

Site Applicability

Applicable in all BC Children's Hospital areas where patients with peripheral or central access are cared for.

Purpose

Needleless connectors have been introduced into clinical practice to eliminate needlestick injuries and prevent catheter-related bloodstream infections. This is the procedure for changing the needleless connector (cap) on peripheral and central venous catheter (CVC).

Policy Statements

The needleless connector is changed:

- with each administration IV tubing set replacement (refer to Administration Set Priming and Loading and Initiating or Changing the Infusion Set – CV.01.05)
- At minimum every 96 hours (4 days)
- If the needleless connector is removed from the line for any reason
- Immediately upon suspected contamination, or when the integrity of the connector has been compromised
- If there is blood or debris within the connector
- Post infusion of blood products through the needleless connector
- Q24hr with lipids and certain medications/infusions

Strict aseptic no-touch technique is required during dressing changes to reduce the risk of catheter-related infection.

The needleless connector must be disinfected prior to each access unless a Swabcap™ is in use and has not been compromised. Refer to Swabcap policy – CV.01.10

Masks are used when removing the needleless connector from a central venous catheters.

Practice Level/Competencies

Changing the needleless connector on a PIV or CVC is considered a **foundational nursing skill** and is practiced once the nurse has:

- Watched the cap change nursing video:
<https://www.youtube.com/watch?v=crnvpniskcc&list=PL7KS4nRPZ8yCjZceuahHwwMayjrAk2qeT&index=2&t=0s>
- Attended the Vascular Access Workshop
- Practiced the procedure in the lab setting
- Performed at least 3 cap changes for a CVC on patients under supervision of a CVC competent RN
- Completed the CVC validation tool at the bedside with the appropriate clinical support person (i.e. clinical nurse educator, clinical resource nurse, CVC competent RN).

Definitions

Aseptic no-touch technique (ANTT): a standardized technique that is used during clinical procedures to identify and prevent microbial contamination of aseptic key parts and key sites by ensuring that they are not touched either directly or indirectly. A 'key part' is the part of the equipment that must remain sterile and must only contact other key parts or key sites. Or it is the area on the patient such as a wound, or IV insertion site that must be protected from microorganisms. Aseptic key parts can only contact other aseptic key parts/sites. If it is necessary to touch key parts/sites, sterile gloves are to be worn to ensure asepsis is maintained.

Central Venous Catheter (CVC): Any venous catheter with the distal tip dwelling in central circulation. Best practice standards – distal tip dwelling in the lower one third of the superior vena cava (SVC) to the junction of the SVC and right atrium.

Equipment

- Mask
- Hospital grade surface disinfectant wipe (ie: Caviwipe®)
- 2% chlorhexidine in 70% alcohol swabs x 3 (x6 if double lumen CVC)
- Swabcap™ (1 per lumen)
- Needleless connector (1 per lumen).

Neutron Caps are used for all central lines (PICCs, CVCs, Ports, MedComps, Powerlines, Short term CVCs etc.) and Microclave Clear caps are used for all peripheral lines and syringe medication lines.

