Central Vascular Catheter (CVC) Maintenance Care Bundle

Updated September 2014

This bundle has been adapted with permission from the a central vascular catheter care bundle produced by Health Protection Scotland in 2008 and published as part of the 2009 National Guidelines for the Prevention of Intravascular Catheter-related Infection in Ireland.[1] NHS Scotland and the Scottish Intensive Care Audit Group updated their CVC insertion checklist and including a CVC maintenance bundle in 2012.[2] A useful resource that outlines how a CVC bundle can be used as part of a quality improvement programme is found on the NHS Scotland Quality Improvement Hub.[3] Information on how to improve quality of care and the model for improvement is available on the Institute of Healthcare Improvement website.[4] The elements of the care bundle and the standard operating procedure below were updated as part of the 2014 update of the 2009 National Guidelines for the Prevention of Intravascular Catheter-related Infection in Ireland.[1]

This document illustrates one way to use the central vascular catheter (CVC) care bundle but it can and should be used flexibly. Therefore, healthcare facilities may want to use it in different ways. For example, only some of the elements may be included (we would recommend at least three) or additional elements added. Other local decisions include: when undertaken, how often, who is responsible, and how the data are collected. This proposal can be used as a starting point and should not be considered to be prescriptive.

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[1] HSE Health Protection Surveillance Centre. Prevention of Intravascular Catheter-related Infection in Ireland SARI Prevention of Intravascular Catheter-related Infection Sub-Committee, December 2009, Updated February 2010. ISBN 978-0-9551236-6-5
http://www.hpsc.ie/A-Z/Hepatitis/GuidanceforRenalUnits/File,4115,en.pdf

[2] http://www.sicsag.scot.nhs.uk/HAI/SICSAG-central-line-insertion-bundle-120418.pdf

[3] http://test.eip.scot.nhs.uk/quality-healthcare-resources/effective/clinical-topics-for-safety--effectiveness/central-venous-catheter-related-infection.aspx

[4] http://www.ihi.org/resources/Pages/default.aspx

Central Vascular Catheter Care Bundle

Aim: To Reduce the Incidence of Central Vascular Catheter Related Infection

Don't put them in.
Get them out.
Look after them properly.

The CVC Maintenance Bundle

1. **Check the clinical indication why the CVC is *in situ* – is it still required?**
2. **Is the CVC dressing intact and changed within the last 7 days?**
3. **Has CVC hub decontamination been performed before each hub access?**
4. **Has hand hygiene been performed before and after all CVC maintenance/access procedures?**
5. **Has Chlorhexidine gluconate 2% in alcohol (if compatible with CVC) been used for cleaning the insertion site during dressing changes?**

Example of a CVC Maintenance Bundle Standard Operating Procedure	
Objectives: • **To optimise CVC use in OUR ward and reduce as far as possible infection complications.** • **To be able to demonstrate quality CVC cares in OUR ward.**	
Requirements	**Before the CVC Bundle Procedure is performed:** • Quality improvement must be continuous. This is not a short term commitment – quality improvement needs to be embedded into your systems – to become part of what you do every day. • Measurement of compliance with the care bundle should be performed as part of a ward/unit/directorate quality improvement programme for infection prevention and results used to monitor the effect of this programme. • Relevant clinical teams (consultants and NCHDs); director of nursing and nurse team should be involved in designing/adapting the bundle, deciding how frequently and who will monitor compliance and how often and how results will be fed back to relevant staff. **Prior to starting the CVC Bundle Procedure:** Ensure there is alcohol hand gel at the bedside of all patients (e.g., personal staff toggles, wall or bed mounted gels or a trolley with gel attached)
Procedure	1. Perform hand hygiene as per the 5 moments of hand hygiene.[5] 2. Collect a bundle sheet (if using a paper based data collection system) and complete the top boxes: name, location, and observer. 3. Proceed to the first patient with a CVC. 4. Introduce yourself to the patient/relative and explain that you are checking all catheters to see if any need removal. 5. Ask the nurse in charge of the patient the questions as stated on the bundle. 6. Look for documentary evidence to support the nurse's statements. 7. Check hand hygiene practices and alcohol hub procedure by using one or more of these methods: **i.** Observe healthcare staff prior to and while accessing the CVC **ii.** Ask the patient/relative if staff undertake hand hygiene before accessing the CVC **iii.** Use a buddy system.[6]

[5] www.hse.ie/handhygiene

Procedure continued	8. Perform hand hygiene. 9. Record actions in the bundle. 10. If the CVC is considered not to be required refer to medical staff. 11. Repeat steps 3-10 until all patients in the ward with a CVC have been visited.
After care	Complete form. Give it to: 12. Discuss and display the data when it has been returned. (Keep bundle forms for xx time).

Example of data collection form for CVC maintenance bundle

Date: ***Name of person performing the bundle:_____***	***CVC 1***	***CVC 2***	***CVC 3***
1. The need for line use has been reviewed and recorded today.	✓		
2. The dressing is intact and was changed within the past 7 days.	✓		
3. Alcohol hub decontamination is performed before each hub access.	✓		
4. Hand hygiene before and after, is performed on all line maintenance/access procedures.	✓		
5. Chlorhexidine gluconate 2% (or solution compatible with CVC) is used for cleaning the insertion site during dressing changes.	✓		

[6] A 'buddy' can be used to verify optimal care and to act as a reminder to the nurse/doctor in charge of an individual patient. Each buddy must be prepared to observe their colleague's care, comment on it and in turn have their own practices scrutinized

Example of how to calculate results for the CVC maintenance bundle

Summary Table of CVC Bundle Findings	**No.**	**Comment (if required)**
Total number of CVCs *in situ* at start of CVC Maintenance Bundle		
Total number of CVCs with documented need to remain *in situ.*		
Total number of CVCs with evidence of optimal dressing (intact and changed within past 7 days)		
Total number of CVCs with evidence of alcohol hub decontamination prior to all line maintenance/access procedures.		
Total number of CVCs with evidence of hand hygiene performed before and after all CVC procedures		
Total number of CVCs with evidence of Chlorhexidine gluconate 2% (or solution compatible with CVC) used for insertion site antisepsis at last dressing change.		
All or None Table – Was CVC Care Today Optimal		***Tick if achieved***
100% of CVCs *in situ* are required		
100% of CVCs had optimal dressing change		
100% of CVCs had evidence of alcohol hub decontamination prior to all access procedures		
100% of all CVCs had evidence that HCWs performed aseptic technique including, hand hygiene before and after, for all CVC procedures.		
100% of CVCs had evidence of Chlorhexidine gluconate 2% (or solution compatible with CVC) used for insertion site antisepsis at the last dressing change.		

If all the above were achieved the CVC care was optimal	
What is your next step? - **Discuss results with the ward/unit/directorate team (the frequently of measuring care bundle compliance and how results will be fed back to relevant staff should be agreed from the outset as described above and be part of the ward/unit/directorate improvement plan for infection prevention and control)** - **What improvements will you plan next – consider using the Model for Improvement to plan, test and measure changes.[7]**	

[7] http://www.ihi.org/resources/Pages/default.aspx