ABI Examinations with simpleABI PVR Systems

Please Read the User Manual first: This is a quick reference guide

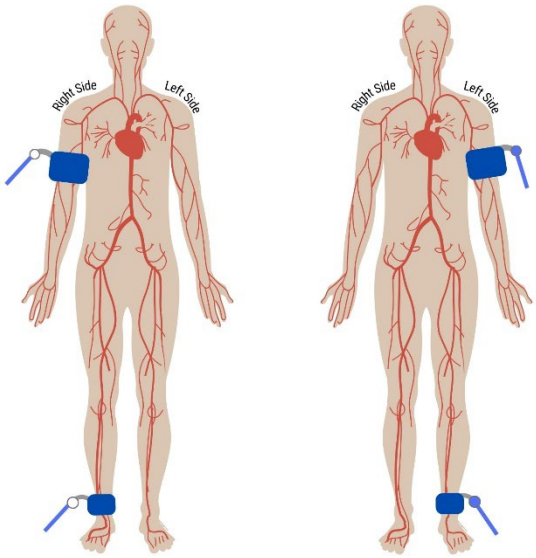
Contraindications: Do not perform the exam on someone suspected of having acute deep venous thrombosis, and do not take an arm pressure in an arm with a shunt or dialysis graft.

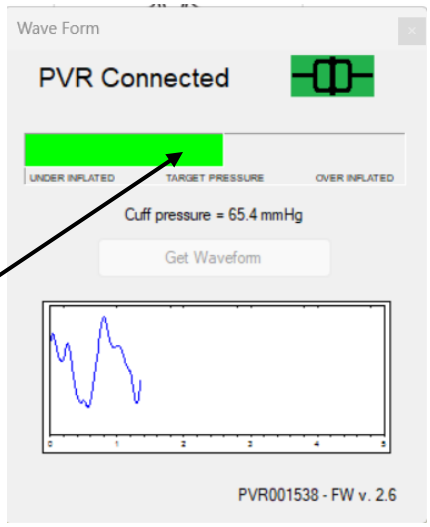
Background: The ABI examination is performed to determine peripheral arterial disease. By comparing the systolic pressures in the arms and legs it can be determined if there is an occlusion in the peripheral arteries. This is often a precursor to larger cardiovascular disease. The patient is supine and rested in a warm room.

The ABI Procedure

Opening the exam On the computer desktop, double click the simpleABI icon. When the program opens select *File→New→New ABI Report*. The report will open and you can enter patient information, risk factors, symptoms, ICD codes, etc.

Attaching cuffs Wrap appropriate cuffs at each site. The simpleABI PVR systems use a single blue tube that is moved from site to site during the exam. The blue tube goes to cuffs, Use 'Y' connector to attach aneroid and blue tubing to PVR hardware.





Visual Guide Bar

Brachial Pressure

1. Begin with the right brachial. Attach hose to cuff. Place the Doppler probe at a 45-degree angle to the skin over the radial or brachial artery. Use plenty of gel and slowly move the probe laterally until the best signal is obtained.
2. Using the handheld aneroid, inflate the cuff until you no longer hear the signal - continue for an additional 10-20 mmHg.
3. The thumb button on the aneroid is a variable release mechanism – i.e., the more you depress the button the faster the deflation rate. Using the thumb release, deflate at the suggested rate of 2mmHg/second (10mmHg for every 5 seconds may be slightly easier to monitor)
4. When you hear the Doppler signal return, note the pressure from the aneroid. Enter that pressure into the right brachial field on the exam.

Ankle Pressures

1. Disconnect the hose from the brachial cuff and connect it to the ankle cuff. Press tab or use the cursor to move to the Dorsalis Pedis (DP) field. Find the arterial signal using the Doppler probe on the dorsalis pedis artery on top of the foot. Obtain the arterial pressure in the same manner you did on the arm. (Using the aneroid, inflate until occlusion +10-20mmHg, release at 2mmHg/second, note pressure when Doppler signal returns)
2. Press tab or use the cursor to move to the Posterior Tibial (PT) field. Find the Doppler signal on the posterior tibial artery. Obtain the arterial pressure in the same manner as other sites.

