

# REIMAGINING HUMANE STANDARDS FOR COMMON PROCEDURES

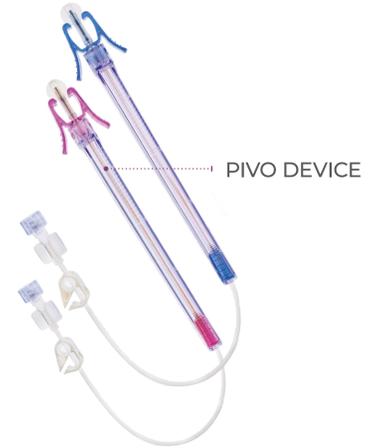
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## BACKGROUND

Billions of times a year in hospitals around the world, hospitals puncture patients with a sharp needle to draw blood. By challenging the status quo on common procedures previously thought immune to innovation, health systems can reimagine the patient experience and provide a better-coordinated standard of care. Here, Centura Health aimed to transform blood collection as a safe, efficient and painless procedure using a novel needle-free blood draw device (NF device) that makes one-stick hospitalization a possibility. Using rigorous tracking, practitioner testimonials, and monitoring the impact to the clinical care of our patients, a proven road map is now available for other systems to realize the same type of change and impact. Centura has turned a traditional pain point into a competitive differentiation, prompting the question, “Where else can we innovate on behalf of our patients?”

## OBJECTIVES

- + Improve the patient experience by implementing a needle-free blood draw device, identifying the negative aspects of the patient and practitioner experience in traditional blood draws, the impact needle-free draws can offer, and the system-level improvements it can deliver.
- + Offer a deep dive playbook for adopting one-stick hospitalization standards using Centura Health’s experience and measured results as a yardstick.
- + Develop best practices for championing a one-stick hospitalization and vascular access quality improvement and deployment within a system.



## PRODUCT STRATEGY

Centura Health embarked on a system wide change to implement a needle-free blood draw device, PIVO™, for all inpatients starting in Oct. 2018. This was a large, interdisciplinary endeavor focused on practice change that required cross-functional coordination between our staff in the laboratories, nursing units, emergency department, pre-op team, supply chain and our vendor partners. A new IV set-up was implemented for compatibility with the needle-free blood draw device along with an improved IV dressing, and the nursing staff were responsible for conducting all needle-free blood draws. Approximately one week prior to each hospital’s launch, roughly 1.5 hours of classroom education was provided and jointly led by the local nurses and vendor educators with a focus on the proper placement and care of the peripheral lines. Following each hospital’s launch with the needle-free blood draw device and the new IV setup, the vendor provided direct on-site shadowing of our clinicians for roughly one to two weeks.

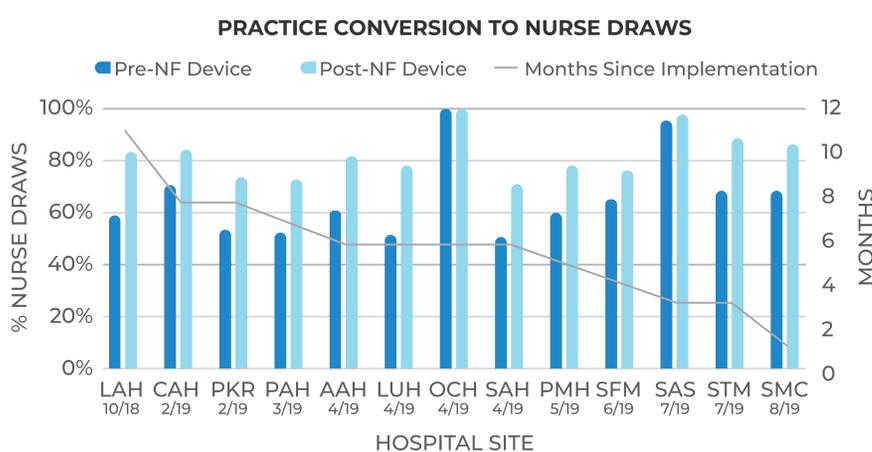
## IMPLEMENTATION RESULTS

The system implementation continues with 14 hospitals converted as of September 2019 with three sites remaining. Nurses are now conducting blood draws for inpatients using the needle-free blood draw device.

### Successful Practice Conversion to Nurse Draw

From Oct. 2018 to Sep. 2019, Centura hospitals have been conducting this practice change successfully with 382,650 nurse draws completed using the NF device, which reflects 77% of all draws across the entire Centura Health system. More specifically, seven sites have achieved over 80% of all draws being performed by nurses. As shown in Figure 1, there has been a substantial increase in nurse draw volume when comparing the pre-NF device group (time period: Oct. 2017 – Oct. 2018) to the NF-device group (time period: starting from date of NF device implementation through Sep. 2019). The date of implementation is unique to each site and noted below the hospital site name. Figure 1 reflects available data for 13 hospitals who implemented PIVO before Sep. 2019.

