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## PERIPHERAL VENOUS CATHETER CARE (PVC) POLICY FOR NEONATES

**See also:** Venepuncture and PVC insertion policy  
Competency for administration of intravenous drugs  
[Blood Culture Guideline for Neonatal Patients](#)

### 1. INTRODUCTION

Peripheral venous catheters are devices that are inserted intravenously usually into the veins of the upper or lower limbs or the scalp of babies. They are used to administer intravenous fluids, drugs, PN (parenteral nutrition) or blood products.

This policy outlines measures that shall be implemented to reduce the risk of infectious and non-infectious complications in any neonate with a PVC.

### 2. BACKGROUND

Intravascular catheter-related infections are systemic infections which have a vascular access device (VAD) catheter as the source. Every year in the UK an estimated 6,000 patients of all ages develop a catheter-related blood stream infection (C-RBSI) (Elliot, 2001). The infections are associated with a high morbidity and mortality, particularly in hospitalised patients.

Catheter Related Blood Stream Infections (C-RBSIs) are caused by micro-organisms, such as *Staphylococcus aureus* and *Staphylococcus epidermidis*. These organisms found on the patient's skin contaminate the catheter during insertion, or migrate along the catheter track. Contaminated fluids and equipment cross infection and colonised hands are also factors implicated in catheter related infection.

### 3. POLICY

To reduce the incidence of C-RBSIs all health care professionals will receive training and comply with the PVC guidelines which are based on the best available evidence from the EPIC guidelines (Pellowe et al, 2004), Infection Control Nurses Association (Elliot, 2001) and the Royal College of Nursing (Dougherty, 2003). The policy is based on the following elements of PVC insertion and management:-

- Insertion and fixing of catheter
- Site assessment
- Accessing lines
- Flushing of lines
- Connection tubing
- Administration of fluids
- Removal and replacement of lines
- Documentation
- Training
- Audit

### 4. INSERTION AND FIXING OF CATHETER

**Insertion of catheter:** See venepuncture and PVC insertion guideline. Adhere to the hand washing guidelines and follow aseptic technique throughout the procedure. Wipe clean a trolley surface with detergent wipes, open sterile dressing pack, and place all the needed equipment on it.

**Securing of lines:** Secure the catheter in position using steristrips and a transparent cannula dressing (e.g. Tegaderm). A PVC may be further secured with a splint.

**Cannula site dressing:** The dressing shall be changed when it becomes damp, loose, soiled or if the baby develops problems at the site that require further inspection.

**Flushing of lines:** Once the PVC is in place the catheter shall be flushed with 0.5 - 1 ml of 0.45% or 0.9% Sodium Chloride via a Bionector, a needle less bung used to cap off vascular access devices. These devices come in individual bungs, single, double or triple lumen for PVC's. These individual bungs should be covered with new CUROS with every use to keep the end sterile.

A cannula, which is not routinely in use for intermittent or continuous intravenous therapy, should be flushed 12 hourly with Sodium chloride ml 0.9% or 0.45% injection (Fuller and Winn 1998).

Effective flushing is achieved with a 'push-pause' technique, (Dougherty & Lamb, 1999).

**Bionector devices:** PVC's used for peripheral PN should have a minimum of one hub between infusion line and PVC to minimise the risk of infection. For patients who require intravenous therapy and administration of intermittent intravenous drug administration a double or triple lumen octopus Bionector should be used.

## 5. SITE ASSESSMENT

A nurse shall assess the PVC site for signs of infiltration, phlebitis or infection; including pain, redness, swelling, induration, disruption of flow. The site will be assessed hourly if the baby is receiving an infusion, and prior and during the administration of any boluses.

**INFILTRATION** – the inadvertent administration of a non-vesicant solution or drug into the tissues (Weinstein 2000). Venous access devices must be secured in a way that does not impede fluid/blood flow and allows the insertion site to be monitored.

**PHLEBITIS** - Two of the most common causes of infusion phlebitis are chemical and mechanical irritation - therefore the correct choice of a suitable access device for a particular patient is vital (Freytes 2000).

**EXTRAVASATION** – the inadvertent administration of a vesicant solution or drug into the tissues (Weinstein 2000). Tissue necrosis may follow, therefore it is vital that cannula are assessed as patent prior to use and monitored closely.

**OCCLUSION** – Cannula may become occluded when infusion containers 'run dry' or flush solutions are not administered appropriately (Dougherty and Lamb 1999). Cannula must never be forcibly flushed.

