

BACKGROUND

Peripheral intravenous (PIV) access is one of the most frequently performed procedures in hospitalized patients. Patients with difficult intravenous access (DIVA) often experience multiple failed insertion attempts, resulting in treatment delays, increased patient discomfort, and inefficient use of nursing resources.

In 2024, a dedicated vascular access team (VAT) was established at our institution to provide ultrasound-guided peripheral intravenous (USGPIV) access for patients meeting consultation criteria, including two failed bedside nursing attempts or inability to visualize or palpate suitable veins. Evaluation of first-attempt success rates may provide insight into the effectiveness of the VAT model in managing patients with difficult vascular access.

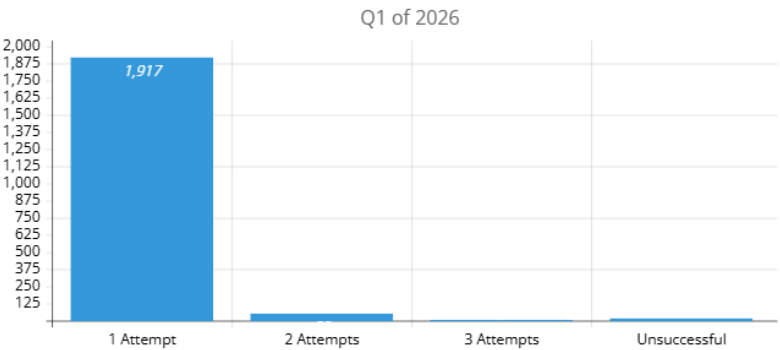
PURPOSE

To evaluate the first-attempt success rate of ultrasound-guided peripheral intravenous catheter placement performed by the vascular access team after implementation of a dedicated vascular access service.

METHODS

A retrospective quality improvement review will be conducted of patients referred to the vascular access team for ultrasound-guided peripheral intravenous catheter placement in the first quarter of 2026. Data collected include ultrasound-guided PIV insertion site, first-attempt success, and overall successful catheter placement, device utilized to obtain access (PIV, midline, picc line).

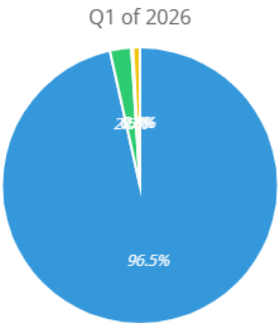
Attempts Required To Obtain Vascular Access With Dedicated IV Team



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DEVICE TYPE				
	JAN	FEB	MAR	TOTAL
PIV	6	7	2	15
USGPIV	461	498	547	1506
Midline	22	20	21	63
PICC	34	27	29	90
Long-Dwelling	118	67	126	311
Port Access	0	0	1	1
TOTAL	641	619	725	1985

Percentage Rate for Successful First Attempt Rate Versus Multiple Attempts



1 Attempt 2 Attempts 3 Attempts Unsuccessful

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RESULTS

During the first quarter of 2026, the vascular access team received 1,986 requests for ultrasound-guided peripheral intravenous catheter placement. Of these, 1,917 (96.5%) were successfully placed on the first attempt, 50 (2.5%) required two attempts, and 4 (0.2%) required three attempts. Fifteen insertions (0.8%) were unsuccessful. The overall catheter placement success rate was 99.2%.

These findings demonstrate a high rate of first-attempt success despite the team's patient population consisting primarily of individuals meeting difficult intravenous access criteria, including prior failed insertion attempts or inability to identify suitable vasculature using traditional assessment methods.

CONCLUSIONS

The implementation of a dedicated vascular access team was associated with a 96.5% first-attempt success rate and an overall success rate exceeding 99% for ultrasound-guided peripheral intravenous catheter placement in patients with difficult intravenous access. These findings suggest that specialized vascular access teams may reduce repeated venipuncture attempts, improve patient experience, and facilitate timely delivery of prescribed therapies. Continued utilization of ultrasound-guided vascular access services may represent an effective strategy for improving vascular access outcomes in hospitalized patients.

REFERENCES

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