



## Teleflex Incorporated Highlights Article on ARROW® VPS® Vascular Positioning System, Showing Significant Reduction in Catheter Malpositions

January 13, 2015

*Article Shows Advantages of Using System that Replaces Chest X-Ray to Check Central IV Line Placement*

WAYNE, Pa.--(BUSINESS WIRE)--Jan. 13, 2015-- Teleflex Incorporated (NYSE: TFX), a leading global provider of medical devices for critical care and surgery, announced that a recent peer-reviewed article about the ARROW VPS® Vascular Positioning System showed the technology can reduce improper positioning of central IV catheters. The article was published in the Fall 2014 issue of the *Journal of the Association for Vascular Access* (JAVA).

The catheter tip positioning project took place at James A. Haley Veterans' Hospital, in Tampa, Fla., and involved use of the VPS® Technology to place peripherally inserted central catheters (PICCs). The article in JAVA presents the largest cohort at one site of patient results in studies using the VPS® System.

The hospital's PICC team primarily examined whether the system could reduce the incidence of malpositioned PICCs. Improper PICC positioning can result in serious complications and delay potentially lifesaving IV therapy. The article data showed a 51% reduction of malpositioned catheters when using the VPS System.<sup>1</sup> The hospital also wanted to determine whether use of the system could minimize the use of chest X-rays to confirm accurate PICC placement, which they were able to achieve.

"It was gratifying for our PICC team's product trial to establish a new protocol that benefits patients and the hospital alike," said lead author Linda Smith, MSN, RN, CRRN, VA-BC™, CRN®, a Vascular Access Nurse and PICC team member at James A. Haley. "Many of our patients have significant health complications and PICC placements can be challenging. We identified the positioning system as a possible improvement to our PICC placement procedures. Then we evaluated it to make sure it performed as promised, and our results led to a policy change that has improved the quality and efficiency of care at our hospital and allowed us to eliminate confirmatory chest X-ray for most PICC placements."

Smith is the lead author of the study. The co-authors are Catherine M. Brown, MSN, RN-BC, RVT and Julie Mendoza, BSN, RN, VA-BC™.

The ARROW® VPS® Vascular Positioning System combines intravascular electrocardiogram (ECG), intravascular Doppler ultrasound and a software algorithm, to accurately place catheter tips in the lower one-third of the Superior Vena Cava-Cavo Atrial Junction (SVC-CAJ). The system displays a Blue Bullseye on the screen when an accurate placement has been made at the SVC-CAJ. The VPS® Device is FDA-cleared to eliminate chest X-ray in adult patients, when a steady Blue Bullseye is achieved.

The PICC team at James A. Haley Veterans' Hospital evaluated the positioning system to assess effectiveness and potential advantages in the following areas:

- **Real-time guidance.** The positioning system helps prevent malposition by guiding central venous catheter placements in real time. A confirmatory chest X-ray is a retrospective image that can only reveal a malposition, not prevent it.
- **Reduced X-ray exposure.** Many patients are exposed to radiation from a variety of screenings and eliminating a confirmatory chest X-ray helps reduce that exposure.
- **Fewer treatment delays.** The X-ray process can delay treatment by up to several hours, depending on the hospital. If the X-ray shows that a malpositioned catheter needs to be adjusted, the delay is even greater.
- **Reduced procedure time.** Eliminating confirmatory chest X-rays makes more efficient use of radiologists' and nurses' time.

"It's always heartening to see nurses contribute to the medical literature, and this is an important article for several reasons," said Jay White, President, Vascular Division of Teleflex. "It documents one key way in which vascular access nurses can use advanced technology to provide services that may save hospitals both staff time and money. This paper also supports the goal many hospitals have to protect patients from unnecessary exposure to radiation, and Teleflex Incorporated is pleased that our VPS® Technology is part of that effort."

### About Teleflex Incorporated

Teleflex is a leading global provider of specialty medical devices for a range of procedures in critical care and surgery. Our mission is to provide solutions that enable healthcare providers to improve outcomes and enhance patient and provider safety. Headquartered in Wayne, PA, Teleflex employs approximately 11,500 people worldwide and serves healthcare providers in more than 150 countries. Additional information about Teleflex can be obtained from the company's website at [teleflex.com](http://teleflex.com).

### Forward-Looking Statements

Any statements contained in this press release that do not describe historical facts may constitute forward-looking statements. Any forward-looking statements contained herein are based on our management's current beliefs and expectations, but are subject to a number of risks, uncertainties and changes in circumstances, which may cause actual results or company actions to differ materially from what is expressed or implied by these statements. These risks and uncertainties are identified and described in more detail in our filings with the Securities and Exchange Commission, including our Annual Report on Form 10-K.

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**References:**

1. Smith L, Brown CM, Mendoza J. Novel catheter positioning system for intravenous central lines: a report of 1 hospital's experience. *J Vasc Access.* 2014;19(3):167-171.

Source: Teleflex Incorporated

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