Waveform

1. On the screen, click on a respective Waveform Field in the exam. Using the aneroid, inflate the cuff to about 80 mmHg. Deflate the cuff down to about 65mm and stop. You will see a visual guide bar above the Get Waveform button on the screen. The center section of the target pressure guide will turn green (if the guide is red, then pressure is too low or too high). When a constant green, click the Get Waveform button. PVRs require patient cooperation; limb motion affects the waveform. Patients should be instructed not to move or talk during this test. The waveform will appear and when complete the pop-up will disappear and the waveform will be present in the Waveform Field in the exam.
2. If you are not satisfied with the waveform, leave the cuff inflated (in the green) and click on the waveform field and then Get Waveform buttons again to overwrite the previous waveform.
3. When complete, release the air in the cuff.

Left Side

1. Repeat the above pressures and waveform sequence for the left side of the patient.

Helpful Hints

Cuff techniques:

- Wrap the cuff snugly.
- Cuffs may be placed over thin clothing or stockings.
- Don't let the patient try to help by lifting their leg - as they relax their muscles the cuff will become loose.
- Placing a pillow under the patients heels may aid the examination.
- Have the patient remain as still and quiet as possible while taking the waveforms.
- If the patient has tremors that interfere with the waveform, having them perform a few dorsiflexions with their toes before taking the waveform may help.

Doppler techniques:

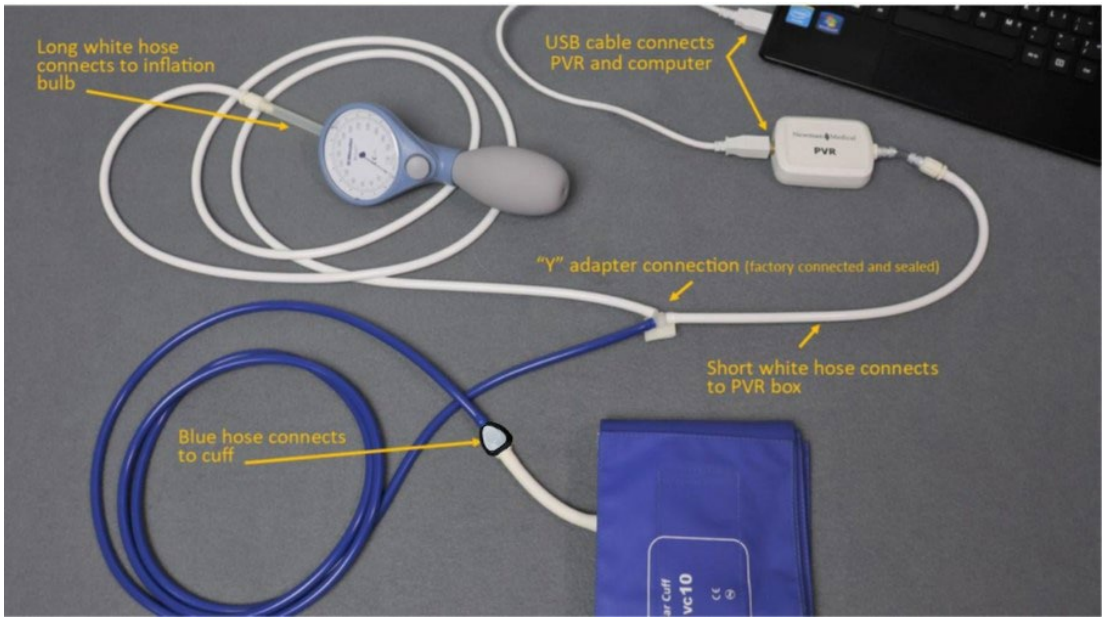
- Hold the probe like you would a pencil, close to the end.
- Move the probe back and forth laterally over the artery to obtain the best signal.
- Support the probe with your hand resting on the patient so that the probe does not move as the cuff is inflated and deflated.
    - One of the keys to a successful exam is being able to keep the probe in place as you inflate and deflate the cuffs.
    - If the probe moves, you may not be able to hear the Doppler sounds return and may have to repeat the inflation.

Exam hints:

- If the ankle pressure is high, above 200 mmHg, this indicates that the artery may be incompressible due to calcification.
    - Proceeding to an ABI with Toe, may help your diagnosis.

Dorsalis Pedis

Posterior Tibial



simpleABI PVR System Setup