

# Outcomes of a Simplified Ultrasound-Guided Intravenous Program for Emergency Nurses

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1 IN 5 PATIENTS WILL HAVE DIFFICULT IV ACCESS (DIVA)

## IV ACCESS IS ESSENTIAL TO PATIENT CARE

**BLOOD**    **LABS**    **MEDICATION**    **HYDRATION**

## THE PROBLEM

### DIFFICULT IV ACCESS (DIVA)

PATIENTS	SYSTEM	PROVIDERS
INCREASED PAIN DISSATISFACTION	THROUGHPUT DELAYS INCREASED LOS COST OF CARE	FRUSTRATION HELPLESSNESS

## PURPOSE

DEVELOP AN ULTRASOUND-GUIDED INTRAVENOUS ACCESS TRAINING PROGRAM FOR EMERGENCY NURSES

Translational Research    Quality Improvement    Prospective Single Arm Pre-Post Study

## METHODS

### USGIV TRAINING

4 hour CNE class:  
Pre-test  
Lecture  
Practice on training model and classmates  
Post-test  
10 successful proctored attempts on patients

### Data Collection

Nurse log  
Electronic medical Record (EMR)  
Post class surveys  
Focus groups

34 RNS ENROLLED

RNs with 3-10 years experience most likely to enroll and complete the course

12 RNs completed the course and their 10 proctored USGIV attempts

Nurses with all experience levels demonstrated ability to master the procedure

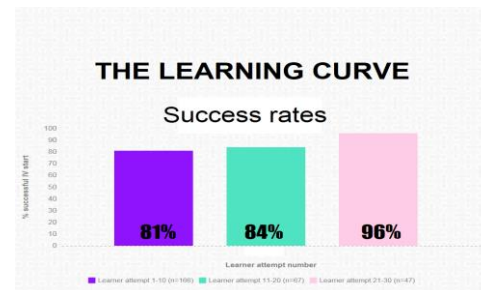
NOVICE 0-2 YEARS  
EXPERIENCED 3-10 YEARS  
VETERAN ≥ 11 YEARS

## RESULTS

	Mean IV attempts, site before training			Mean IV attempts, site after training			% Reduction	P
	N	Mean ± SD	95% Confidence interval	N	Mean ± SD	95% Confidence interval		
Total patient IV attempts	12361	1.23 ± 0.78	1.22 to 1.25	12110	1.21 ± 0.71	1.20 to 1.22	2%	P=013
DIVA patient IV attempts	708	5.74 ± 1.67	3.62 to 3.86	618	3.48 ± 1.85	3.36 to 3.60	7%	P=003

Note: DIVA patients have 2 or more failed IV attempts.

2% REDUCTION IN IV ATTEMPTS    7% REDUCTION IN DIVA IV ATTEMPTS



## Conclusions

- A SIMPLE, LOW-COST USGIV PROGRAM CAN BE SUCCESSFUL
- A USGIV PROGRAM CAN DECREASE IV ATTEMPTS, ESPECIALLY FOR DIVA PATIENTS
- LEARNER SUCCESSFUL COURSE COMPLETION RATES are INFLUENCED by NURSE EXPERIENCE and INITIATIVE
- USGIV PROFICIENCY IMPROVES WITH PRACTICE

## Implications

- IMPLEMENTATION of A HOSPITAL-WIDE USGIV TRAINING PROGRAM
- A NEW RIGOROUS SIMULATION-BASED MASTERY LEARNING CURRICULUM
- TRAIN the TRAINER INSTRUCTOR CURRICULUM
- USGIV to REDUCE IV ATTEMPTS, CVCs AND PICC LINES HOSPITAL-WIDE