KINGSTON GENERAL HOSPITAL

NURSING POLICY AND PROCEDURE

SUBJECT	Central Line Removal: Advanced Competency (AC) for Registered Nurses	**NUMBER**	C-1820
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Introduction:

This policy refers to removal of temporary central lines inserted through the subclavian, internal jugular or femoral vein, or peripherally through the brachial or cephalic vein (peripherally inserted central catheter: PICC). The distal end of the catheter is positioned in the superior or inferior vena cava, and on rare occasion, the distal tip of the PICC is positioned in the right atrium.

This policy does not refer to tunneled or implanted central lines, hemodialysis catheters, or arterial/ venous sheaths.

For further definition of central lines refer to policy C-1801.

NOTE: Considerations for removal of a PICC**:** According to the literature a small percent of all PICC removals are associated with difficulty. Venous spasm is the most commonly encountered complication of PICC removal and may cause the patient to experience pain or numbness over the track in addition to resistance on removal. Other complications include vagal reaction, phlebitis, thrombosis, and knotting of the catheter, which can also cause resistance and difficulty with catheter removal.

NOTE: Considerations for removal of other central lines: Air may enter the venous circulation from the subcutaneous tract left by the catheter after removal and travel to the right ventricle. It is recommended that a patient remain on bedrest for a minimum of 30 minutes post removal to decrease the risk of air embolism or bleeding that may occur due to changes in the central venous pressure.

Occlusive Dressing: an occlusive dressing consists of a petroleum based gel or petroleum based dressing, i.e. Jelonet, which is then covered with a gauze and a transparent membrane dressing.

Policy:

1. Only authorized Registered Nurses (RNs) may remove central lines.
   NOTE: RNs do not remove pulmonary artery catheters, transvenous pacer wires, tunnelled or implanted central lines.
   NOTE: Venous introducer catheters and temporary dialysis lines are only removed by authorized RNs in specific areas as per policy A-1257.

2. A Patient Care Order is required for removal of central line.
   NOTE: Review coagulation status and report any abnormal values prior to removal.

Equipment:

Sterile Scissors/Suture Removal Kit
Mask (if patient immunocompromised)
Sterile Gloves
2% Chlorhexidine Gluconate with 70% alcohol solution/swab
Occlusive Dressing and Tape
Sterile Dressing Tray
Warm compress if required
Sterile Specimen Container (if C&S tip culture indicated)

Procedure A: for PICC Removal

1. Wash hands.

NOTE: Keep insertion site below level of the heart and arm outstretched at 45-90 degree angle to the body. An outstretched arm straightens the vein and aids in easy removal.

2. Close flow clamp on intravenous tubing (IV) if infusion running and disconnect.

3. Turn patient's face away from site as appropriate.

4. Remove dressing.
   4.1 Do not exert tension on catheter.
   4.2 Observe exit site for signs of infection.
   4.3 Collect swab for culture if discharge present.
   4.4 Note complaints of tenderness from patient.

5. Wash hands.

6. Prepare dressing tray.

7. Wash hands and don gloves.

8. Using sterile gauze, cleanse catheter exit site with 2% Chlorhexidine Gluconate with 70% alcohol solution/swab (use providone iodine on renal lines), allow drying (at least 30 seconds).

9. Remove suture, if applicable.

10. Prepare occlusive dressing.

11. Cover insertion site with gauze but do not apply pressure.
    NOTE: Pressure placed directly on the PICC insertion site may induce venous spasm.

12. Prior to PICC removal, instruct patient to report any discomfort as the process of removal is not generally associated with discomfort

13. Grasp PICC at insertion site and slowly pull outward parallel to the skin in small increments while patient performing valsalva manoeuvre).
    NOTE: Slow removal decreases incidence of venous spasm.
    NOTE: If patient ventilated or uncooperative, remove at end expiration.
    13.1 Withdraw catheter onto a sterile field in case resistance occurs requiring re-dressing of the site.
    13.2 If resistance is encountered stop removal, reposition arm and attempt removal again.
    13.3 If resistance continues apply warm compress to arm for 20 minutes to encourage vasodilation.
    13.4 If removal still not possible, give patient a warm drink, as appropriate and attempt removal once more.
    13.5 If resistance remains, re-dress the site with standard central line dressing, keep extremity warm and notify the prescriber.

