



The full version of this guideline is located on the BC Renal Agency website <http://www.bcrenalagency.ca/committees/pvas/ProvGuide.htm>. “Guideline at a Glance” summarizes the highlights.

Recommendation		HA/ HD Centre												
1	<p>At a minimum, schedule assessments of new AVFs and AVGs at:</p> <ul style="list-style-type: none"> <li>▶ 2 and 6 weeks post-creation</li> <li>▶ 4 - 6 weeks prior to initiating hemodialysis</li> </ul>	<input type="checkbox"/>												
2	<p>Utilize physical examination to assess <i>maturation, utility</i> and <i>problems</i> with new AVFs and AVGs; augment with portable ultrasound if available.</p> <ul style="list-style-type: none"> <li>▶ AVFs: Some AVFs may be mature enough to cannulate one month post-creation while others require several months. Premature cannulation may result in infiltration, hematoma, and permanent loss of the AVF.</li> <li>▶ AV grafts: Should not be cannulated for at least 2 weeks after placement and not until the swelling has subsided enough to palpate the course of the graft. Cannulation of an AVG in an edematous arm may lead to hematoma formation and graft wall damage.</li> </ul> <p>Assessing for <i>Maturation &amp; Utility</i>:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Normal</th> <th colspan="2">Abnormal (Notify MD)</th> </tr> <tr> <th>AVF</th> <th>AVG</th> <th>AVF</th> <th>AVG</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>• Palpable vein which is larger and firmer than original vein (not soft or mushy)</li> <li>• Vein depth &lt;0.6 cm</li> <li>• Vein diameter of &gt; 0.6 cm (min 0.4 cm for initial cannulation)</li> <li>• Area of straight vein for cannulation</li> <li>• Portable u/s flow &gt; 500 mL/min</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>• Palpable, uniform sized graft</li> <li>• No irregular/dilated areas</li> <li>• Portable u/s flow &gt;650 mL/min</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>• Vein not easily palpable</li> <li>• Vein narrowed</li> <li>• Poorly defined area of straight vein for cannulation</li> <li>• Visible aneurysm or collateral veins</li> <li>• Dilated neck veins</li> <li>• At 6 weeks post-creation, portable u/s flow &lt;500 mL/min</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>• Graft not easily palpable;</li> <li>• Graft not uniform in size.</li> <li>• Limited straight portions for cannulation.</li> <li>• Portable u/s flow &lt;650 mL/min</li> </ul> </td> </tr> </tbody> </table>	Normal		Abnormal (Notify MD)		AVF	AVG	AVF	AVG	<ul style="list-style-type: none"> <li>• Palpable vein which is larger and firmer than original vein (not soft or mushy)</li> <li>• Vein depth &lt;0.6 cm</li> <li>• Vein diameter of &gt; 0.6 cm (min 0.4 cm for initial cannulation)</li> <li>• Area of straight vein for cannulation</li> <li>• Portable u/s flow &gt; 500 mL/min</li> </ul>	<ul style="list-style-type: none"> <li>• Palpable, uniform sized graft</li> <li>• No irregular/dilated areas</li> <li>• Portable u/s flow &gt;650 mL/min</li> </ul>	<ul style="list-style-type: none"> <li>• Vein not easily palpable</li> <li>• Vein narrowed</li> <li>• Poorly defined area of straight vein for cannulation</li> <li>• Visible aneurysm or collateral veins</li> <li>• Dilated neck veins</li> <li>• At 6 weeks post-creation, portable u/s flow &lt;500 mL/min</li> </ul>	<ul style="list-style-type: none"> <li>• Graft not easily palpable;</li> <li>• Graft not uniform in size.</li> <li>• Limited straight portions for cannulation.</li> <li>• Portable u/s flow &lt;650 mL/min</li> </ul>	<input type="checkbox"/>
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# Assessment of Newly Created AV Fistulas and Grafts

(Approved May 11, 2007)



Assessing for *Problems*:

