

# The Implementation of Near-Infrared Technology to Decrease PICC Line Placements on Patients With Limited Venous Access

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## Background:

- The need to obtain peripheral access on patients with limited venous access that do not meet criteria for central line placement was identified.
- Product research was conducted to obtain the most appropriate technology available to improve the success rate of obtaining peripheral IV access on patients with limited venous access.
- An additional focus was to preserve the peripheral vasculature of our patient population that may require future fistula placement.

## Process:

Near-infrared technology was chosen. This technology projects a near-infrared light which is absorbed by blood, reflected by surrounding tissues, and is projected in a digital real time image on the patients skin. Members of the IV Team were trained to use the technology. Data collection began after the training was complete.

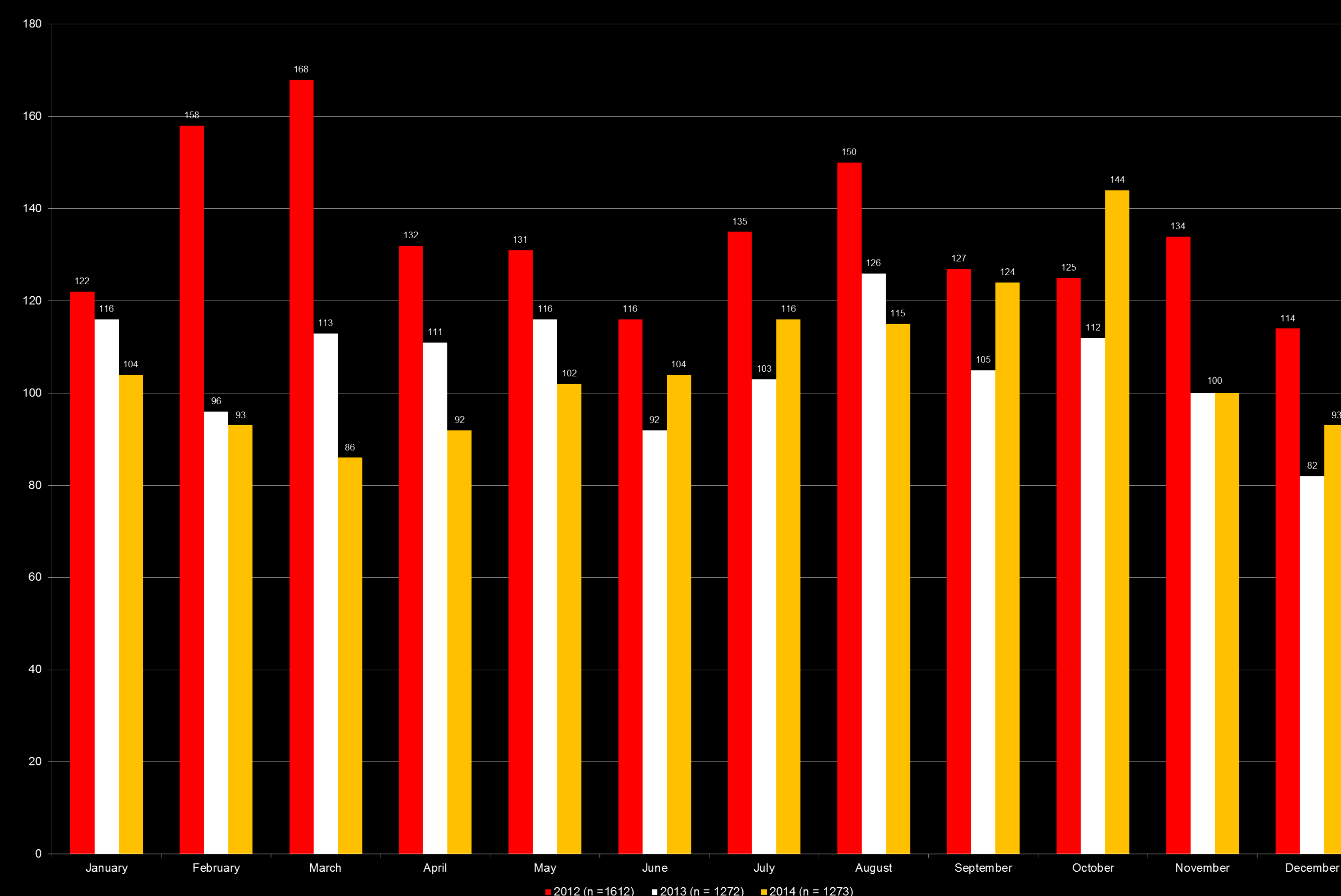
## Near-Infrared Technology:

Near-infrared technology allows visualization up to 1 cm. depth as compared to deeper visualization with ultrasound technology. Placement of peripheral IV's in the more superficial veins allows for the preservation of deeper veins for patients who may require future fistula placement.

## Data Comparison:

The total number of PICC line placements per month in 2012, prior to the implementation of the near-infrared technology was compared to the total number of PICC line placements per month in 2013 and 2014 after the near-infrared technology was implemented to obtain peripheral IV access.

**Data Comparison: PICC Insertions Per Month Per Year**



## Results:

- PICC line placements in 2012 prior to the implementation of the near-infrared technology were compared to PICC placements post implementation in 2013 and 2014. The result was a decrease in PICC placements of 340 in 2013 and 339 in 2014.
- The outcome has resulted in increased patient satisfaction, significant cost savings, and vein preservation. Vein preservation directly impacts availability of venous access for patients who may require future fistula placement.

## Conclusion:

The implementation of near -infrared technology has contributed to:

- Improvement in the healthcare delivery process at our institution
- Increased success in obtaining peripheral IV access on our patients which has decreased PICC line placements.
- Increased patient satisfaction, cost savings, and vein preservation.

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