Catheter (PUR)	4.5	25	1.5	7.4 7.4	0.17 0.17	14	10	G1146.457

*Tested to ISO 10555



Midline Catheters Overview

Description

- Midline catheters offer an alternative to peripheral and central venous access, providing vascular access in a larger peripheral vein without entering central venous circulation.
- They are available in various sizes which are suitable for both children and adults.
- They are peripherally inserted via the veins of the antecubital fossa with the tip terminating in the axillary vein.
- Benefits to the patient include less frequent resiting of the catheter and a subsequent reduction in associated venous trauma.

Indications

- Patients undergoing IV therapy (e.g. antibiotics) for one or more weeks, in order to preserve the integrity of the veins and increase patient comfort by removing the need for resites.
- Patient preference.
- Where patients present with poor peripheral venous access in the lower arm and when the use of a CVC is contraindicated, the Midline catheter provides venous access along with easy, less hazardous insertion at the antecubital fossa.

Contraindications

The following therapies are not appropriate for administration via a Midline catheter:

- Vesicant medications
- Total Parenteral Nutrition (TPN)
- Solutions, medications with pH <5 or >9, and those with osmolarity >500mOsm/l.



Overview

- Midline catheters can be adequately secured with Steri-Strips™ or catheter securement devices such as Grip-Lok™.
- The insertion site can then be covered with a semi-permeable transparent dressing and changed according to the manufacturer's recommendations.
- The device should be flushed with 0.9% sodium chloride solution after each use and then finish with a heparinised solution according to the manufacturer's recommendations
- Midline catheters can be left in situ for extended periods of time, maximum dwell time is unknown, but Philpot and Griffiths report a Midline removed at 296 days.⁽¹⁾

Cleaning solutions

- Most transient flora can be removed from the skin by rubbing with soap and water.
- Chlorhexidine 2% in 70% alcohol has been shown to be the most effective agent for skin cleaning around the site prior to insertion and between dressing changes.⁽²⁾

Securement of device and dressings

- Midline catheters should be secured to prevent movement, which reduces the risk of phlebitis, infiltration, infection and migration.
- Choice of dressing is usually based upon suitability for a particular VAD site or skin type.
- An IV dressing is applied to minimise the contamination of the insertion site.

Pulsated flush

- Use a pulsated (push-pause technique) flush to create a turbulent flow when administering the flush solution. This removes debris from the internal catheter wall.



Positive flush technique

- Positive flushing prevents reflux of blood into the catheter tip, reducing the risk of catheter occlusion. This is accomplished by maintaining pressure on the plunger of the syringe while disconnecting the syringe from the Bionector.



What to do:

- Remove the dressing and securement device.
- Pull the catheter to remove, maintaining gentle firm traction and the Midline should come out easily.
- Pressure should be applied to the insertion site after removal for at least three to four minutes and the site inspected prior to applying a dressing to ensure bleeding has stopped.
- The catheter integrity should be checked and its length measured to ensure that an intact device has been removed.

Fibrin sheath formation

- Fibrin is a fibrous protein that works with platelets to clot blood and to form a protective mesh over a wound site. It forms a sheath around catheters placed in the bloodstream and can provide a potential focus for bacterial growth.
- When the sheath covers the catheter tip it can act as a one-way valve, allowing fluids to be administered but making it difficult or impossible to aspirate.
- Fibrin sheath formation often leads to persistent withdrawal occlusion (PWO). PWO can often be easily managed using thrombolytic therapy such as Urokinase. However, PWO may lead to more serious complications such as chemotherapy extravasation.

Treatment ⁽³⁾

- Remove the extension set or injection cap and attempt to flush the cannulae gently using a 10ml syringe of 0.9% sodium chloride. If resistance is met, stop and request a resiting of the device.

Prevention ⁽³⁾

- Maintain a continuous, regular fluid flow, or ensure that patency is maintained by flushing. Instruct the patient to keep their arm below the level of the heart if ambulant and attached to a gravity flow infusion.



Phlebitis

- Phlebitis is the inflammation of a vein, which can occur in a number of ways:
 - Infusion phlebitis is diagnosed when the acute inflammation of a vein can be linked directly to the presence of any vascular access device, and causes can be mechanical, chemical or infective.
 - Thrombophlebitis is a further complication when phlebitis can be linked to a thrombus.

Identification

- The clinical manifestations of phlebitis include skin inflammation, the formation of erythema, oedema, venous cord and pain.
- In 50% of patients, pain will be the first indication of phlebitis. It is therefore important that the practitioner takes any indication of pain or discomfort during line assessment seriously.

Mechanical phlebitis

- Mechanical phlebitis results from catheter trauma to the tunica intima (the lining of the vessel wall). This may occur during insertion, or as a result of repeated catheter

movement within the vessel. The trauma exposes the subendothelial layer of the vessel to which platelets adhere, which activates the normal haemostatic clotting processes and increases the likelihood of thrombus formation.

