

# Preventing CRBSIs and other complications from CVCs

## RISK FACTORS

- Central Vascular Catheters (CVCs) can cause catheter related blood stream infections (CRBSIs) by enabling microorganisms to gain direct access to the blood stream.
- Microorganisms can originate from; the patient's skin at the insertion site, hub contamination; the hands of healthcare workers (HCWs).
- Additionally, poor drug preparation can result in infusate contamination and can lead to CRBSI.
- Patients requiring CVCs may be vulnerable e.g. patients in ICUs; those undergoing cancer therapy; or long term treatment such as renal dialysis.
- The duration of CVC use, poor insertion and maintenance actions also increases the risk of infection.

## EQUIPMENT

- Use only single-use sterile equipment, with intact non-stained, non-wet packaging that is within its expiry date, as well as single use vials.
- Ensure there is a selection of CVCs, sterile gloves, masks, gowns and headwear, skin antiseptic containing 2% chlorhexidine\* gluconate in 70% isopropyl alcohol, sterile transparent semi-permeable dressings, 70% isopropyl alcohol and sterile body drapes available.
- Keep the equipment in a clean dry area where it will not be subject to possible splash contamination.
- Be alert to the efficacy of the dressing used e.g. any patient allergies, efficiency of the adhesive to provide a good seal.

## ENVIRONMENT

- Surfaces used for any CVC procedures e.g. during dressing changes, must be visibly clean.
- The areas where intravenous drugs are compounded (prepared) must be free from clutter and possible splash contamination and risk assessed as suitable.

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## METHODS (Insertion)

- Only use a CVC if it is clinical necessary to do so.
- Consider using an insertion checklist to ensure the procedure is performed correctly.
- Aim to keep the number of needle passes to less than three.
- Select a CVC most appropriate for patient's management.
- Ensure that surgical scrub is performed immediately before donning maximal sterile barrier precautions (i.e. gloves and gown).
- Ensure that maximal sterile barrier precautions are used; including headwear, mask, sterile gown and sterile gloves for healthcare workers.
- Ensure that maximal sterile barrier precautions are used by applying a sterile body drape.
- Ensure aseptic technique is maintained throughout insertion of CVCs.
- Ensure 2% chlorhexidine\* in 70% isopropyl alcohol is used for skin preparation of the insertion site and allowed to dry, before CVC insertion.
- Ensure the subclavian site is used if possible, or internal jugular vein (femoral site should be avoided whenever possible).
- Ensure that a sterile, transparent, semi-permeable dressing is used to cover the catheter site.

## METHODS (Maintenance)

- Ensure that the need for the CVC in situ is reviewed and recorded today (on a daily basis).
- Ensure the CVC dressing is intact.
- Ensure that the CVC dressing has been changed in the last seven days.
- Ensure that 2% chlorhexidine\* gluconate in 70% isopropyl alcohol is used for cleaning the insertion site during dressing changes.
- Ensure that hand hygiene is performed immediately before accessing the line/site (WHO Moment 2).
- Ensure that an antiseptic containing 70% isopropyl alcohol is used to clean the access hub prior to accessing – rub the access hub for at least 15 seconds ('scrub the hub').
- Use aseptic technique for all CVC administration manipulations / procedures.
- Consider the use of a chlorhexidine\* impregnated sponge dressing, e.g. based on current infection rates
- Designate one port for TPN (if required).
- Have a planned scheduled change of the administration set minimum 72 hrs, max 96 hours or 24 hours if lipid or blood transfusions are used.
- Monitor the patient's temperature and pulse for signs of a CRBSI; report any abnormal findings in the patient or at the line site.

## HEALTHCARE WORKERS (HCWs)

- Participate in programmes designed to optimise care, including training.
- HCWs must be competent in the prevention of CRBSIs and committed to minimising them by:
  - Removing CVCs as soon as possible.
  - Performing all CVC procedures aseptically.
  - Documenting all CVC procedures.
  - Listening to and observing patient for signs of infection.
  - Acting on locally available data.
- There should be visible, documented signs that the clinical team is committed to patient safety. This can be by the collection and display of data in the clinical area on compliance with procedures and outcome rates (from participation in CRBSI surveillance) to inform positive discussions on how to optimise the care provided.

\* <http://www.mhra.gov.uk/Publications/Safetywarnings/MedicalDeviceAlerts/CON197918>