Continuous Bladder Irrigation (CBI), Hand Irrigation for Clot Retention of Indwelling Urinary Catheters, and Discontinuation of CBI, Procedure (Adult)

Site Applicability

All VCH and PHC Acute Care Sites

Practice Level

RN, LPN: Basic skill

Requirements

- A physician or Nurse Practitioner (NP) order is required to initiate and discontinue continuous bladder irrigation (CBI).
- A physician or NP order is required for hand irrigation.
- Bed rest is maintained while CBI in progress unless otherwise ordered.

Need to Know

- Continuous Bladder Irrigation is used for the management of gross hematuria to maintain catheter patency and is indicated only when obstruction is anticipated.
- Initiating CBI, insertion of a urinary catheter, and hand irrigation are sterile procedures.
- Normal saline is the typical solution used for irrigation, review prescriber's order for exceptions. Water is not used as it may be absorbed via osmosis from the bladder and cause dilution of electrolytes in the blood.
- Patients must be monitored regularly for signs and symptoms of catheter obstructions including when outflow rate that is less than inflow. As rate of bladder irrigation increases, frequency of monitoring should increase. (see "Monitoring")
- Patients who are unconscious, cannot report pain (e.g. Delirium), or have insensate bladders (e.g. spinal cord injury, regional anesthesia) may not complain of fullness or pain if the catheter becomes obstructed. Thus, catheter output is monitored Q1h and PRN to minimize potential risk of bladder rupture.
- Irrigation solution rate is adjusted to obtain light pink to colourless dilute urine that is free of, or contains small passable clots or debris. Following some procedures (e.g. Trans Urethral Resection of the Prostate (TURP)), returns that are more sanguineous with more clots and debris can be anticipated.

- The Center for Disease Control recommends a closed continuous irrigation as a means to reduce incident of catheter associated urinary tract infections. A 3 way urinary catheter is used for CBI.
- Hand irrigation may be required to clear clots obstructing urine flow. Routine hand irrigation is not recommended for causes other than obstructing clots.
- Change bags of irrigation fluid before they become completely empty to ensure irrigation is not disrupted and air does not enter the system.
- A provider's order is required to discontinue continuous bladder irrigation.

VCH:

- Indwelling Urinary catheter, Procedure for Insertion and Removal (D-00-12-30109)
- Indwelling Urethral Catheter: Care and Management (Short term) – Adult (D-00-07-30108)
- Indwelling urinary catheter: Guideline to prevent catheter associated urinary tract infections (CAUTI) - Adult (D-00-07-30110)

PHC:

- Urinary Catheterization, procedure (B-00-12-10099)
- Urinary Catheters: Management for the Prevention of UTI (B-00-13-10121)

Equipment and Supplies

CBI

- Ordered irrigation solution, typically normal saline
- Continuous bladder irrigation set
- 3-way catheter (typical size of the 3-way catheters are 20 to 26 Fr)
- Large sterile urinary drainage bag (2L or 4L)
- Water resistant pad
- Non sterile gloves
- Appropriate Personal protective equipment including eye protection and gown
- IV pole. If available, use of hydraulic assisted poles is recommended to help reduce the risk of musculoskeletal injury.
- Bucket or other large receptacle to transfer fluid output to the toilet

Hand Irrigation

- 500 mL bottle of Normal Saline
- Catheter irrigation tray
- Alcohol swabs
- Water resistant pad
- Non sterile gloves
- Sterile gloves
- Appropriate Personal protective equipment including eye protection and gown
- New large urinary drainage bag of appropriate size

Discontinuation of CBI

- Sterile catheter plug
- Non sterile gloves
- Alcohol swabs
- Blue pad
- Appropriate Personal protective equipment including eye protection and gown

Procedure

CBI

1. Perform hand hygiene.
2. Verify the correct patient using two unique identifiers.
3. Explain procedure to patient.
4. Raise the bed to an appropriate working height. If the side rails are raised, lower the one on the working side.
5. Using sterile technique, insert a 3-way catheter if not already insitu and attach appropriate drainage bag to middle lumen (See Appendix A).
   Refer to your organization urinary catheter insertion document:
   VCH:
   Indwelling Urinary catheter, Procedure for Insertion and Removal (D-00-12-30109)

   or PHC:
   Urinary Catheterization, procedure (B-00-12-10099)

NOTE: Urinary catheterization should not be performed by nursing if the patient has had:

- Radical prostatectomy within 6 weeks
- Urethral / bladder trauma within 6 weeks
- Presence of an artificial urinary sphincter

If any of the above are present, contact most responsible physician for further direction.