Neutron Cap

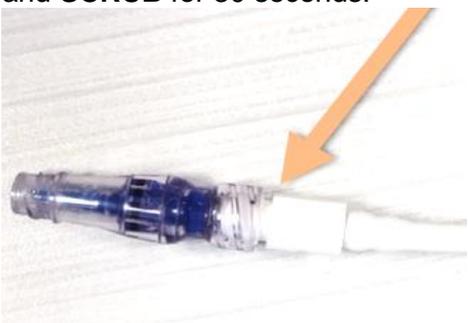


Microclave Clear Cap



Procedure

Steps	Rationale
1. IDENTIFY patient and EXPLAIN procedure.	<i>Ensures identification mechanism is present to prevent treatments, medications, and procedures to wrong patient.</i>
2. CLEAN working surface with disinfectant wipe and allow appropriate dry time.	<i>Routine Infection Control Practices; reduces transmission of microorganisms.</i>
3. PERFORM hand hygiene as per infection control standards. DON mask. Aseptically PREPARE equipment on clean work surface.	<i>Routine Infection Control Practices; reduces transmission of microorganisms. Work surface is clean, not sterile, and it is important to keep sterile equipment sterile to reduce transmission of microorganisms. Mask required as changing the cap opens the “closed system” of IV catheter.</i>
4. ENSURE there is a needleless connector attached to the end of the vascular access line. If IV therapy infusing, CLAMP catheter and STOP IV infusion.	<i>IV lines will be disconnected with old needleless connector. Stopping the infusion will ensure no freeflow of fluid onto patient, floor, workspace etc.</i>
5. PERFORM hand hygiene and DON non-sterile gloves.	<i>Protect self from exposure to patient’s blood.</i>
6. WRAP first chlorhexidine/alcohol swab around connection between connector and catheter hub and SCRUB for 30 seconds.	<i>Aseptic technique for accessing vascular access reduces transmission of microorganisms.</i>



CHANGING THE NEEDLELESS CONNECTOR (CAP) ON VASCULAR ACCESS LINES (PERIPHERAL OR CENTRAL)

DOCUMENT TYPE: PROCEDURE

With second swab, WIPE up the line using friction, toward the patient including clamp. DISCARD swabs and ALLOW line to dry for 1 minute.	
7. REMOVE existing cap without touching hub of catheter and DISCARD . Do not touch or clean the open catheter system.	
8. QUICKLY ATTACH new cap ensuring a secure luer lock connection.	<i>Done quickly in order to reduce duration of “open system” in effort to reduce transmission of microorganisms. Ensures safe connection.</i>
9. SALINE LOCK or HEPARIN LOCK vascular access line if not immediately connecting to new set of IV lines for IV therapy. Refer to “Assessment and Routine Care of patient with vascular access”—CV.03.38.	
10. ATTACH Swabcap™ to needleless connector. NOTE: If caregiver does not want to use Swabcap™ then leave needleless connector as is.	<i>Keeps end of needleless connector clean. May be choking hazard for some patients and can be omitted</i>
11. DISCARD used supplies and gloves and PERFORM hand hygiene. REMOVE mask and PERFORM hand hygiene.	<i>Routine Infection Control Practices.</i>

Documentation

- DOCUMENT** on appropriate record(s) (i.e. Central Venous Line Flowsheet for all routine procedures):
- Date of needleless connector change

References

- Boyce, J.M. and Pittet, D. Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Guideline for hand hygiene in health-care settings. *MMWR Morbid Mortal Wkly Rep.* 2002; 51: 1–45
- Infusion Nurses Society. (2011). Infusion Nursing Standards of Practice. *Journal of Infusion Nursing.* 34(1S).
- O'Grady, NP, Alexander, M, Burns, LA, Dellinger, EP, Garland, J, Heard, SO, Lipsett, PA, Masur, H, . Mermel, LA, Pearson, ML, Raad, II, Randolph, A, Rupp, ME, Saint, S, and the Healthcare Infection Control Practices Advisory Committee (HICPAC). (2011) Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011. Retrieved December 19 2019 from <https://www.cdc.gov/infectioncontrol/pdf/guidelines/bsi-guidelines-H.pdf>
- Registered Nurses' Association of Ontario. (2008). Best Practice Guideline: Care and Maintenance to Reduce Vascular Access Complications. Retrieved December 19, 2019 from https://rnao.ca/sites/rnao-ca/files/Care_and_Maintenance_to_Reduce_Vascular_Access_Complications.pdf
- Safer Healthcare Now. (2012). *Getting started kit: Prevent Central Line Infections.* Retrieved December 19, 2019 from <https://www.patientsafetyinstitute.ca/en/toolsResources/Documents/Interventions/Central%20Line-Associated%20Bloodstream%20Infection/CLI%20Getting%20Started%20Kit.pdf>

World Health Organization. (2009) WHO guidelines on hand hygiene in health care Retrieved December 19 2019 from http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf

Developed By

BCCH Hematology/Oncology – Clinical Nurse Educator

Version History

DATE	DOCUMENT NUMBER and TITLE	ACTION TAKEN
03-Oct-2018	CV.01.07 Changing The Needleless Connector (Cap) On Vascular Access Lines (Peripheral Or Central)	Approved at: BCCH Best Practice Committee
18-Dec-2019	C-05-12-60457 Changing The Needleless Connector: Peripheral/Central Vascular Access Lines	Approved at: C&W Best Practice Committee

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