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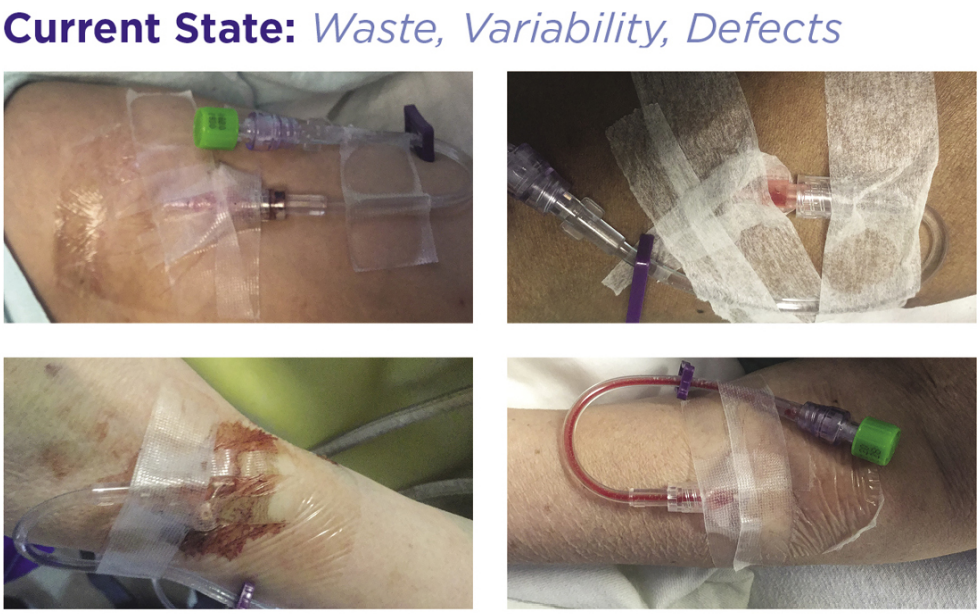
Standardized Vascular Access Protocol Improves Patient Safety and Reduces Costs of Peripheral IV Catheter Insertions

A set of bundled practices performed by dedicated IV clinicians can help hospitals achieve one PIVC per patient per visit

HARTWELL, Georgia. – Implementation of a standardized set of best practices for inserting peripheral intravenous catheters (PIVC) resulted in significant clinical and economic benefits, according to a newly published study from Hartford Hospital (Hartford, Conn.) and PICC Excellence. These benefits include higher PIVC insertion success, longer dwell times with fewer complications, greater patient satisfaction and significantly reduced costs associated with IV therapy.

Investigators reported an 89 percent success rate of completing therapy with one PIVC per patient and a projected cost savings of $2.9 million per year as a result of using the set of practices, known as the PIV5Rights™ Bundle. Results of the study were published in the Fall 2019 issue of the *Journal of the Association for Vascular Access* (JAVA).



Future State: *Standard Work, EVB–Best Practice*

The goal of the prospective multimodal comparator design study was to determine if a hospital could increase catheter dwell times and decrease adverse outcomes by using evidence-based best practices, including PIVC insertions performed by a dedicated vascular access specialty team (VAST) compared to current practice of a generalist clinician.

“Placing PIVCs is both a science and an art, and it needs to be in the hands of clinicians who have a thorough understanding of all aspects of vascular access and how they can affect patient safety,” said lead study author Lee Steere, RN, CRNI, VA-BC, Unit Leader of IV Therapy Services at Hartford Hospital. **“**This expertise is crucial to ensuring that the catheter is inserted correctly the first time and lasts until the end of treatment as often as possible.”

The PIVC specialist model was validated by the clinical and economic benefits observed in the study, Steere said. As a result of the study success and financial savings, Hartford Hospital nearly tripled the size of its VAST employees between 2015 and 2019.

In the United States, PIVC failure rates average 53 percent, with one of every two catheters failing to make it to treatment’s end. The PIV5Rights Bundle used in the study was designed to address the most common reasons for PIVC failure (infiltration, phlebitis, occlusion, infection and accidental dislodgement), in order to help hospitals achieve the goal of one PIVC per patient per hospital visit.

The study focused on one hospital unit including 125 patients with 207 catheters over a 16-month period. The VAST clinicians using the PIV5Rights Bundle successfully inserted PIVCs on the first attempt 96 percent of the time. Compared to the control group, the VAST catheters had a three-fold increase in dwell time and a significant decrease in complications, including zero catheter occlusions.

Study personnel incorporated available research, systematic reviews and recommendations to develop the components of the PIV5Rights Bundle, and clinicians were educated and trained to

perform PIVC insertions with a standardized method. The components of the bundle were:

- **Right Proficiency** - Use of a trained VAST for PIVC insertions.
- **Right Insertion** - Correct insertion, including the use of ultrasound when necessary.
- **Right Vein & Catheter** - Placing a longer peripheral catheter in the forearm, avoiding areas of flexion.
- **5 Supplies/Technology** - An IV start kit, CHG/alcohol prep (Becton Dickinson, Chloraprep™), 22g 1.75" catheter (BBraun, Introcan™ Safety), anti-reflux needleless connector (Nexus, TKO™) and a CHX antimicrobial bordered securement dressing (entrotech life sciences, PrevahexCHX™).
- **Right Assessment and Care** - Standardized care and management of PIVCs, including photo documentation of assessment 1-2 times daily.

"Improving patient safety means using the most qualified people, using the right technologies and the right techniques. Each component is essential and was designed to minimize or prevent specific complications that contribute to catheter failure," said study co-author and PICC Excellence CEO Nancy Moureau, RN, PhD, CRNI, CPUI, VA-BC.

"Since catheter occlusions are the most common reason for PIVC failure, use of the anti-reflux needleless connector is critical. Research has shown it can reduce occlusions by up to 69 percent, and our study confirmed this with absolutely no occlusions by using the bundle; the results of the study were quite remarkable and exceeded our expectations," she said.

Results of this study will also be presented as a poster at the Association for Vascular Access (AVA) scientific meeting to be held October 4-7, 2019, in Las Vegas. For more information on the study, attendees can visit PICC Excellence at Booth #223.

About Dr. Nancy Moureau and PICC Excellence

Nancy Moureau, RN, PhD, CRNI, CPUI, VA-BC, is the owner and president of PICC Excellence, a vascular access education and training service for clinicians. She is a member of the Alliance for Vascular Access Teaching and Research Group (AVATAR) based in Australia. Recognized as an international expert in vascular access education and training, she is widely published in the medical literature, including recent guidelines that defined appropriate indications for insertion, maintenance, and care of PICCs. PICC Excellence provides effective, easy-to-understand in-person and web-based education and training for clinicians worldwide.

For more information about PICC Excellence, visit www.piccexcellence.com.