Incontinence surgery (male sling) is not a contraindication to catheterization and does not require a consultation with most responsible physician prior to proceeding.

6. If using an existing 3 way catheter remove securement device or tape. Ensure there is no tension on the catheter tube. Using sterile technique attach appropriately sized drainage bag.
7. Perform hand hygiene. Position patient in supine position.
8. Close clamp on the irrigation tubing then hang the bag of irrigation solution on IV pole. Spike irrigation solution with irrigation set using aseptic technique. Fill drip chamber half full by squeezing chamber.
9. Open the clamp and prime the tubing with irrigation solution while keeping the end of the tubing sterile. Priming tubing helps to prevent air from being introduced into the bladder, which can cause spasms.
10. Swab the catheter ports with alcohol for 30 seconds and let dry for 30 seconds.
11. Using sterile technique, remove catheter plug (if present) from the irrigation lumen of the catheter and attach irrigation tubing.
12. Secure catheter to the patient's upper thigh with a securement device unless already secured by doctor with traction applied.
13. Open clamps on irrigation tubing and regulate flow with roller clamp to keep urine light pink to colourless unless otherwise ordered.
14. Position patient in a comfortable position and adjust bed to appropriate height.
15. Ensure tubing is unkinked and free of dependent loops.
16. Monitor as below.
17. Change bags of irrigation fluid before becoming completely empty to ensure irrigation is not disrupted and air does not enter the system.

Monitoring

Condition	Monitor For	Nursing Interventions
Catheter Obstruction from Clot Retention	• Outflow rate less than inflow. • Abdominal pain or discomfort, suprapubic distention, sensation of fullness, and bladder spasm • Vasovagal symptoms such as, diaphoresis, hypotension, tachycardia or bradycardia • Patients who are unconscious, cannot report pain (e.g. delirium), or have insensate bladders (e.g. spinal cord injury, regional anesthesia) may not complain of fullness or pain if the catheter becomes	• Increase frequency of monitoring as rate of irrigation is increased • Stop bladder irrigation until clot retention resolved • Ensure no kinks or clots in drainage tubing • Perform hand irrigation as ordered (see below) • Notify physician or NP if unable to clear clot and/or

	obstructed. Thus, monitor catheter output Q1h and PRN to minimize potential risk of bladder rupture. • Tachycardia, sweating, or rectal urgency • Bypassing around catheter • Increased volume on bladder scan	continued abdominal distention or abdominal pain
Bladder Spasm	• Bypassing from around catheter • Lower abdominal cramping • Strong urge to void	• Assess for catheter obstruction • Provide ordered medication (e.g. belladonna and opium suppository or substitute)
Hemorrhage	• Restlessness, anxiety, decreased consciousness • Pale, cool skin, sweating • CBI returns that are continuously deep red and opaque • Hypotension, tachycardia • Sudden drop in hemoglobin (late sign)	• Assess patient's Airway, Breathing and Circulation • Assess vital signs • Notify physician or NP
Acute Electrolyte Imbalances and Hyponatremia	• Confusion, restlessness, decreased consciousness • Seizures • Blurred vision • Signs and symptoms of fluid overload • Nausea • Weakness • Muscle cramps	• Assess patient's Airway, Breathing and Circulation • Stop bladder irrigation • Notify physician or NP
Bladder Rupture	• Grossly distended abdomen • Abdominal pain • Tenderness to palpation • Abdominal guarding • Acute increase in hematuria • Patients who are unconscious, cannot report pain (e.g. delirium), or have insensate bladders (e.g. spinal cord injury, regional anesthesia) may not complain of fullness or pain. Thus, monitor catheter output Q1h and PRN to minimize potential risk of bladder rupture.	• Stop bladder irrigation • Notify physician or NP
Adequate Irrigation Rate to Maintain Catheter Patency	• Output characteristics including viscosity, colour, and presence of clots or debris.	• Adjust irrigation rate with roller clamp to obtain light pink to colourless dilute urine that is free of, or contains small passable clots or debris or as per prescriber order.

