# ARROW® VPS G4™ VASCULAR POSITIONING SYSTEM®

## Information for Hospital Radiology Department

### TECHNOLOGY OVERVIEW

The ARROW® VPS G4™ Device is designed for central catheter navigation and tip confirmation. Using a combination of intravascular Doppler ultrasound, intravascular ECG and advanced algorithmic logic, the system measures multiple physiological parameters and provides real-time navigation as the central venous catheter advances through the patient's vasculature. Visual and audible feedback is provided on the VPS G4 Interface to guide the clinician in catheter placement to the ideal landing zone, the lower 1/3 of the Superior Vena Cava—Cavo-Atrial Junction (SVC-CAJ).

As the catheter tip approaches the heart, the ARROW® VPS G4™ Device identifies the unique ECG and Doppler signatures of the lower 1/3 of the SVC-CAJ. When the catheter tip reaches the lower 1/3 of the SVC-CAJ and a steady Blue Bullseye (BBE) symbol appears on the VPS G4 Device screen, the precise landing zone has been reached. The intravascular Doppler also informs the clinician if the catheter is moving away from the target by displaying an orange No Entry symbol.

This technology is designed to reduce the risk of the placement in the internal jugular, azygos or artery, to avoid the potentially fatal error of infusing a toxic drug into the wrong vessel. By preventing malposition of the catheter tip, associated complications, such as thrombosis, DVT (Deep Vein Thrombosis) and infection, (which are well documented in clinical literature), can be reduced.

The VPS G4 Device is indicated for use as an alternative method to fluoroscopy or chest X-ray for central venous catheter tip placement confirmation in adult patients, when a steady Blue Bullseye is obtained. When this is achieved, the statement "Tip is Placed In The Lower 1/3 SVC Or At CAJ", will appear on the PDF report, as valid evidence of correct tip placement.

**NOTE:** If a steady Blue Bullseye is not obtained, standard hospital practice should be followed to confirm catheter tip location. See full Indications for Use in the ARROW® VPS G4™ Device Operator's Manual or ARROW® VPS® Stylet Bedside Procedure Kit.

### Your Vascular Access/PICC Team is Conducting a PICC Insertion Study Using the ARROW® VPS G4™ Device for Navigation and Tip Positioning

- The ARROW® VPS G4™ Device will address two clinical challenges:
    1. PICC navigation through the vasculature.
    2. Correct placement of the PICC in the lower 1/3 of the SVC-CAJ.
- Correlation between the VPS G4 Device and confirmatory chest X-ray will be checked for _____ cases. *[Teleflex Rep: insert number of cases.]*
- The following method is recommended for reading the confirmatory X-ray.[1]
    1. Find the Right Atrial Appendage (RAA) and measure 1—2 cm below that point to locate the CAJ. The lower 1/3 of the SVC-CAJ landing zone should be 1 cm above the RAA to 2 cm below the RAA (3 cm landing zone).
    2. An alternative method is identifying the carina with the landing zone located 2—5 cm below the carina.
- Technicians will be asked to use the following protocol while taking X-rays.
    1. Remove any items that interfere with visualization.
    2. Keep head of bed at ___ degrees while shooting film [insert appropriate degrees, per hospital's policy].
    3. Keep X-ray beam perpendicular to the film.
    4. Shoot X-ray at the END OF EXPIRATION, while patient takes a normal breath.

**Thank you for your time and attention to these details.**

1 Verhey P, Gosselin M, Primack, Blackburn P, and Kramer A. The right mediastinal border and central venous anatomy on frontal chest radiograph – direct CT correlation. *J Assoc Vascular Access* 2008; 13:32-35.

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