

# Buttonhole Cannulation of AV Fistulas

(Approved December 8, 2009)



The full version of this guideline is located on the BC Renal Agency website [www.bcrenalagency.ca/professionals/VascularAccess/ProvGuide.htm](http://www.bcrenalagency.ca/professionals/VascularAccess/ProvGuide.htm). “Guideline at a Glance” summarizes the highlights.

Recommendation		HA/ HD Centre
1	A Nephrologist’s order and confirmation from a Vascular Access or Home Hemodialysis Nurse is required prior to establishing a buttonhole (BH) track.	<input type="checkbox"/>
2	BH tracks are appropriate for patients who self-cannulate or have a care giver cannulate and for select patients in which the rope ladder technique has not been successful (e.g., limited cannulation sites, fistula segment <5 cm/2 inches), frequent infiltrations, aneurysm formations or significant pain with standard needling.	<input type="checkbox"/>
3	BH tracks may be <u>established</u> on new or existing mature, well functioning fistulas. <ul style="list-style-type: none"> <li>• Choose sites easy for the patient to cannulate (if plans to self-cannulate).</li> <li>• Choose straight, relatively unused sections of the access. Try to allow at least 2 inches between the tips of the needles.</li> <li>• Create BH sites at the centre of the vessel, not on the sides.</li> <li>• If available, use bedside ultrasound to map BH sites.</li> </ul>	<input type="checkbox"/>
4	BH tracks may be <u>established</u> by select patients/caregivers and/or a designated nurse who is an advanced cannulator (advanced cannulators are designated by the vascular access nurse). <ul style="list-style-type: none"> <li>• Encourage patients to establish their own BH track.</li> <li>• Use same cannulator to cannulate the access until the track is established (usually 8 – 18 cannulations)</li> <li>• If the designated cannulator is not available on a specific day, cannulate the track using conventional sharp needles placed antegrade a minimum of 1 in (2.5 cm) away from the BH and in the same direction as the BH track.</li> </ul>	<input type="checkbox"/>
5	Once a BH track is established, the track may be cannulated by the patient or care giver (recommended) and/or 1 - 2 different nurse cannulators (fewer is better). Nurse cannulators must have received an orientation to buttonhole cannulation. <ul style="list-style-type: none"> <li>• Limiting the number of cannulators reduces the potential for destroying the BH track (as different cannulators use different angles) and complications.</li> <li>• If neither of the two BH cannulators designated for a specific patient are available for a specific HD run, cannulate as described above (using conventional sharp needles placed a MINIMUM of 1 inch (2.5 cm) away</li> </ul>	<input type="checkbox"/>

**Guideline  
at a Glance**

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**BC Renal Agency**

An agency of the Provincial Health Services Authority

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	from the BH).	
6	<p>In the event of a BH site is <u>infected</u>:</p> <ul style="list-style-type: none"> <li>• If localized to the puncture site and there are no signs of systemic infection, DO NOT use the BH site and follow the protocol for VA Related Local Infections in the BCPRA guideline <i>Prevention, Treatment and Monitoring of VA Related Infection in HD Patients</i> (includes a culture of the local site and 2 – 3 week course of topical and/or oral antibiotics). Can attempt to needle the original BH site once the course of antibiotics is complete.</li> <li>• If an abscess has developed, the entire AVF has become infected and/or the patient demonstrates clinical signs of bacteremia, DO NOT use the BH site and follow the protocol for VA Related Bacteremia in the BCPRA guideline for <i>Prevention, Treatment and Monitoring of VA Related Infection in HD Patients</i> (includes a culture of the local site, 2 sets of blood cultures drawn 5 minutes apart and a 6 week course of IV antibiotics). Establish a new BH site once the course of antibiotics is complete.</li> </ul>	<input type="checkbox"/>
7	Once the first set of BH tracks is well established, a second set may be developed to serve as a back-up. In such cases, the cannulation of each set should be alternated with each dialysis treatment.	<input type="checkbox"/>

See the full guideline at [www.bcrenalagency.ca/professionals/VascularAccess/ProvGuide.htm](http://www.bcrenalagency.ca/professionals/VascularAccess/ProvGuide.htm) for a step-by-step procedure for the following:

- a. Establishing a BH track using the sharps method
- b. Cannulating an established BH track
- c. Trouble-shooting BH tracks