Catheter Associated Urinary Tract Infection	• Fever • Elevated white blood cell count • Cloudy or malodorous urine	• For prevention see: **VCH:** Indwelling urinary catheter: Guideline to prevent catheter associated urinary tract infection (CAUTI) – Adult (D-00-07-30110) **PHC:** Urinary Catheters: Management for the Prevention of UTI (B-00-13-10121) • Notify physician or NP
Autonomic Dysreflexia Patients with spinal cord injury above T6 are at risk for autonomic dysreflexia.	• Anxiety • Severe headache • Nasal congestion • Sudden increase in blood pressure • Bradycardia • Irregular pulse / cardiac dysrhythmias • Flushing of skin • Profuse sweating • Goose bumps • *Patients who have insensate bladders (e.g. spinal cord injury) may not complain of fullness or pain if the catheter becomes obstructed. Thus, monitor catheter output Q1h and PRN to minimize risk of potential bladder rupture.*	• Notify physician or NP • Assess for and correct instigating causes with a focus on catheter blockage and distention.

Hand Irrigation

1. Verify the correct patient using two unique identifiers.
2. Explain procedure to patient.
3. Perform hand hygiene and don non sterile gloves
4. Empty urine drainage bag.
5. Perform hand hygiene and don non sterile gloves
6. Place patient in supine position, as tolerated.
7. Place a water resistant pad under the connection of tubing and catheter.
8. Release catheter from catheter securement device or tape.
9. Open catheter irrigation tray and pour 100 mL of normal saline into irrigation bottle provided.
10. Clean middle catheter lumen and drainage bag connection with alcohol swab for 30 seconds. Allow connection to dry for 30 seconds and then disconnect drainage bag. With a new alcohol swab, cleanse the catheter 4 to 6 inches in upward direction towards patient and allow to dry.

11. Place irrigation tray and sterile drape or kit wrap under catheter. Place catheter lumen into irrigation tray.
12. Perform hand hygiene and don sterile gloves.
13. Draw up 50 mL of normal saline into irrigation piston and connect to **middle** catheter lumen . Flush saline into bladder. Draw back on the plunger to evacuate the saline and any clot or debris. If heavy resistance or pain is experienced at any time, stop procedure and contact physician or NP for guidance.
14. Repeat procedure as necessary to clear clot. If a specific volume has been ordered repeat procedure until volume ordered has been reached.
15. Once irrigation is complete, open new urine drainage bag and reconnect catheter to drainage bag. Discard old drainage bag. Perform hand hygiene.
16. If catheter cannot be unblocked by hand irrigation notify physician or NP immediately to determine next steps. Re-catheterization by nursing should not be attempted if the patient has had:
    - Radical prostatectomy within last 6 weeks,
    - Urethroplasty or urethral surgery within last 6 weeks,
    - Urethral trauma within last 6 weeks,
    - Presence of artificial urinary sphincter.

Discontinuation of CBI

1. Gather equipment
2. Explain procedure to the patient
3. Perform hand hygiene
4. Don non-sterile gloves, gown and eye protection
5. Release catheter from securement device and place blue pad under catheter and connection site to continuous irrigation port (side lumen)
6. Clean connection site of catheter and continuous irrigation port with alcohol swabs and allow to dry for 30 seconds.
7. Clamp continuous bladder irrigation (CBI) tubing.
8. Open sterile catheter plug package and set aside.
9. While maintaining sterility, disconnect irrigation tubing from catheter and insert catheter plug into continuous irrigation port (side lumen) of the 3-way catheter (see Appendix A).
10. Anchor catheter to securement device.
11. Dispose bladder irrigation set, solution and blue pad in garbage.
12. Monitor urine, including output and colour.

Documentation

Documentation as per site policy including:

- Patient's comfort and pain level.
- Drainage rate equals irrigation in. If not, then documentation of assessment, subsequent interventions and follow-up.
- Colour and type of drainage, presence of clots/fragments at least once a shift and PRN with changes.
- Type of CBI solution used.
- Any variances in patient assessment and monitoring, nursing and physician interventions and patient outcomes. Procedures performed such as urinary catheter insertion.
- Indication for hand irrigation, the procedure performed and description of returns drained.