14. Apply manual pressure directly over site with occlusive dressing for a minimum of 5 minutes or until bleeding stops.
    14.1 Secure occlusive dressing in place without uncovering exit site.
    14.2 Change dressing every 24 with occlusive dressing until exit site healed.
    14.3 Observe catheter for rough edges, contamination, and length.
    14.4 If catheter is ragged, damaged, or incomplete, retain and notify physician immediately. If ordered, send tip of catheter to lab for culture and sensitivity.

Procedure B: Removal of Other Central Lines

Equipment:

Sterile Scissors/suture removal kit
Mask (if patient immunocompromised)
Sterile Gloves
2% Chlorhexidine Gluconate with 70% alcohol solution/swab
Occlusive Dressing and tape
Sterile Dressing Tray
Sterile specimen container if C&S tip culture indicated

1. Wash hands.

2. Place patient in supine position to minimize risk of air embolus.

3. Close flow clamp on IV tubing if infusion running and disconnect.

4. Turn patient's face away from site unless medically indicated.

5. Remove dressing.
    5.1. Do not exert tension on catheter.
    5.2. Observe exit site for signs of infection.
    5.3. Collect swab for culture if discharge present.
    5.4. Note complaints of tenderness from patient.

6. Wash hands.

7. Prepare dressing tray.

8. Wash hands and glove.

9. Using sterile gauze, cleanse catheter exit site with 2% chlorhexidine gluconate with 70% alcohol solution/swab allow drying (at least 30 seconds).

10. Remove suture, if applicable.

11. Prepare occlusive dressing.

12. Grasp catheter by hub and slowly withdraw catheter while having patient perform Valsalva maneuvre .
    12.1 If patient mechanically ventilated or uncooperative, withdraw catheter on expiration.
    12.2 Do not use force.

13. Apply manual pressure directly over site with occlusive dressing for a minimum of 5 minutes or until bleeding stops.
    13.1 Secure occlusive dressing in place without uncovering exit site.
    13.2 Change dressing every 24 hours with occlusive dressing until exit site healed.

14. Observe catheter for rough edges, contamination, and length.
    14.1 If catheter is ragged, damaged, or incomplete, retain and notify prescriber immediately.

15. Send tip of catheter to Microbiology Laboratory for culture and sensitivity, if ordered.
    15.1 Use sterile scissors to cut off at least three (3) cm of tip.
    15.2 Place tip in sterile container and seal.
    15.3 Send specimen immediately to Microbiology Laboratory.
    NOTE: Blood cultures are required (as ordered) when tips are sent for culture and sensitivity (see blood culture protocol under clinical tools on the intranet).

Reporting and Recording:

1. Document on Interprofessional Comprehensive Patient Care Record, Interprofessional Progress Note or unit specific document:
    1.1 date and time of removal
    1.2 reason for removal
    1.3 condition of catheter exit site
    1.4 dressing applied
    1.5 condition of catheter
    1.6 collection of catheter tip specimen for culture, if ordered
    1.7 adverse events and action taken

Related Policies & Procedures:

Nursing Policy A-1250 Clinical Nursing Procedures - Designation, Authorization and Education, and Competency to Perform

Nursing Policy A-1257 Clinical Nursing Procedures - Advanced Competency Procedures Approved for Nurses (RN and RPN), Authorization/Challenge/Re-authorization Requirements, and Basic Procedures for Which Additional Education is Required

Nursing Policy C-1801 Central Lines Advanced Competency for Adults (RN and RPN)

References:

Infusion Nurses Society, (2011). Infusion nursing standards of practice. *Journal of Infusion Nursing,* 34 (1 suppl), S1-S109.

The Joanna Briggs Institute (2007). Peripherally inserted central catheter (PICC): Removal. Accessed online on 2009 April 28 at http://www.jbiconnect.org/acutecare/docs/jbi/cis/connect-gen-user-pdfview.php?MID=1176&qu=1&p=1&e=1&r=1&o=1.

The Joanna Briggs Institute (2008). Evidence Summary: PICC line: Removal. Accessed online on 2009 April 28 at http://www.jbiconnect.org/acutecare/docs/jbi/cis/connect_gu_view_summary.php?SID=6216.

Director, Professional Practice – Nursing Signature _____ Date _____