

# To Stick or Not to Stick: Peripheral IV Insertion in the Pediatric Population

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# To Stick or Not to Stick: Peripheral IV Insertion in the Pediatric Population

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## BACKGROUND

- Therapy can be delayed as children can be more difficult to initiate a peripheral intravenous (PIV) line compared to adults, and frequent PIV sticks can cause increased trauma to the child.
- As a result of unsuccessful PIV attempts.
- No pediatric specific guidelines in current network policy for beginning intravenous access.
- PIV often mentioned by parents in satisfaction surveys after discharge. One parent recalled, "It took 4 staff and over an hour" to place a PIV and that it was "full of tears" and "excruciating to watch". Another parent suggested a pediatric IV team because of 5 or 6 unsuccessful PIV attempts on his or her child.

## PURPOSE//PICO QUESTION

- **PICO Question:** On a pediatric unit does the use of a scoring tool for peripheral intravenous (PIV) access versus no scoring tool decrease the number of unsuccessful IV insertion attempts?

- P-** Pediatric Population
- I-** Scoring tool
- C-** No scoring tool
- O-** Decreased unsuccessful attempts

## EVIDENCE

- The difficult intravenous access (DIVA) scoring tool is a clinical prediction rule that successfully predicts unsuccessful/successful IV insertion (Yen, Riegert, & Gorelick, 2008).
- Children with a DIVA score of 4 or more were more than 50% likely to have a failed first attempt at IV insertion (Riker et al., 2011).
- DIVA may aid healthcare staff in informing families about the likelihood of multiple sticks (Yen et al., 2008).
- DIVA can determine which children may need special interventions that are too expensive or time consuming to use on everyone (Yen et al., 2008).
- Multiple sticks are associated with diminished satisfaction with care (Larsen et al., 2010).
- The cost of unsuccessful IV attempts in a two-week period totaled \$10,392.00 (Frey, 1998 p. 164).
- Successful IV placements required an average of 2 venipunctures over 28 minutes. Total time can range from 2 minutes to 90 minutes (Frey, 1998 p. 164).

## METHODS

- Completed a pediatric-specific literature review.
- Collected data on unsuccessful PIV attempts on an inpatient Pediatric unit in a two week period, noting number of attempts and interventions utilized.
- Educated Inpatient Pediatric nurses on the DIVA tool.
- Collected data on an Inpatient Pediatric Unit using the DIVA tool
- Compared data collected without use of DIVA tool and data collected with use of DIVA tool.

## RESULTS

DIVA Scoring Tool

Predictor	0 Points	1 Point	2 Points
Visible Vein	Visible	-----	Not Visible
Palpable Vein	Palpable	-----	Not Palpable
Age	>= 36 Months	12-35 Months	<12 Months

Source: (Riker et al, 2011)

- Using the DIVA Scoring Tool, a list of interventions were generated based on the child's individual score. This was as follows:
  - Score of 0 = the primary RN attempted stick.
  - Score 1-2 = primary RN attempt stick with interventions such as hot packs, vein viewer, box light
  - Score 3-4 = contact charge RN or Clinical Resource Specialist (CRS) for assistance
  - Score 5-6 = contact specialized RN (charge, CRS, NICU or PICU RN, leadership team)

DIVA Scoring Tool Utilization (2 week period)

	Number of Unsuccessful PIV Attempts	Total number of PIV Attempts (Successful/ Unsuccessful)	Percent Unsuccessful PIV Attempts
Pre-DIVA scoring tool utilization	14	19	73.6% of total PIV attempts were unsuccessful
Post-DIVA scoring tool utilization	12	23	52.2% of total PIV attempts were unsuccessful

- The total number of unsuccessful PIV attempts decreased after nurses began using the DIVA Scoring Tool.
- Results showed that for patients who scored a six, 64% of PIV attempts were unsuccessful & one patient with this score never received an IV.

## NEXT STEPS

- Create an algorithm highlighting the DIVA tool and available interventions for the Inpatient Pediatric Unit.
- Present the DIVA tool to the Pediatric Performance Improvement council to further involve physicians.
- Review network PIV policy for the pediatric population.
- Find ways to involve the family within the PIV access process.
- Receive author permission to implement the DIVA tool into network policy.

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