On Discontinuation of CBI;

- Urine colour and characteristics prior to discontinuation of CBI
- Discontinuation of CBI, placement of sterile plug, and re-securement of device
- Urine colour and characteristics post discontinuation of CBI

For Cerner Help *Document Insertion and Discontinuation for Lines, Tubes, and Drains*

Patient and Family Education

- The purpose of continuous bladder irrigation is to prevent clot retention.
- To notify the nurse of new or worsening abdominal pain, lower abdominal cramping, sensation of fullness, bypassing from around catheter, or strong urge to void.
- To notify the nurse if urine becomes deep red.
- To notify the nurse if they notice any acute changes such as headache, nausea, muscle cramping, blurred vision, or shortness of breath.
- The need for bedrest, unless otherwise ordered.

On Discontinuation of CBI;

- Explain the procedure to the patient, include the indication and expected outcomes of the procedure.
- Explain to the patient what the signs and symptoms of a blocked catheter are, and to notify nurse if they are experiencing these signs and symptoms.
- Encourage fluid intake to decrease risk of clots and catheter blockage.

Related Documents

VCH:

- Indwelling Urinary catheter, Procedure for Insertion and Removal (D-00-12-30109)
- Indwelling Urethral Catheter: Care and Management (Short term) – Adult (D-00-07-30108)
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PHC:

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References

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Appendices

- Appendix A: 3 Way Catheter
- Appendix B: Y-Type Set Up With Primary and Secondary
- Appendix C: Y-Type Set Up (Some Providence Sites)
- Appendix D: Primary and Secondary Set-Up (Lion's Gate Hospital, Squamish Hospital)
- Appendix E: Powel River General Hospital Set Up

