

# The ABI Examination with the simpleABI 100/300

**Contraindications:** Do not perform the ABI 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.

**Patient Preparation:** The patient should be relaxed in a supine position for 5-10 minutes in a warm room. Explain the examination to the patient. This is an ideal time to enter patient information. The examiner should make all arm and leg blood pressure measurements with an appropriately sized blood pressure cuff and the Doppler device.

## The ABI Procedure

### Initial Steps

**Step 1.** Apply the blood pressure cuffs snugly on each arm and leg. On the arms apply the cuffs as you would for a normal blood pressure. On the legs, have the patient place their feet flat on the table with knees bent as you apply the cuff above their ankle. Cuffs should fit snugly so that fingers should slide between the cuff and limb with difficulty. PVR boxes are color coded and should be connected to cuffs placed on the ankles for the entirety of the exam.



### Right Side Pressures

- On the right arm, locate the artery by palpation, if possible. Place the Doppler probe at an angle to the skin over either the radial or brachial artery. Use plenty of ultrasonic gel. \*\*\*Inflate the cuff until you no longer hear the signal, and continue for an additional 15 or 20 mmHg. Slowly bleed pressure down until the signal returns and note that return pressure. This is the systolic pressure. Then rapidly deflate the cuff. Enter the systolic pressure into the respective brachial field on the report. **(A)**

- Now take the pressures at the right ankle, using the Doppler probe on the posterior tibial (PT) artery, which is usually found just behind (roughly half an inch- about the diameter of a dime) the ankle bone. Occlude the artery in the same manner you did on the arm in the previous step, noting return pressure. Record return pressure in respective field on report. **(B)**

- Now take the pressure at the foot using the Doppler probe on the dorsalis pedis (DP) artery, which is usually right on top of the foot. To avoid occluding the arteries by pressing too hard with the probe, be gentle. Inflate and bleed the cuff as you did with the PT artery and arm, noting return pressure. Enter the systolic pressure into the respective DP field on the report. **(C)**

### PVR Waveform

\*\*\*Inflate right ankle cuff to ~90mmHg and bleed to 65. Set aneroid on exam table when finished bleeding pressure to 65mmHg to avoid affecting waveforms with your movement.

Press or click 'Right PVR' button. A pop-up window will appear, press or click 'Get Waveform'. simpleABI Reporting software will take 5 seconds of PVR waveforms and return to form. **(D)** If waveform is acceptable, proceed to left side. If another waveform on the right ankle is desired, repeat above steps.

### Left Side Pressures

- On the left arm, locate the artery by palpation, if possible. Place the Doppler probe at an angle to the skin over either the radial or brachial artery. Use plenty of ultrasonic gel. \*\*\*Inflate the cuff until you no longer hear the signal, and continue for an additional 15 or 20 mmHg. Slowly bleed pressure down until the signal returns and note that return pressure. This is the systolic pressure. Then rapidly deflate the cuff. Enter the systolic pressure into the respective brachial field on the report. **(E)**

- Now take the pressures at the left ankle, using the Doppler probe on the posterior tibial (PT) artery, which is usually found just behind (roughly half an inch- about the diameter of a dime) the ankle bone. Occlude the artery in the same manner you did on the arm in previous step, noting return pressure. Record return pressure in respective field on report. **(F)**

- Now take the pressure at the foot using the Doppler probe on the dorsalis pedis (DP) artery, which is usually right on top of the foot. To avoid occluding the arteries by pressing too hard with the probe, be gentle. Inflate and bleed the cuff as you did with the PT artery and arm, noting return pressure. Enter the systolic pressure into the respective DP field on the report. **(G)**

### PVR Waveform

\*\*\*Inflate left ankle cuff to ~90mmHg and bleed to 65. Set aneroid on exam table when finished bleeding pressure to 65mmHg to avoid affecting waveforms with your movement.

Press or click 'Left PVR' button. A pop-up window will appear, press or click 'Get Waveform'. simpleABI Reporting software will take 5 seconds of PVR waveforms and return to form. **(H)** If waveform is acceptable, you are finished with the exam. If another waveform on the left ankle is desired, repeat above steps.

## Helpful Hints

- Hold the probe close to the end and support the probe on the skin so that the probe does not move as the cuff is inflated and deflated. It also helps to rest your hand on the patient to keep the probe in place. One of the keys to a successful exam is being able to keep the probe in place as you inflate and deflate. If it moves you will not be able to hear the Doppler sounds return and you will have to repeat the inflation.
- If the ankle pressure is high, above 200 mmHg, or the cuff cannot obliterate the Doppler sounds, this indicates that the artery may be incompressible due to calcification and the ABI is not calculated.

**Don't be discouraged if measuring the ABI seems slow or clumsy at first. Like any procedure, the ABI becomes easier to do with practice. As you become more comfortable with the exam, you may also change the order of above steps as fits your practice.**

Screen Shot with references from page 1

