



# PROVINCIAL STANDARDS & GUIDELINES



## Care of Needling Sites Post Hemodialysis for Fistulas & Grafts (Hemostasis)

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Approved by the BC Renal Hemodialysis Committee

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## IMPORTANT INFORMATION

This BC Renal guideline/resource was developed to support equitable, best practice care for patients with chronic kidney disease living in BC. The guideline/resource promotes standardized practices and is intended to assist renal programs in providing care that is reflected in quality patient outcome measurements. Based on the best information available at the time of publication, this guideline/resource relies on evidence and avoids opinion-based statements where possible; refer to [www.bcrenalagency.ca](http://www.bcrenalagency.ca) for the most recent version.

**For information about the use and referencing of BC Renal guidelines/resources, refer to <http://bit.ly/28SFr4n>.**



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## 1.0 Practice Standard

### Skill Level (Nursing):

Registered Nurses (RNs), Licensed Practical Nurses (LPNs) and others who have received teaching from a hemodialysis (HD) RN or LPN to care for hemodialysis (HD) needle sites post dialysis may carry out this procedure.

### Need to Know:

1. The key to access longevity is nursing assessment. The three steps in vascular access assessment are LOOK, FEEL and LISTEN.
2. Vascular access thrombosis is a major problem for HD patients. The causes are multiple, some of which are preventable:
  - a) Poor caliber vessels (e.g., too large, too small or diseased).
  - b) Post-surgical stenosis at the area of the anastomosis (juxta-anastomotic stenosis).
  - c) Reduction in blood flow to the access from causes such as hypotension / hypovolemia (especially new accesses) or patients sleeping on their access or wearing clothing which tightly encircles the access arm.
  - d) Excessive, unchecked bleeding from an access puncture site, resulting in formation of a hematoma. Hematomas can compress the access and lead to a thrombosis.

Excessive bleeding can occur for many reasons including:

- Too much heparin in the HD machine
- Patient is on anticoagulants (e.g., warfarin or clopidogrel) or has a coagulopathy, elevated BUN or hypertension
- Existing stenosis
- Overuse of one needling site
- Inappropriate management of needling sites post HD. **Appropriate management of needling sites post HD is the focus of this**

### guideline.

3. There have been few, if any, published research studies on the appropriate care of needling sites post HD. Most recommendations are based on expert opinion.
4. Expert opinion-based recommendations on the appropriate care of needling sites post HD include:
  - a) **Hemostasis is best achieved by removing the needles one at a time.**
    - Start by removing the venous needle. If the patient is holding his/her own sites, wait until after the venous needle site has clotted (10 – 15 minutes) before removing the arterial needle.
    - Remove needles at the same angle as they were inserted.
    - Do not apply pressure to the needle site until the needle is completely out.
  - b) **Hemostasis is best achieved by applying mild, direct pressure, using sterile gauze and a two-finger technique over the needle sites for at least 10 minutes (longer if clinically indicated – e.g., patients on blood thinners; patients with platelet/liver dysfunction; fistula/graft with outflow stenosis; new fistula).**
    - There are two points of entry for each of the venous and arterial needles, one through the skin and one into the vascular access. Both holes need to be compressed for the bleeding to stop. Use two fingers to press the site, one where the needle was and one just above.
    - There is a fine balance between enough compression for the needle hole to clot and excessive compression which may lead to access thrombosis.
    - During the time that compression is applied, use your other hand to check

frequently for a thrill above and below the needle hole. If a thrill cannot be felt, adjust the location and / or depth of compression.

**c) The use of clotting agents (e.g., tip stop, gel foam, calcium alginate) to assist clotting are not recommended under any circumstances.**

- Clotting agents assist in clotting the hole through the skin (the hole that can be seen). They do not, however, assist in clotting the hole into the vascular access (hole that cannot be seen).
- The danger in using these devices is that the hole through the skin may be clotted but the hole into the vascular access may still be bleeding.
- If the access hole is still bleeding, there is likely a problem with the access that needs to be addressed. The use of clotting devices masks this underlying problem.

**d) The use of clotting devices (e.g., tourniquets or straps) to assist clotting is discouraged. However, if these devices must be used, (i) use only on mature fistulas (not on new fistulas) with adequate flow and no signs of complications ; (ii) use only one device at a time; (iii) leave on only until the bleeding has stopped and never for more than 20 minutes.**

- Use tourniquets or straps. Do not use clamps – clamps cannot be adjusted and can cause total occlusion of an access.
- When the device is on, palpate frequently for a thrill on both sides of the device. If not present or if only a pulse can be felt, lighten the grip on the device or remove as blood flow is being occluded. After removing the device, confirm the presence of a thrill and bruit.

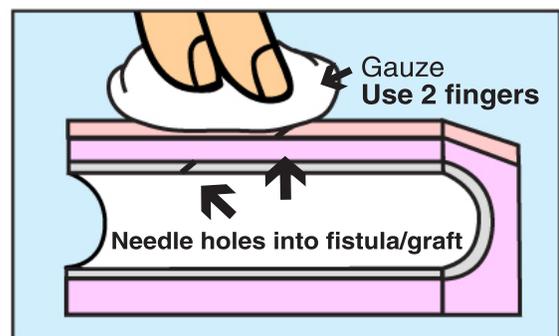
- Tourniquets / straps should not be shared between patients. They must be removed prior to the patient leaving the unit. They should be replaced every 3 to 6 months.
- Do not use any clotting devices on a **graft**. Graft material lacks the elasticity of native vessels and a clotting device may compress the access too much and the graft may not rebound back to its original diameter. This may lead to stenosis and possible access thrombosis.