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	Endorsed By: PHC Professional Practice Standards Committee	**Endorsed By:** (Regional SharePoint 2nd Reading) Health Authority Profession Specific Advisory Council Chairs (HAPSAC) Health Authority & Area Specific Interprofessional Advisory Council Chairs (HAIAC) Operations Directors Professional Practice Directors **Final Sign Off:** Vice President, Professional Practice & Chief Clinical Information Officer, VCH
Owners: *(optional)*	PHC	VCH
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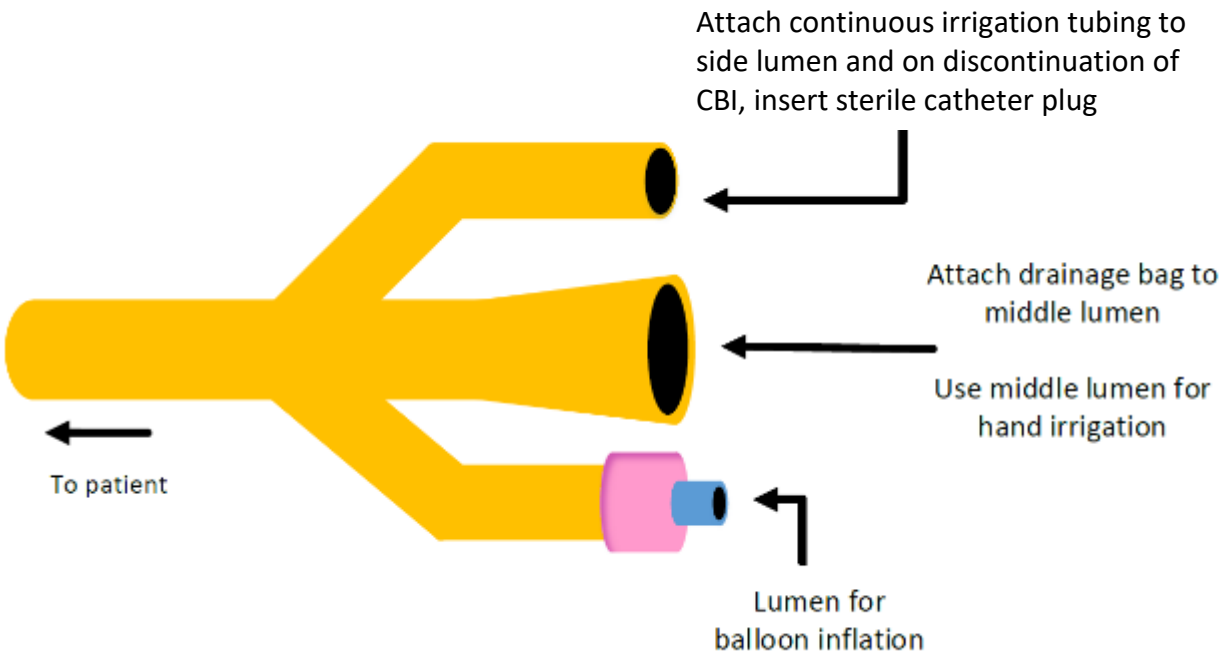
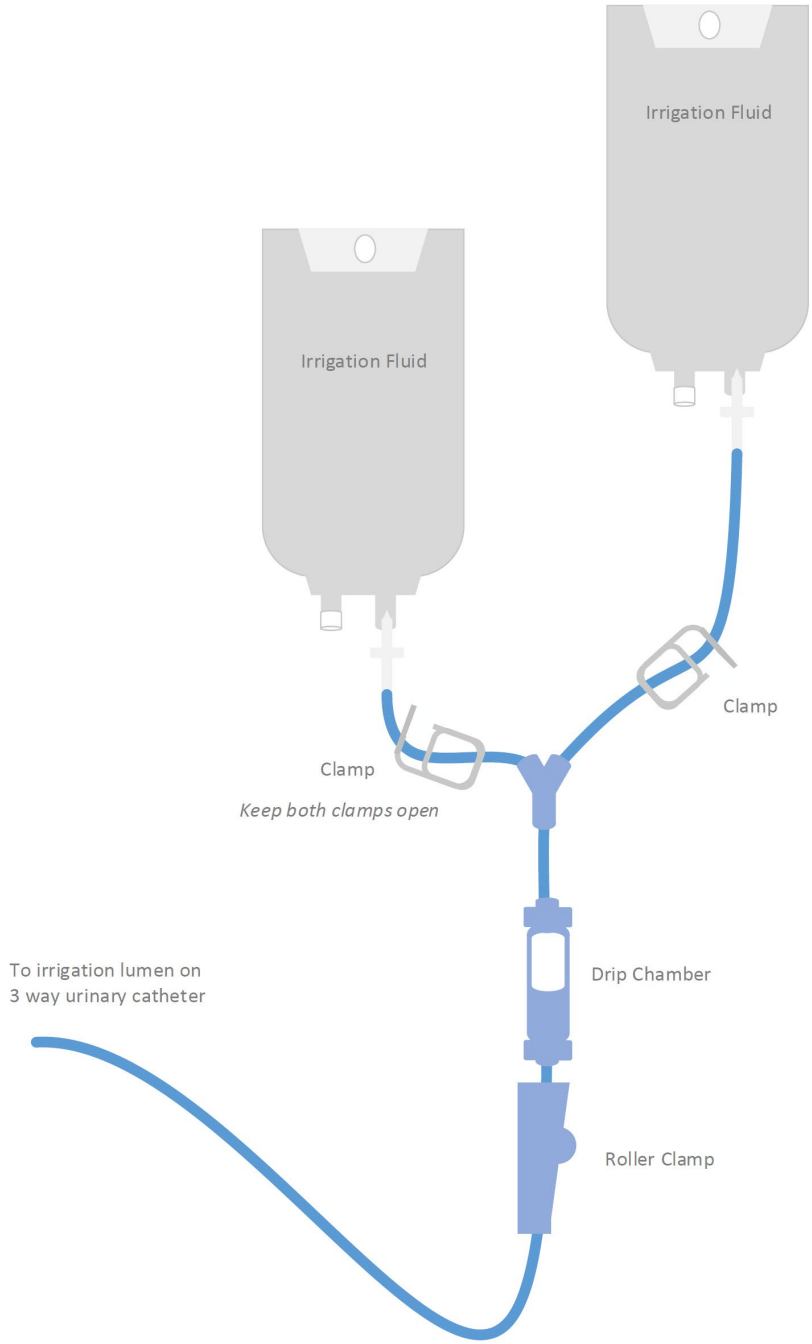
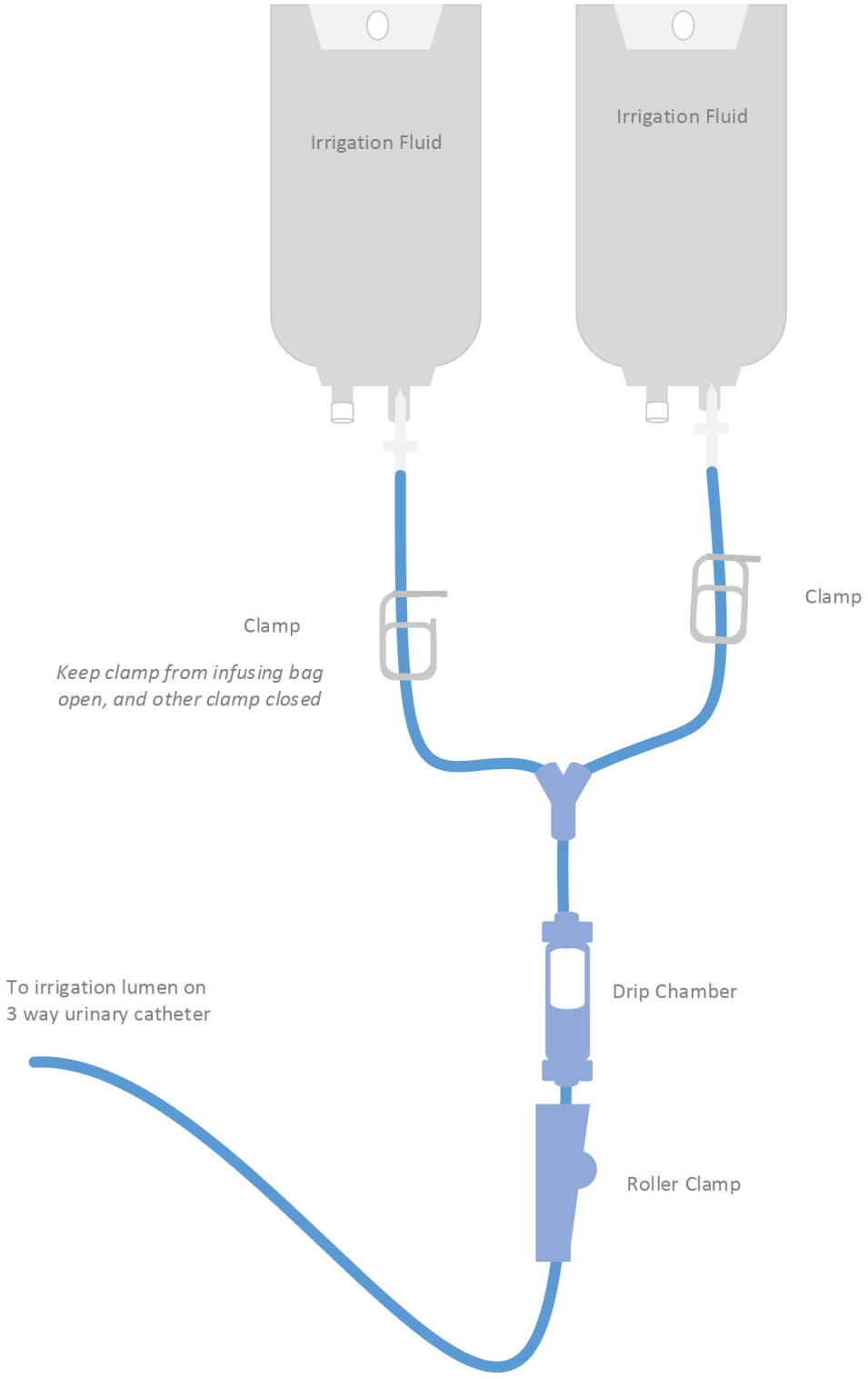
Appendix A: 3 Way Catheter



