

## **Infection Prevention Principles For Vascular Lines Guidelines**

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## 1 Introduction & Scope

The aim of these guidelines is to outline the general principles for safe insertion, care and maintenance of all intravenous catheters, for all patients at all times. It is for all registered health care professionals involved who are trained to undertake such procedures, and are deemed competent.

## 2 Definitions

**Asepsis** - is the absence of infectious organisms such as bacteria, fungi, viruses, or other microorganisms which may cause disease.

**Aseptic techniques** – are those aimed at minimising infection, ensuring that only uncontaminated objects/fluids make contact with sterile/susceptible sites.

**Antisepsis** – is the removal of transient microorganisms from the skin by the use of chemical solutions, for disinfection.

**Aseptic non-touch technique (ANTT)** – a method for ensuring that key parts are not touched or contaminated during an aseptic procedure.

**Key Part** – a key part is the sterile part of equipment that comes into direct contact with other key/sterile parts i.e. exposed lumens of catheters, intravenous (I.V) line connections, needles, syringe tips etc.

## 3 Overview

### Insertion of Intravenous devices:

The insertion of intravascular cannulae requires an aseptic non touch technique (link to Asepsis Policy). **These techniques should be employed during any procedure that bypasses the body's natural defences.** (Epic 3 - 2014)

There are many different devices which may be utilized to attain venous access. Although the methods of insertion may differ depending on which device is used, and aftercare may vary, there are several core principles which must be adhered to in reference to insertion and ongoing care for all catheter types.

- Catheter selection – care must be given to the selection of the appropriate device dependent on the predicted length of time the device will be required and the purpose the device will serve.
- Insertion site – certain devices have recommended sites for insertion, i.e. CVC lines, PICC and midlines (please refer to local protocols). Peripheral catheters offer more flexibility for site selection; however the antecubital fossa should be avoided for routine cannulation and should be reserved for emergency use only.
- Skin Preparation – Use 2% chlorhexadine gluconate in 70% isopropyl alcohol, clean for 30 seconds and allow drying for 30 seconds. (Single patient povidone – iodine application may be used if there is sensitivity to the former)
- Personal protective clothing (PPE) – are single use items and should be disposed of immediately after each procedure (link to: Standard Precautions policy). PPE is required to protect staff from exposure to body fluid and chemicals.
- Hand Hygiene – correct effective hand hygiene techniques must be undertaken before and after each patient contact, and before applying gloves prior to the procedure. (Link to: Hand Hygiene policy).
- Aseptic technique – an aseptic non touch technique should be used (link to: Asepsis policy).
- Dressing – use a sterile transparent semi permeable dressing to allow observation of the insertion site, write date and time of insertion on the dressing.
- Safe disposal of sharps – a sharps container must be available at point of use and should not be overfilled; do not re sheath needles; do not pass sharps from hand to hand. (Link to: Blood Borne Viruses policy and Sharps policy).
- Documentation – insertion of all devices must be recorded and must clearly state date and time of insertion.

(Adapted from: Saving Lives: Reducing Infection, Delivering Clean Safe Care).

## Ongoing care:

- Hand Hygiene – effective hand hygiene must be performed before and after patient contact and prior to undertaking an aseptic task.
- Site inspection – there must be regular observation for signs of infection, at least once daily, this must be clearly documented in nursing/medical records.
- Device access –
  - ANTT must be used; ports or hubs must be cleaned for 30 seconds with 2% chlorhexadine in 70% isopropyl alcohol and allowed to dry for 30 seconds prior to accessing the port or hub.
  - Systems should be closed, attained by use of self closing access ports such as a bionector
- Disconnection –
  - must be kept to an essential minimum,
  - lines no longer required must be discarded immediately;
  - during temporary suspension any disconnected line must have the key part protected with a sterile bung, and must be re-connected using ANTT and following thorough cleaning of the keys parts as above.
- The line must be clearly labelled with patient details, and date and time the line needs to be replaced (**N.B. Arterial lines are colour coded red**).
- Device replacement – this varies depending on device used (see local protocols), however if there are signs of infection associated with the device a clinical decision is required to assess whether the line should be removed.

### 3.1 Administration set replacement

- Immediately after administration of blood and blood products.

- Total parenteral nutrition after 24hrs
- All other fluid sets after 72hrs

#### 4 Trust Associated Documentation

Related guidelines and policies on Horizon:

[Asepsis - Principles of](#)

[Decontamination of Reusable Medical Devices](#)

[Decontamination of Reusable Communal Equipment and the Environment](#)

[Effective Hand Hygiene](#)

[Isolation Procedures](#)

[Needlestick, Sharps and Splash Injuries](#)

[Policy for the Management of Potential Exposure to Blood Borne Viruses](#)

[Sharps \(Safe Use, Handling and Disposal of Policy\)](#)

[Standard Precautions Policy](#)

[Surveillance and Data Collection](#)

(Including reporting Healthcare Associated Infections [HCAI] to the Health Protection Agency)

#### 5 External References

Epic 3 - National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

[http://www.his.org.uk/files/3113/8693/4808/epic3\\_National\\_Evidence-Based\\_Guidelines\\_for\\_Preventing\\_HCAI\\_in\\_NHSE.pdf](http://www.his.org.uk/files/3113/8693/4808/epic3_National_Evidence-Based_Guidelines_for_Preventing_HCAI_in_NHSE.pdf)

Saving Lives: Reducing Infection, Delivering Clean Safe Care (2007)

[www.dh.gov.uk](http://www.dh.gov.uk)

National Patient Safety Agency (2007) *Promoting the safer use of injectable medicines. Multi-professional safer practice standards for: prescribing, preparing and administering injectable medicines in clinical areas*. London: NPSA. ref; **NPSA/2007/20**

## Glossary

**Arterial lines** - is a thin catheter inserted into an artery. It is most commonly used to monitor the blood pressure in real-time (rather than by intermittent measurement), and to obtain samples for arterial blood gas measurements.

**Arteriovenous (AV) fistula** - a fistula created by joining an artery and a vein together through anastomosis for the purposes of haemodialysis.

**Arteriovenous (AV) grafts** - are similar to fistulas except that an artificial vessel is used to join the artery and vein. The graft usually is made of a synthetic material. Grafts are inserted when the patient's vasculature does not permit a fistula.

**Central line** - A catheter that is passed through a vein to end up in the thoracic portion of the vena cava or in the right atrium of the heart. A central venous line is also called a central venous catheter. Sometimes, 'venous' is omitted and it is called a central line or central catheter.

**Intravascular device** - the device used to administer a solution into a vein.

**Midline catheter** – usually inserted at the ante cubital fossa site, the line ends approximately at the top of, or just past the shoulder.

**Implantable ports (sometimes called Portacaths or subcutaneous ports)** – are generally inserted into the right internal jugular vein. The port itself is a small medical appliance that is installed beneath the skin in the upper chest, just below the clavicle or collar bone.

**Peripheral cannula** - a device as above, inserted into a superficial vein.

**PICC (Peripherally inserted central catheters)** - usually sited at the antecubital fossa site and inserted into the cephalic vein or basilic vein, it terminates in the superior vena cava.

**Tessio lines** - is a double lumen, tunnelled permanent catheter, two separate lines sit close to each other in a vein and lie side by side under the skin, and emerge lower down on the chest.

**Risk Assessment** – the method used to quantify the risk to health and safety