## 2.0 Equipment

- Non-sterile gloves
- Sharps container
- Gauze
- Tape
- Clotting device such as tourniquet or strap (not recommended)

## 3.0 Assessment and Interventions

1. Remove the *venous* needle at the same angle as it was inserted. Do not apply pressure while the needle is in the vein.
2. After the needle is out, apply mild, direct pressure to each needle site, using sterile gauze and a two-finger technique for at least 10 minutes (longer if clinically indicated):
  - One finger at the vein site (internal)
  - One finger at the skin exit site (external)



**How to hold pressure over the needle hole**

3. If able, have patient hold the site. If unable to do this him/herself, arrange for a family member or, in the absence of a family member, a nurse to perform this function.
4. As a last resort, if no one is available to hold the site and the access is a mature fistula with adequate flow and no signs of complications, a tourniquet or strap may be used.

*Tourniquets/straps:*

- Place the button (face down) on the needle puncture site, then wrap the band around the arm and secure with Velcro.
  - Leave the tourniquet / strap on the puncture site for at least 10 minutes to stop the bleeding.
  - Palpate frequently for a thrill on both sides of the device. If not present or if only a pulse can be felt, lighten the grip on the device or remove. After removing, confirm the presence of a thrill and bruit.
  - After the bleeding has stopped, remove the tourniquet / strap and apply a clean gauze or band-aid to the puncture site.
  - Do not leave the tourniquet / strap on for more than 20 minutes and ensure the tourniquet strap is removed before leaving the HD unit.
  - Put the tourniquet / strap in a baggie for the patient to take home to wash with a mild laundry detergent and a little bleach (about a tablespoon to every 4 cups of soapy water). Air dry (do not use a dryer).
5. Pull the *arterial* needle. If the patient is holding his/her own sites, do not pull the second needle until the first needle site has clotted. Repeat steps 2 and 3.
  6. When the bleeding stops, tape the gauze in place. DO NOT wrap tape all around the arm. Instruct patient to take the gauze off 4-6 hours after his/her dialysis treatment.

## 4.0 Patient Education and Resources

1. Use firm pressure on the needle sites using two fingers for at least 10 minutes. If you are holding your own sites, do not pull the second needle until the first needle site has stopped bleeding.
2. When the bleeding stops, tape the gauze in place. DO NOT wrap the tape all around your arm. Do not leave the hemodialysis unit until your nurse has assessed your access.
3. Take the gauze off 4 – 6 hours after your dialysis treatment. Expect scabs to form over the needle holes. Avoid scratching or picking the scabs.
4. Refer to patient handout “What to Do for a Bleeding Fistula or Graft” for instructions to patient if access starts to bleed after leaving the dialysis unit.

## 5.0 Documentation

1. Document findings from the post assessment that are unusual on the HD log and HD Kardex.
2. Document the length of time hemostasis of the needle sites takes to occur.

## 6.0 References

1. Brouwer, Deborah (2011). Cannulation camp: Basic needle cannulation training for dialysis staff. *Dialysis & Transplantation*. 24:11. <https://onlinelibrary.wiley.com/doi/full/10.1002/dat.20622>. Accessed Mar 26, 2020.
2. Canadian Association of Nephrology Nurses and Technologists (CANNT). Nursing Recommendations for the Management of Vascular Access in Adult Hemodialysis Patients. 2015 Update. Vol 25, supp 1.
3. Santoro, D. et al, Vascular access for

hemodialysis: Current perspectives. Int J Nephrol Renovasc Dis. 2014; 7: 281 – 294. [www.ncbi.nlm.nih.gov/pmc/articles/PMC4099194](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4099194). Accessed Mar 26, 2020.

- Schmidli, J et al. Vascular Access: 2018 Clinical Practice Guidelines of the European Society of Vascular Surgery (ESVS), Eur J Vasc Endovasc Surg (2018) 55, 757 – 818. [www.ejves.com/article/S1078-5884\(18\)30080-7/abstract](http://www.ejves.com/article/S1078-5884(18)30080-7/abstract). Accessed March 25, 2020 (page 784).

## Related BC Renal Documents

### Guidelines:

- Rope Ladder Cannulation of Fistulas & Grafts
- Buttonhole Cannulation of AV Fistulas for Self-Cannulation

### Patient handouts:

- Ways to Prevent Aneurysms in Fistulas & Grafts (patient handout)
- What to Do for a Bleeding Fistula or Graft (patient handout)

## 7.0 Sponsors

Developed by:

- BC Vascular Access Educators Group (VAEG)

Reviewed by:

- British Columbia Renal Educators Group (REG)

Approved by:

- BC Hemodialysis Committee (2011) – minor updates made to 2015 and 2020 versions so not reviewed by the Hemodialysis Committee
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