Magnet tracking and ECG PICC placement technology helps eliminate radiation exposure and cost associated with confirmatory chest X-ray

In 2013, Adventist Health System (AHS) set out to show that standardization and cost savings across its organization do not have to compromise the quality of patient care. Through a partnership with Bard Access Systems (BAS), AHS introduced a new technology into its organization that enables the immediate release of peripherally inserted central catheter (PICC) lines for use, thereby improving patient care and reducing cost.

AHS is a 45-hospital organization, including its 996-bed flagship Florida Hospital. In an effort to reduce its supply chain costs, AHS began an initiative to standardize PICC placement across the organization. Together, BAS and AHS assessed the current PICC usage across the organization and investigated areas for improvement.

Traditionally, in order to ensure proper PICC tip placement, a confirmatory X-ray is required, thus delaying the administration of therapy to the patient. Therapy can be further postponed if multiple X-rays are needed to confirm PICC tip placement. The delays in treatment and multiple imaging tests contribute to increased operational costs.
In order to help remedy the delay in therapy administration and decrease cost associated with confirmatory X-ray, BAS introduced AHS to its technology that uses magnetic tracking and electrocardiography (ECG) technology to navigate and confirm the PICC tip location. This technology allows a specially-trained nurse to place the PICC at the patient’s bedside and clear the line for immediate use without the need for a confirmatory X-ray in patients that have a consistent cardiac rhythm. This eliminates both the cost of the X-ray and the harmful radiation.

“The nurses on the floor absolutely love us (the Venous Access Service Team) now because they can use the PICC lines immediately,” said Debbie McPherson, PICC Charge RN, Florida Hospital Orlando.

“Not only are we saving the time it takes to get the chest X-ray read, but more importantly, we’re decreasing the amount of radiation exposure to our patients,” added Eve Ellis, PICC RN, Florida Hospital Orlando.

Another area of focus was the extensive number of different PICC codes used at the various facilities, approximately 91 different codes. Nurses were also pulling additional procedural components separately to add to the existing PICC tray. BAS was able to offer a solution with customized PICC kits that specifically met the needs of AHS. The kits contain the latest BAS PICC tip confirmation technology and all the additional components nurses previously had to pull separately. After implementation, the number of active PICC trays across the organization dropped to eight, resulting in a 91-percent reduction in product codes needed for PICC placement.

By implementing BAS’ magnet / ECG technology for PICC placement and having customized PICC trays, Adventist Health System has the technology to decrease their cost per PICC placement procedure, decrease the time needed to administer therapy after PICC placement and decrease radiation exposure to patients. This initiative and collaboration between BAS and AHS demonstrates that quality care can be achieved at lower cost to both patient and hospital.

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“BAS’ magnet tracking & ECG technology is indicated for guidance and positioning of Peripherally Inserted Central Catheters (PICCs). It provides real-time PICC tip location information by using passive magnet navigation and the patient’s cardiac electrical activity (ECG). When relying on the patient’s ECG signal, the technology is indicated for use as an alternative method to chest X-ray and fluoroscopy for PICC tip placement confirmation in adult patients Limiting but not contraindicated situations for this technique are in patients where alterations of cardiac rhythm change the presentation of the P wave as in atrial fibrillation, atrial flutter, severe tachycardia, and pacemaker driven rhythm. In such patients, who are easily identifiable prior to catheter insertion, the use of an additional method is required to confirm PICC tip location.

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