If any of the above signs are detected at the PVC insertion site, medical staff must be informed. The catheter will usually then be removed, however following a risk assessment it may be necessary to insert a new cannula before removing the original.

## 6. ACCESSING LINES

Before accessing all lines each Bionector port must be decontaminated by fixing CUROS cap, and this should be changed to new one every time you use the port.

If at any time a Bionector device is disconnected from vascular catheter it should be discarded and a new device attached.

## 7. FLUSHING OF LINES

**Type of syringe:** A 2ml luer lock syringe should be used to flush.

**Flushing of PVC in IV drug administration:** Flushing with 0.5mls of 0.45% or 0.9% sodium chloride solution, to ensure and maintain patency shall be performed before, between and after the administration of all i.v. medications.

**Documentation:** All flushes shall be prescribed on the patient's treatment card.

## 8. CONNECTION TUBING

**Frequency of change of administration sets:** All administration sets should be changed every 24 hours. If a PALL filter is in situ, it should be changed after 96 hours. The administration set and the PAL filter should be labelled with an expiry date. Giving set should be changed every 48 hours

**Manipulation of the PVC system** shall be kept to an absolute minimum in order to minimise the risk of contamination

**Priming of set:** All PVC administration set tubing shall be primed and inspected for the presence of air and if present eliminated before use.

**Intermittent infusion sets:** All intermittent infusion sets if disconnected from patient should be discarded and NOT capped for future use.

**Disconnection of VAD tubing:** If VAD tubing becomes disconnected, the connecting port shall be cleaned with an alcohol impregnated swab and new tubing attached at the connection.

## 4. ADMINISTRATION OF FLUIDS

Except in emergency situations, all PVC fluids, where possible, shall be administered by an infusion pump.

Peripheral PN should ideally be administered through designated PVC with no additional fluids via an infusion pump.

## 5. REMOVAL AND REPLACEMENT OF LINES

Following a risk assessment PVCs should be removed if not in use, unless specifically requested by the medical staff. If there are signs of infiltration or infection at the insertion site or if the patient has a VAD associated bacteraemia, the catheter should be removed.

Only staffs who are competent may remove PVC.

## 6. DOCUMENTATION

Insertion of PVC by nursing staff shall be documented in the nursing evaluation sheet, as well as on the care plan including the following details: insertion site, date and time of insertion, name of person inserting device

If a baby is receiving an infusion the nurse should document assessment of the PVC site at least every hour on the IV therapy fluid sheet.

PVC flushes shall be documented on patient's treatment card.

Removal of PVC by nursing staff should be documented in the nursing evaluation sheet.

## 7. TRAINING

Nursing staff who insert PVCs shall complete a training module.

### Training Needs Analysis

To establish uniform practice, to a standard acceptable to the Trust, appropriate competences have been identified.

The knowledgeable practitioner must be able to demonstrate that she or he:

- ⌚ abides by these and other associated guidelines for practice
- ⌚ can outline the risks and complications associated with peripheral venous cannulation, their prevention and treatment
- ⌚ can describe the procedures for reporting errors and adverse incidents
- ⌚ understands the correct procedures for minimising infection including hand washing, use of gloves, non-touch technique and aseptic technique
- ⌚ understands the ongoing care required when a peripheral venous cannula is in place
- ⌚ is able to assess the need for removing or re-sitting a peripheral venous cannula and the rationale for this
- ⌚ records information relating to the peripheral venous cannula in a manner that is clear, concise, timely and accurate

In order to achieve competence, theoretical and practical education and training will be needed.

The practitioner, undertaking such education and training, must be directly supervised in all aspects of peripheral intravenous cannulation care until such time as they are able to demonstrate their knowledge and competence.

## 8. AUDIT

Aspects related to insertion of PVCs and associated care will be audited to assess compliance with PVC policy, in accordance with the Department of Health Saving lives/High Impact Intervention.

### Monitoring Compliance with these guidelines

The success of the implementation of these guidelines will be measured by clinical audit approximately six months after their introduction and thereafter at 2 yearly intervals to inform the regular review process.

Sample size, audit tool and location and how the audit is conducted will be determined at the time of audit.

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**Approved by:** Neonatal Clinical Management Group  
**Ratified by:** Children's Clinical Governance Committee  
**Date:** January 2008  
**Reviewed** Jan 2011, Nov 2014  
**Review due:** Nov 2019