Pediatric Peripheral IV Access

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Pediatric Peripheral IV Access: A Quality Improvement Project

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Purpose

- Project Purpose:
  - Evaluate if initiating specialized pediatric peripheral IV access training to new graduates increases confidence, and patient outcomes for the Children’s Hospital.
PICO QUESTION:

Will specialized pediatric IV training for new graduates increase confidence and better patient outcomes for LVHN’s Children’s Hospital?

P: All pediatric units in the Children’s Hospital at LVHN (Pediatrics, PICU, CHER, NICU) - or any places pediatric population goes for a procedure.

I: Would more specialized training increase confidence in new graduates and better outcomes in peripheral IV insertions

C: Current practice: no pediatric specific IV training, or practice time inserting IVs in live patients

O: Increased confidence in new graduates, increased patient satisfaction, decrease in failed IV attempts - standardizing training and current practice.
- Goff et al (2013) found median cost of pediatric PIV insertion was $41 and that 60% of IV placements occurred with first nurse (72% were successful in 1-2 attempts).

- Goff et al (2013) found 28% of children who required ≥3 IV attempts, cost $69 to > $125, and cost 43% of the total IV costs (these patients were often <2 years old or dehydrated).

- Larsen et al (2010) found in a convenience sample of 592 patients (1132 venipunctures) that successful IV placement in a children’s hospital required on average 2 attempts and 28 minutes, and predictors of success included nurse experience, self-rated competence, time of day, predicted difficulty of the venipuncture, and cooperativeness of the child.
Walsh (2006) studied the quality of IV insertion practice and found that parents are willing to spend more time and money for painless IV placement in their child.

Lyon and Kasker (2012) studied the benefits of continuing education with a formal IV course. They discovered there was improvement in knowledge, infection prevention, and policy adherence.

Loukas et al (2010) found using a VR simulator with both intermediate and novice learners with IV cannulation reduced the completion time and errors made with IV insertion.

Mundy (2007) discussed the need to use high-tech equipment such for example veinpuncture arms, videos, and IV training simulators to help student gain competence and confidence in IV insertion before attempting on live patients.
**BARRIERS & STRATEGIES**

- **Barriers:**
  - Difficulty in quantifying correlation of results between IV training and better IV insertion outcomes
  - Each patient situation is unique - variables: age, size of veins, patient reaction, level of difficulty of stick
  - Lack of recent, strong statistical evidence on IV training, especially in pediatrics

- **Strategy to Overcome:**
  - Announce project at staff meeting and gain support from director, PCM/PCS, charge nurses
  - Conduct survey of IV insertion practices on our unit
  - Create pilot pediatric IV training class with assistance of pediatric CRS/PCS and allot orientation time for IV start training with PCS
  - Contact other hospitals that have pediatric IV training to gain insight
  - Conduct survey of new graduate confidence before and after IV class and training in the ED
Expected Outcomes

- Increased confidence in IV insertion for new staff members on the pediatric unit
- Increased patient and family satisfaction
- Increase in Press Ganey scores for “IV skill of nurse”
- Less peripheral IV attempts
  - Less stress and pain to patients
- Decrease cost for IV supplies, and time taken per staff member = lower costs for pediatric unit
- More knowledge about IV insertion techniques
PROJECT PLANS

- Develop pediatric-specific IV/phlebotomy training course for new staff nurses
  - Created power point based on best evidence based practice and policy tech for peripheral IV insertions in pediatric population
  - Hand outs given to new staff on choosing the best sites for IV insertion in pediatric patients
  - Survey on confidence pre and post class
  - Hands on practice setting up for IV insertions in pediatric mannequin arms and feet
  - Orientation time with CRS shadowing and attempting IVs in the ED on adult patients
- Look at evidence based practice on specialized training on peripheral IV insertion
References


References


Make It Happen

- Contact all leaders of LVHN Children’s Hospital, plan a meeting to present plan for tracking IV attempts, duration, quality of stick, and IV insertion practices/standards
- Collect data for cost effectiveness, and quality of current practices
- Implement pediatric-specific IV insertion/ phlebotomy training for new nursing staff
- Assess change in success and cost of IV insertions before and after training, and in confidence of new nursing staff

- FOR THE FUTURE: Implement a pediatric IV insertion team and assess cost effectiveness