**NOTE 5 Using A Hand Held Doppler To Assist With PICC Placement**

**HOW TO USE THIS APPLICATION NOTE**

- **DOPPLEX® EQUIPMENT REQUIRED** Select the most appropriate Dopplex® Pocket unit to perform the examination. For suggestion of suitable Dopplex® equipment, refer to Figure 1.

- **PROCEDURE** Peripherally Inserted Central Catheters (PICCs) are placed via cannulation of one of the patient’s antecubital fossa veins. Follow the procedure in Figure 3.

- **LOCATING VEINS** Figure 4 suggests the ideal probe position for locating veins.

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**FIGURE 1 EQUIPMENT REQUIRED**

- Bi-directional Dopplex, Super Dopplex II, Multi Dopplex II or Maxi Dopplex with VP8 probe.
- Coupling gel
- Tourniquet
- Surgical marker

**FIGURE 2 IDENTIFYING VEINS**

Veins generate low velocity Doppler signals which can be described as sounding like ‘wind’; arteries generate pulsatile multi-phasic signals.

**FIGURE 3 PROCEDURE**

- Adequate skin preparation should always be performed prior to venipuncture. The person placing the PICC should always wear appropriate clothing to provide personal protection, to create and maintain a sterile environment, e.g. sterile gloves, gowns, etc.
- The area surrounding the site should be draped to ensure that a sterile environment is created and maintained.
- NOTE - Always clean the probe tip with an alcohol impregnated wipe or a damp cloth impregnated with a mild detergent before and after use. Remove excess gel before storing the probe.

**FIGURE 4 TESTING POSITION**
It is important to be able to differentiate between the sounds generated by the Arteries and Veins. Arteries generate high frequency multi-phasic sounds, whereas veins usually generate low velocity monophasic signals. If using a Bi-directional Doppler, vessel type can be confirmed by the information displayed on the bar graph. See examples below.

**FIGURE 6 NOTES**

Normal **Dopplex**® Display of an Artery

Normal **Dopplex**® Display of a Vein

The bar graph display should always be coincident with the sounds.

**EDUCATIONAL MATERIAL AVAILABLE FROM HUNTELEIGH HEALTHCARE**

- Library of Sounds Audio Cassette
- Assessment & Treatment of Leg Ulcers Video
- Vascular Investigations Video
- Assessment of the Diabetic Foot Video
- ABPI & TBPI guides.

**APPLICATION NOTES AVAILABLE FROM HUNTELEIGH HEALTHCARE**

**NOTE 1** - Arterial Investigation Of The Lower Limb

**NOTE 2** - Venous Investigation Of The Lower Limb Using Doppler

**NOTE 3** - Venous Investigation Of The Lower Limb Using PPG

**NOTE 4** - Screening For The Absence Of An Acute DVT Using PPG

**NOTE 5** - Using A Hand Held Doppler To Assist With PICC Placement

References: Gabriel J, PICCs: How Doppler ultrasound can extend their use. Nursing Times, volume 95 No. 6:1999

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