# Paediatrics: Bundle for preventing infection when inserting and maintaining a Central Venous Catheter (CVC)

## Statement

Central Venous Catheter (CVC) related bloodstream infections can occur if insertion and maintenance care is sub-optimal. Healthcare workers, therefore, have a duty to patients to optimise CVC care in order to prevent patient harm.

## Objectives

* To optimise CVC insertion and thereby minimise the risk of bloodstream infection
* To be able to demonstrate quality CVC

NHS boards should decide how to implement this bundle including: when to complete it, how often it is completed, who completes it, where the data are collected, and how the results are fed back. Consideration should be given to the appropriate elements of the [Excellence in Care Framework](https://www.healthcareimprovementscotland.org/our_work/patient_safety/excellence_in_care.aspx).

CVC Insertion Bundle

**N.B. The featured elements do not in any way preclude compliance with Standard Infection Control Precautions (SICPs) as per the** [**National Infection Prevention and Control M**](https://www.nipcm.hps.scot.nhs.uk/)**anual (NIPCM).**

|  |  |  |
| --- | --- | --- |
| **Department:** | **Date:** | **Staff name:** |

| CVC insertion best practice: | Patient 1 | Example |
| --- | --- | --- |
| 1. Ensure that the CVC is clinically indicated for this patient and documented.
 | Yes | No | Yes | No |
| 1. Surgical hand antisepsis (surgical scrub) was performed according to recommendations outlined in the National Infection Prevention and Control Manual immediately before donning maximal sterile barrier precautions (i.e., headwear, FRSM, sterile gown and sterile gloves).
 | Yes | No | Yes | No |
| 1. A sterile body drape was applied prior to CVC insertion and aseptic technique was maintained throughout the insertion procedure.
 | Yes | No | Yes | No |
| 1. All sterile procedural equipment was handled with sterile gloves and sterile items were inspected for product integrity, cleanliness and are within the expiry date.
 | Yes | No | Yes | No |
| 1. Skin is cleansed with a single-use appropriate antiseptic\* and allowed to dry according to manufacturer’s instructions prior to CVC insertion.
 | Yes | No | Yes | No |
| 1. The catheter insertion site is covered with a sterile transparent semi-permeable dressing and the site is visible.

 Sterile gauze dressings may be used if there is bleeding/oozing. Gauze dressings must be replaced with a sterile, transparent semipermeable dressing as soon as possible. | Yes | No | Yes | No |
| **Totals**  |  |  | 5 | 1 |

\*Based on individual patient clinical assessment for the most appropriate antiseptic.

Compliance Reporting

**Summary Table of Central Venous Catheter insertion bundle**

Percentage compliance = total number of criteria achieved

 total number of criteria X 100

**Example: 5**

 **6 X 100 = 83%**

CVC Maintenance Bundle

|  |  |  |
| --- | --- | --- |
| **Ward/Department:** | **Date:** | **Staff name:** |

| Maintaining an inserted CVC | Pt 1 | Pt 2 | Pt 3 | Pt 4 | Pt 5 |
| --- | --- | --- | --- | --- | --- |
| 1. The clinical need for the CVC has been reviewed and recorded today.
 | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. The CVC site has been assessed and monitored for signs of infection or complications at least daily and prior to use or according to local policy.
 | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. The CVC dressing (where clinically indicated) is intact and skin integrity is not compromised. The dressing has been changed within the last 7 days. Any dressing changes are required to be documented.
 | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. Standard aseptic technique is performed immediately before accessing the line/site for maintenance of CVC including dressing changes (ask if no observations).
 | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. Correct PPE is worn. Single use apron (where there is risk of exposure to blood and/or body fluids) and gloves are used for maintenance of CVCs (sterile gloves for contact with key parts/critical sites including dressing changes).
 | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. The access hub has been cleaned (“scrub the hub”) for at least 15 seconds with a single-use antiseptic containing 2% chlorhexidine gluconate in 70% isopropyl alcohol\*, and allowed to dry according to manufacturer’s instructions before accessing the hub (ask if no

observations). | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. Prior to dressing changes the insertion site has been cleaned with a single use appropriate skin antiseptic\* and allowed to dry according to manufacturer’s instructions.
 | Yes | No | Yes | No  |  Yes | No | Yes | No | Yes | No |
| **Totals** |  |  |  |  |  |  |  |  |  |  |

\*If chlorhexidine is contraindicated, an antiseptic used should be based on individual patient assessment. The compatibility of connectors/parts with disinfection agents should be checked via manufacturer’s instructions.

\*\*Based on individual patient clinical assessment for the most appropriate antiseptic.

Summary Table of Central Venous Catheter maintenance bundle

| Category | Maintenance criteria | Total | Calculation for percentage compliance for each criteria | Percentage compliance | Percentage non-compliance |
| --- | --- | --- | --- | --- | --- |
| A | Total number of patients. |  |  |  |  |
| B | Total number of patients that the clinical need for the CVC has been reviewed and recorded today.  |  | Total for BTotal for A X 100 |  |  |
| C | Total number of patients the CVC site has been assessed; CVC has been removed if clinically indicated, for instance there are signs of inflammation or complications or it is no longer needed.  |  | Total for CTotal for A X 100 |  |  |
| D | Total number of patients whose CVC dressing is intact and skin integrity is not compromised. Dressing changes have been documented. |  | Total for DTotal for A X 100 |  |  |
| E | Total number of patients who have had standard aseptic technique applied immediately before accessing the line/site and for the care and maintenance of the CVC (e.g., dressing change). |  | Total for ETotal for A X 100 |  |  |
| F | Total number of patients where the correct PPE has been worn (single use gown if splash risk from blood/bodily fluids) and gloves is used for maintenance of CVC (sterile gloves for contact with key/critical sites including dressing changes) (ask if no observations) used for dressing changes and contact with key/critical sites (ask if no observations). |  | Total for FTotal for A X 100 |  |  |
| G | Total number of patients whose CVC access hub has been cleaned (“scrub the hub”) for at least 15 seconds with a single-use antiseptic containing 2% chlorhexidine gluconate in 70% isopropyl alcohol\* before accessing (“scrub the hub”). |  | Total for GTotal for A X 100 |  |  |
| H | Total number of patients whose insertion site has been cleaned with a single use appropriate antiseptic\*\* and allowed to dry according to manufacturer’s instructions prior to dressing changes.  |  | Total for HTotal for A X 100 |  |  |

\*If chlorhexidine is contraindicated, an antiseptic used should be based on individual patient assessment. The compatibility of connectors/parts with disinfection agents should be checked via manufacturer’s instructions.

\*\*Based on individual patient clinical assessment for the most appropriate antiseptic.

Action Plan