Item	Normal		Abnormal (Notify MD)		Possible Implications	
	AVF	AVG	AVF	AVG	AVF	AVG
Bruit (auscultation)	<ul style="list-style-type: none"> <li>Prominent at the arterial anastomosis; ▼ as move upstream</li> </ul>		<ul style="list-style-type: none"> <li>High pitched, discontinuous, &amp;/or audible on systole only</li> </ul>		<ul style="list-style-type: none"> <li>Stenosis (arterial or venous)</li> </ul>	<ul style="list-style-type: none"> <li>Stenosis (usually venous)</li> </ul>
	<ul style="list-style-type: none"> <li>Low pitched, continuous, &amp; audible on diastole &amp; systole</li> </ul>		<ul style="list-style-type: none"> <li>No bruit</li> </ul>		<ul style="list-style-type: none"> <li>Thrombosis</li> </ul>	
Thrill (palpation)	<ul style="list-style-type: none"> <li>Thrill strongest at the arterial anastomosis; decreases as move upstream</li> </ul>		<ul style="list-style-type: none"> <li>No palpable thrill</li> <li>Additional thrill palpable along the course of the access</li> </ul>		<ul style="list-style-type: none"> <li>Thrombosis</li> <li>Stenosis (arterial or intragraft)</li> </ul>	<ul style="list-style-type: none"> <li>Thrombosis</li> <li>Juxta-anastomotic venous stenosis (JAS)</li> <li>Venous stenosis</li> </ul>
	<ul style="list-style-type: none"> <li>Pulse soft &amp; easily compressible</li> <li>Pulse felt over entire graft (AVGs)</li> </ul>		<ul style="list-style-type: none"> <li>Pulse palpable at stenotic site (if AVF, may have water-hammer feel) &amp; disappears quite abruptly; proximal pulse weak.</li> <li>Pulse not easily compressible</li> </ul>			
Hand/Foot Temperature	Warm		Cool or cold		<ul style="list-style-type: none"> <li>Steal syndrome</li> <li>Arterial stenosis</li> <li>Pre existing arterial condition</li> </ul>	
			Hot		<ul style="list-style-type: none"> <li>Infection</li> </ul>	
Hand/Foot Colour	Normal		Dusky or blue		<ul style="list-style-type: none"> <li>Steal syndrome</li> <li>Arterial stenosis</li> </ul>	
			Red		<ul style="list-style-type: none"> <li>Infection</li> <li>Venous stenosis</li> </ul>	
Capil Refill	Normal		Delayed		<ul style="list-style-type: none"> <li>Arterial stenosis</li> <li>Steal syndrome</li> </ul>	
Pain	Not present		Mild to severe pain		<ul style="list-style-type: none"> <li>Steal syndrome</li> <li>Infection</li> <li>Neuropathy</li> </ul>	

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Item	Normal		Abnormal (Notify MD)		Possible Implications	
	AVF	AVG	AVF	AVG	AVF	AVG
Skin Integrity	<ul style="list-style-type: none"> <li>Normal (but can be post-surgical red flare on the skin)</li> </ul>		<ul style="list-style-type: none"> <li>Small pustular lesions</li> </ul>		<ul style="list-style-type: none"> <li>Superficial infection</li> </ul>	
			<ul style="list-style-type: none"> <li>Erythema, tight, shiny, &amp; tender skin, drainage from access site, skin warm or hot to touch, &amp; pain</li> </ul>		<ul style="list-style-type: none"> <li>Deep infection</li> <li>Venous congestion (swelling)</li> <li>Steal syndrome (necrotic fingers)</li> </ul>	
Edema	<ul style="list-style-type: none"> <li>No edema; if edema present, goes away when limb elevated</li> </ul>		<ul style="list-style-type: none"> <li>Edema of limb</li> <li>Edema in chest, neck, arm, &amp;/or face</li> <li>Subcutaneous collateral veins observable in the neck, upper chest, &amp; shoulder</li> </ul>		<ul style="list-style-type: none"> <li>Venous stenosis</li> <li>Central vein stenosis</li> </ul>	
3	Teach patients to recognize and report signs and symptoms: <ul style="list-style-type: none"> <li>Coldness, numbness, tingling, and/or impairment of motor function in the limb with the access</li> <li>Absence of a bruit or a thrill over the anastomosis site</li> <li>Redness, discharge, and/or pain in the limb with the access</li> <li>Fever</li> <li>Edema in the access limb which persists more than two weeks post-creation</li> <li>Collateral vessels over the neck, upper chest, and/or shoulder</li> <li>Emergency measures to take in the case of a bleeding fistula/graft.</li> </ul>					<input type="checkbox"/>
4	If the AVF or AVG has problems and/or the AVF has not matured within a 6 week timeframe and/or is difficult to cannulate, consult MD or VA Coordinator. <ul style="list-style-type: none"> <li>Avoid cannulation and consult:               <ul style="list-style-type: none"> <li>Signs and symptoms of severe infection.</li> <li>Signs and symptoms of a localized, superficial infection that is on or near the needling site.</li> <li>Absence or poor quality of bruit and thrill.</li> <li>Extreme edema or other factors (e.g. rash or unexplained aneurysm) which would render cannulation inappropriate.</li> </ul> </li> </ul>					<input type="checkbox"/>