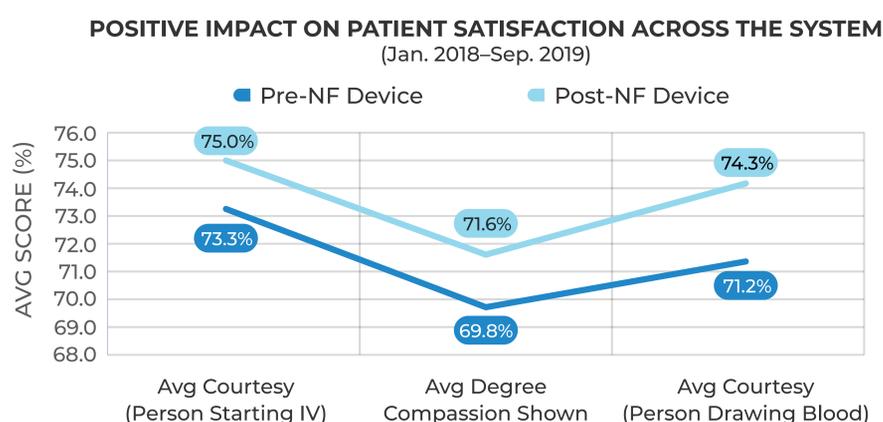
FIGURE 1. NURSE DRAW VOLUMES THROUGH SEP. 2019



### Increased Patient Satisfaction

Improving the patient experience was one of the main tenants of this initiative, and as such, the Press Ganey patient satisfaction metrics were leveraged to evaluate any change in patient experience during the blood draw procedure. Implementation began with the first hospital on Oct. 2018, and so the data was evaluated by splitting the system level data into two groups based on this date: pre-NF device implementation and post-NF device implementation. A marked improvement in patient satisfaction was noted as we embarked on a systematic implementation of PIVO.

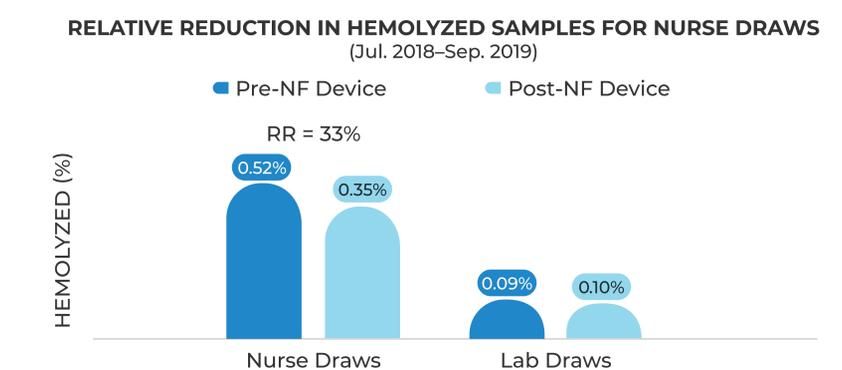
FIGURE 2. PATIENT SATISFACTION RESULTS



### Reduction in Hemolyzed Samples

In changing workflow process for blood draws from a lab to nurse-driven initiative, we expected the number of lab collection errors to increase due to the transition of a select group (~20) of expert phlebotomists to hundreds of nurses with varying levels of skill and training at each hospital. Although nurse draws continue to have a higher hemolyzed sample rate than lab draws, surprisingly there was a relative reduction of 33% observed in the nurse draw group following implementation of the NF device. In contrast, the lab draw group maintained the hemolysis rate within the 0.09-0.10% range. So despite the concern for an increase in hemolyzed samples, we were able to improve and maintain the number of quality samples among the nurse draw group and lab group, respectively. Figure 3 reflects available data for 13 hospitals who implemented PIVO before Sep. 2019.

FIGURE 3. RESULTS FROM HEMOLYZED SAMPLES



In addition to the initial outcomes presented and as we continue to learn, evaluate and monitor the impact of moving to nurse draws using the NF device, future metrics to consider include:

- + Nursing satisfaction with the process at 30, 60 & 90 days
- + IV dwell time
- + IV placement
- + Number of specimens submitted with insufficient blood sample
- + Number of contaminated specimens (diluted with normal saline or other IV infusion)
- + Timing impact of STAT draws which are to be drawn within 15 minutes of the order
- + Timed draw compliance with being drawn within 30 minutes of the time set for draw.
- + Needle sticks/splashes related to lab draws and the associated costs
- + NF device proficiency rates by users and departments

## CONCLUSION

- + Practice change to improve the patient experience can be accomplished through a cross functional effort and leveraging patient testimonials to achieve optimal success.
- + Prior to completing full implementation across the Centura health system, adoption of the needle-free blood draw device indicates an improvement in patient satisfaction and reduction in hemolyzed samples by nurse draws.
- + With thorough planning, collaboration and extensive communication, successful changes in workflow process – in this case from lab to nurse draws – is possible.