Association for Vascular Access
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Imaging Modalities for Successful Peripheral Intravenous Catheter Insertions

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MEMBER CONTRIBUTION

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Submitted by: Jay Haischer, MHA, ARCRT, CRT (R) (F), VA-BC
Registered Diagnostic and Interventional Imaging Technologist

The use of Peripheral Intravenous Catheters (PIV) is the most often used method for medication delivery and management for ALL hospitalized patients. PIV placement can be difficult for a variety of reasons; acuity of the patient, multiple co-morbidities, the skill level of the inserter and inability to identify peripheral veins and valves just to name a few. Often, palpation is the only technique available to aid the inserter, leading to a high volume of unsuccessful attempts, mechanical phlebitis, infiltration, and extravasation with addition costs of consumables associated with restart attempts.

Since July 2007 hospitals subject to the Inpatient Prospective Payment System (DRG) MUST collect and submit data to HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) in order to receive their full annual payment update. Poor customer satisfaction scores in HCAHPS surveys can and will lower reimbursements to hospitals. Pay for performance is here and it is here to stay.

The newest modality in imaging equipment, for vein visualization, is near infrared light technology. Its use is beginning to demonstrate improved vein and valve visualization with improved first attempt and insertion success rates.

SCVA, Inc. is an independent, contract provider of vascular access services. We are routinely called upon by small hospitals, skilled nursing facilities, and other medical facilities to provide vascular access service to patients who have had numerous attempted, unsuccessful insertions. We utilize both Ultrasound, for deep venous access, and IR vein illumination for PIV insertions. Recently, over a 6 month period in 2013, we conducted 167 deep vein access procedures (Ultrasound) with a 97.6% first attempt success rate and 96 PIV's attempted (IR Vein Illumination) with a 95.8% first attempt success rate. It is undeniable that visualization of the vein and identification of valve location is a major contributor to that success.

The return on investment (ROI) for Ultrasound guided vascular access is lengthy, typically 1 year due to cost of equipment, maintenance of ownership and a longer learning curve for competency. Following (ARDMS) American Registry of Diagnostic Medical Sonographers, minimum education standard for RVT's, clinical competency is achieved over a 6 month period. The (AIUM) American Institute of Ultrasound in Medicine, 2012 practice standards guidelines state "Ultrasound guidance is beneficial for PIV on patients who are difficult or impossible to access via landmark technique however, without sufficient training and experience the clinician may consume time and cause patient discomfort without benefit." In my opinion, IR Vein illumination is much less expensive and easier to use for non-imaging trained Clinicians. Near IR has a significantly shorter learning curve, typically within 2 weeks. This provides for a quicker ROI, often less than 2 months. Reduction in waste of consumables, lower cost of the unit and maintenance of ownership are contributors. Additionally, improved customer satisfaction will reduce the potential for poor HCAHPS scores thereby maintaining full reimbursement from payers.

> The answer is **ALWAYS** the same:
> **"WE SEE THE VEIN THEREFORE WE WILL SUCCESSFULLY CANNULATE IT!"**

With several near infrared units in the marketplace, the unit of choice for us, based on numerous clinical and operational factors, became Veinsite, manufactured by VueTek Scientific LLC of Gray, Maine.

Often we are questioned by a frightened patient who has had several unsuccessful IV attempts on why we are called in. The answer is ALWAYS the same. "WE SEE THE VEIN THEREFORE WE WILL SUCCESSFULLY CANNULATE IT!" Technique of insertion plays a large role as well, however, if the vein is seen, the first attempt success rate increases dramatically.