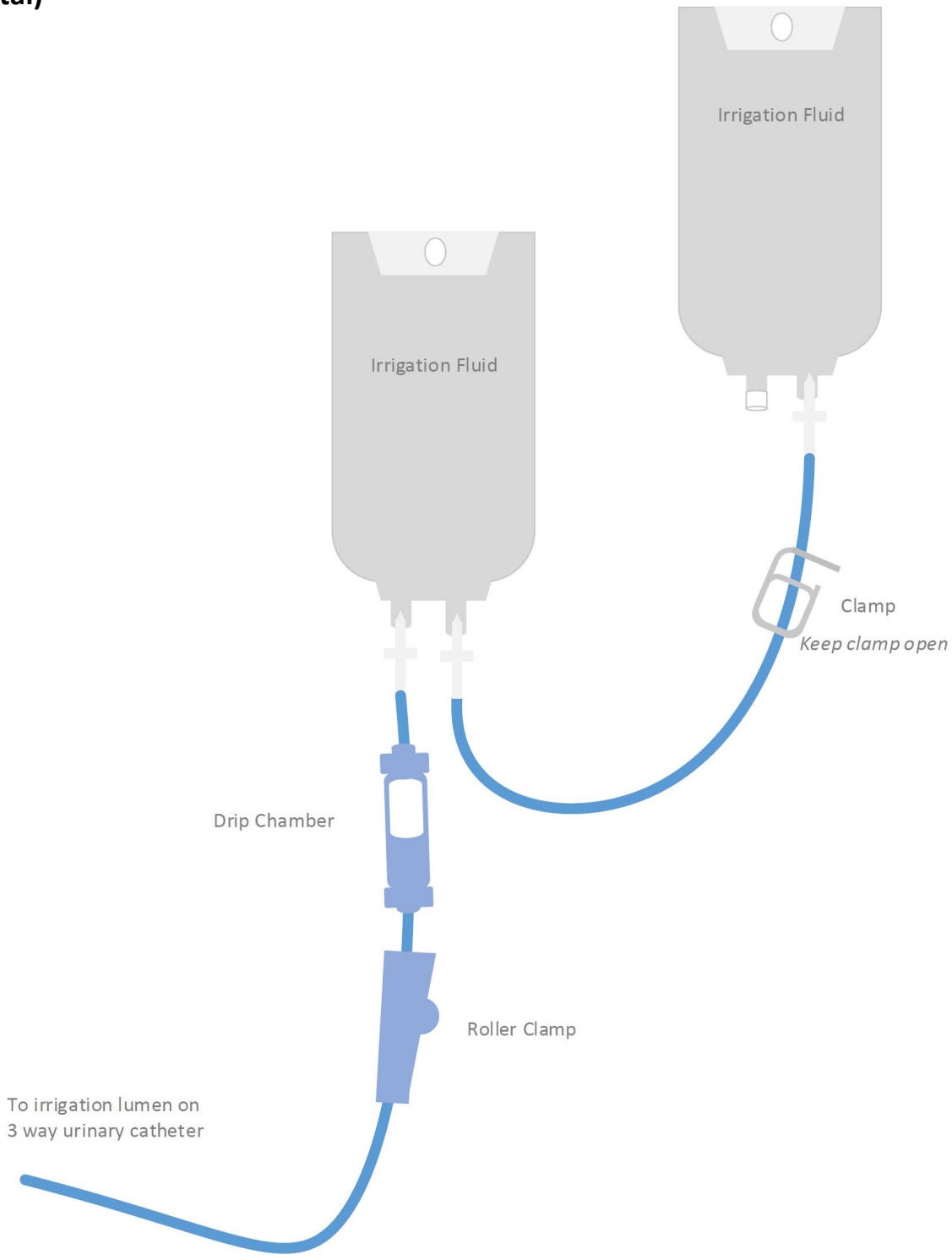
Appendix B: Y-Type Set Up With Primary and Secondary (Some Providence Sites, Richmond Hospital, Sechelt Hospital, UBC Hospital and Vancouver General Hospital)



Appendix C: Y-Type Set Up (Some Providence Sites)



Appendix D: Primary and Secondary Set-Up (Lion's Gate Hospital, Squamish Hospital)



Appendix E: Powel River General Hospital Set Up