Treatment ⁽³⁾

- Stop the infusion and resite the device. Apply warm compresses to provide symptomatic relief. Encourage mild movement of the limb. Reassure the patient by explaining what has happened then document.

Prevention ⁽³⁾

- Always select an appropriately-sized catheter for the patient. Ensure the device is correctly secured. Use an extension set to minimise manipulation of the device. Instruct the patient on the amount of movement permitted.

Chemical phlebitis

- Chemical phlebitis can usually be attributed to the nature of the fluid being administered. An inflammatory response can result if solutions or medication with a high or low pH or osmolarity damage the tunica intima, resulting in phlebitis.



Treatment ⁽³⁾

- Stop the infusion and resite the device. Apply warm compresses to provide symptomatic relief. Encourage movement of the limb. Reassure the patient by explaining what has happened then document.

Prevention ⁽³⁾

- Dilute drugs according to instructions. Check compatibilities carefully to reduce the risk of particulate formation. Administer drugs via infusion rather than bolus injection. Be aware of the factors involved, such as pH.

Infective phlebitis

- Infective phlebitis is the inflammation of a vein caused by the presence of infection. It is characterised by positive significant bacterial culture from the catheter tip, in conjunction with a positive culture from a peripheral vein. If the bacteria cultures are negative, the cause of the phlebitis is assumed to be either mechanical or chemical.

Treatment ⁽³⁾

- Stop the infusion, remove the catheter and site a new device in the opposite arm if possible. Follow hospital policy about sending cannula tip for bacterial analysis. Clean the area and apply a sterile dressing. Check regularly and document.

Prevention ⁽³⁾

- The use of correct aseptic technique during insertion, while handling the catheter, and proper care and dressing of the insertion site will minimise the risk of infective phlebitis.

Thrombophlebitis

- Thrombophlebitis is venous inflammation in combination with venous thrombosis, which may lead to vessel occlusion. Dislodgement of a thrombus could cause a pulmonary embolus.
- Clinical symptoms of peripheral thrombophlebitis include: oedema of the affected arm, shoulder and face, associated with pain, numbness or tingling; there may be a distension of the veins and the formation of a collateral blood supply; and the affected arm may be cooler or discoloured compared with the other arm.

Treatment ⁽³⁾

- The patient may require ultrasound to diagnose a clot in the arm. If confirmed the patient will require anticoagulation therapy. Catheter removal will depend on the severity of the symptoms, and other device options.

Prevention ⁽³⁾

- Ensure the tip is correctly positioned.



Education and Training

If you are looking to extend the skills of individual members of your team, Vygon can offer you a number of supporting services as part of our on-going commitment to education and training. For more information about any of these services please contact your local Vygon representative.

Product-Specific Workshops

Small IV workshops which are tailor-made to meet individual needs and expectations. These are classroom-based and combine lectures with hands-on opportunities, using videos/ DVDs and training mannequins.

An Introduction to Midline Placement Workshop

A personalised three hour workshop designed to extend the skills of existing IV practitioners, combining the theory and practical elements involved in Midline placement.

Policies and Procedures Workshop

A short hands-on workshop which can be run at a departmental level and is suitable for anyone involved in the care and maintenance of Midlines.

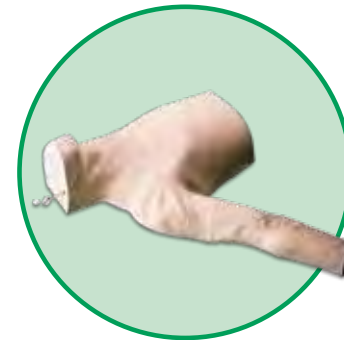
Hands-on Training Aids

Enable patients and clinicians to practice their catheter care and maintenance skills. They are available for workshops or loan.

Chester Chest is a useful training aid to enable staff to practice catheter care and maintenance skills on a wide range of vascular access devices, including: PICC lines, cuffed catheters and implantable ports.



Peter PICC provides a life-like opportunity for catheter placement in the safety of the classroom. It is used extensively during both our PICC and Midline workshops.



Vygon (UK) Ltd has supplied medical and surgical devices to healthcare professionals for over 30 years. During this time Vygon has built a reputation for high quality products and excellence in customer service helping you to offer best practice solutions to your patients.

References

1. Philpot P., Griffiths V. (2007) Poster presentation: Retrospective evaluation to assess the efficacy of Midlines in a District General Hospital in the UK.
2. Pratt R. J., et al. (2007) epic2: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. *Journal of Hospital Infection*. 65S, S1-64.
3. Treatment and prevention of catheter complications, are taken from The Royal Marsden Hospital Manual of Clinical Nursing Procedures. Seventh Edition. pp.245-248.

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