



UNIVERSITY OF SOUTH ALABAMA

Implementation of the Adult-Difficult Venous Catheterization (A-DICAVE) Scale: A Quality Improvement Study



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Introduction

Difficult intravenous access is defined as **greater than one attempt** by an experienced nurse.

- Up to 35% of adults have vascular access issues.
- Commonly due to underlying medical conditions and physical anomalies.
- Causes increased pain and psychological trauma.
- Increases time to diagnosis and treatment.

The purpose of this study was to evaluate the impact of a validated difficult intravenous access identification tool with associated interventions on first attempt success rates for intravenous catheter insertion by registered nurses in the emergency department.

Methods

Adult-Difficult Venous Catheterization Scale (A-DICAVE) Data Collection Tool

Place Patient Label Here	Acuity/ESI (circle below): 1 2 3 4 5
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1. Document A-DICAVE Score – circle below

Vein Visibility - Assess both arms for vein visibility with and without tourniquet

0	Visible (a vein suitable for puncture is visible)
1	Barely visible (a visible vein is tortuous and thin but may be accessible with a small-caliber catheter [22 gauge or smaller])
2	Not visible (no vein suitable for puncture is visible)

Vein Palpability - Assess both arms for vein palpability with and without tourniquet

0	Palpable (a vein suitable for puncture is palpable)
1	Barely palpable (a palpable vein is tortuous and thin but may be accessible with a small-caliber catheter [22 gauge or smaller])
2	Not palpable (no vein suitable for puncture is palpable)

Access Difficulty History - "Has it previously been difficult to access any of your veins?"

0	No (patient reports no history of access difficulty)
1	Yes (patient reports history of access difficulty)

Score of 2 or lower? Use traditional IV insertion technique
Score of 3 or higher? Perform ultrasound-guided IV insertion or use warm compress and vein finder/illuminator

2. Document total number of IV attempts – circle below

1	2	3	4	5	6 or more
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3. Document technique used to obtain IV access – circle below

Traditional	Ultrasound	Illuminating Device	Other
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4. Place the form in locked data collection box.

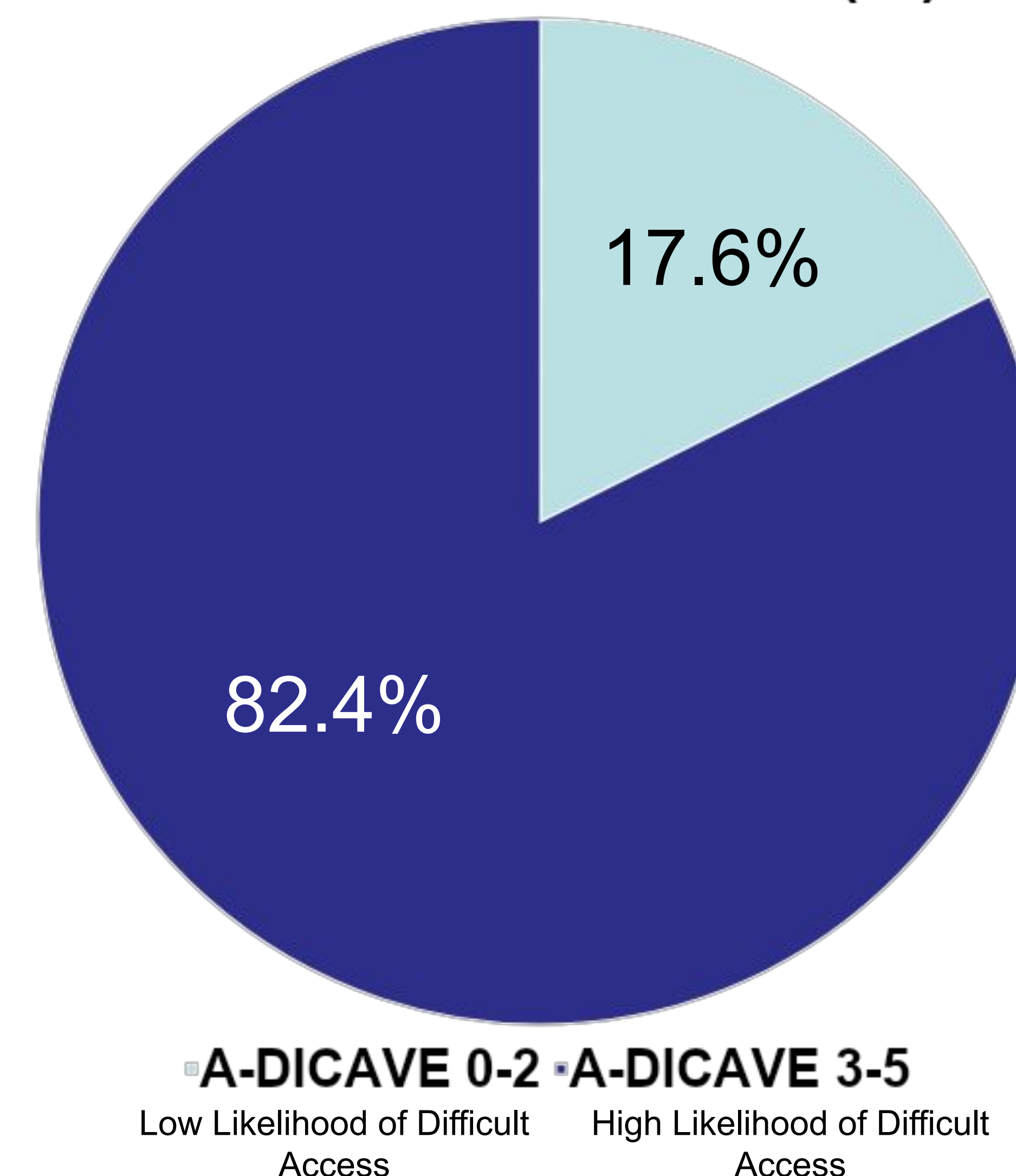
Single department Quality improvement

Utilizing the **Adult-Difficult Venous Catheterization (A-DICAVE)** scale plus the **Emergency Nurses Association clinical practice guideline** recommendations.

Results

- 290 tools collected over the course of six weeks – **280** included in final analysis.
- Documented first attempt success rate from 90.5% to 79.6% (p <0.001).
- Use of ultrasound increased from 5.3% to 12.1% (p <0.001).
- Majority of high A-DICAVE had IVs placed with ultrasound (82.4%).

Ultrasound Used for Successful Insertion (%)



Conclusions

- Participation exceeded expectations
- A-DICAVE reported to be easy to use.
- First attempt success rate decreased
- Use of ultrasound increased significantly

Considerations for future research:

- Accuracy of nursing documentation
- Ease of documentation Assumptions of clinicians and patients regarding multiple attempts for intravenous access.

Bibliography

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