MARY WASHINGTON HEALTHCARE IMAGING SERVICES

LOWER EXTREMITY DEEP & SUPERFICIAL VENOUS MAPPING PROTOCOL

I. **Patient Preparation:** No preparation necessary**.**

II. **Equipment:** Imaging and flow analysis performed with Duplex sonography using a 5 MHz or higher linear transducer. A Doppler angle of 60 degrees or less is used when quantitative measurements of venous flow are performed.

III. **Primary Purpose of the Venous Examination**—to determine the size and depth of the veins in the leg for use in bypass. The surgeon will specify which leg or legs are to be mapped. Usually only the greater saphenous vein will need to be mapped. Occasionally the physician may ask for the deep veins to be mapped.

IV. **Patient Positioning:**
Patient should lie supine with head elevated 30-45 degrees. Patient will be slightly rotated on hip (of leg being evaluated) with the lower extremity externally rotated and knee slightly bent.

V. **Lower Extremity Venous Mapping Procedure:**

Image Protocol:

These images should be taken with a split screen showing the vein compresses on the right with the AP measurement on left side of screen.

A. Superficial vein mapping:

Greater saphenous vein

1. Measure AP diameter of greater saphenous vein at the following levels:
   - SFJ/Proximal thigh
   - Mid thigh
   - Distal thigh
   - Proximal calf
   - Mid calf
   - Ankle

If physician requests LSV mapping, obtain the following LSV images:

1. Measure AP diameter of the lessor saphenous vein at the following levels:
   - SPJ/Proximal calf
   - Mid calf
   - Distal calf
2. Note if there is any thrombus or wall thickening.

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B. Deep vein mapping: If physician requests deep vein mapping, obtain the following images of the CFV, femoral and popliteal veins:
   1. In a transverse scan plane, measure the vessel diameters of the CFV.*
   2. In a longitudinal scan plane, evaluate valvular competency with valsalva or proximal compression of the CFV.
   3. Repeat steps 1 & 2 for the femoral and popliteal veins.

Image Summary

** These images should be taken with a split screen showing the vein compression on the right with the AP measurement on left side of screen.

For superficial vein mapping:	Measurement
1. Patient information screen	
2. Trans dual screen GSV at SFJ/Proximal thigh	AP diameter
3. Trans dual screen GSV Mid thigh	AP diameter
4. Trans dual screen GSV Distal thigh	AP diameter
5. Trans dual screen GSV Proximal calf	AP diameter
6. Trans dual screen GSV Mid calf	AP diameter
7. Trans dual screen GSV Ankle	AP diameter
If physician requests LSV mapping, obtain the following LSV images:	
8. Trans dual screen LSV at SPJ/Proximal calf	AP diameter
9. Trans dual screen LSV Mid calf	AP diameter
10. Trans dual screen LSV Ankle	AP diameter
If physician requests deep vein mapping, obtain the following images:	
1. Patient information screen	
2. Trans dual screen CFV	AP diameter
3. Trans dual screen proximal SFV	AP diameter
4. Trans dual screen mid SFV	AP diameter
5. Trans dual screen distal SFV	AP diameter
6. Trans dual screen POP	AP diameter

Repeat images in contralateral leg if a bilateral exam is indicated.