

Decreasing Pain in Pediatric Patients During Intravenous Catheter Insertions on the Pediatric Inpatient Surgery Unit

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INTRODUCTION



Background

- Pediatric patients can become easily overlooked
- Utilizing proper topical analgesia
 - EMLA, LMX, Vapocoolant Spray
- Advancing patient and family centered care



Clinical Significance of Problem



- Major stress, anxiety, and pain
- Developing mentally, emotionally, and physically
- Avoidance of routine healthcare later in life
- Steady increase of pediatric visits

(Potts et al., 2012)

Purpose and Goals

- Purpose:

- Standardize pain prevention with the use of topical analgesics during IV insertion



- Goals:

- Decrease preventable pain
- Increase focus on patient and family
- Increase patient satisfaction scores

Evidence-Based Practice Model

- Johns Hopkins Nursing Evidence-Based Practice Model
 - Practice Question
 - Evidence
 - Translation

(Dang & Dearholt, 2018)

PICO Question

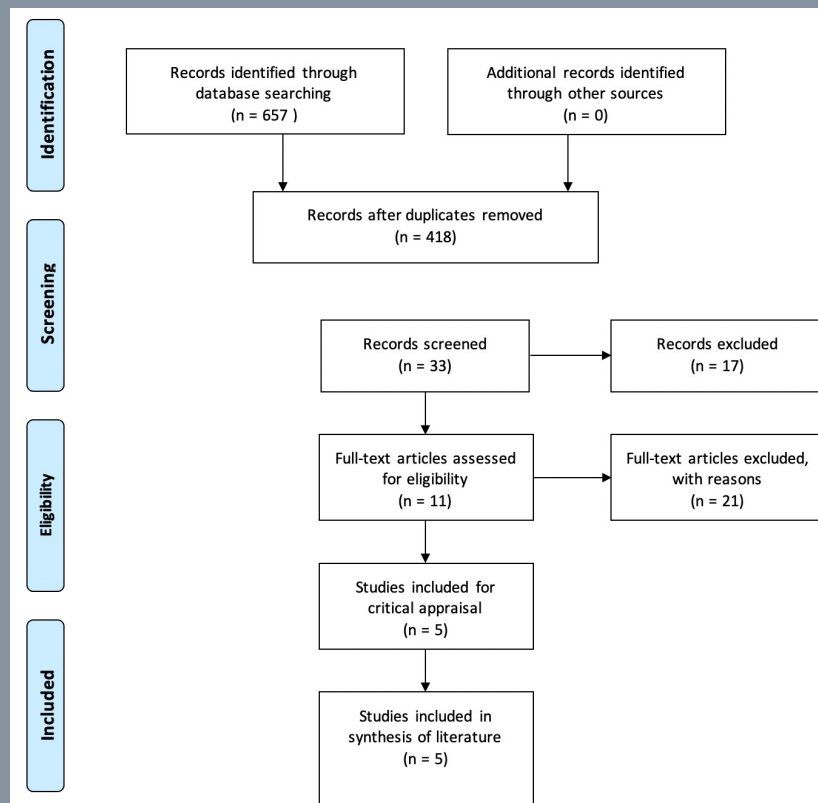
- In pediatric patients, does the use of pain prevention interventions, compared to current practice, decrease pain levels during intravenous catheter insertions on the pediatric inpatient surgery unit?



EVIDENCE



Literature Search Strategy



(Liberati et al., 2009)

Critical Appraisal

- Johns Hopkins Nursing Evidence Based Practice Appendix E: Research Evidence Appraisal Tool
 - Quantitative, qualitative, or mixed methods
 - Level and quality rating
 - Level I or II, Grade A

Synthesis of Evidence

- Pain is preventable during IV insertions
- Pain scores decreased with statistical significance
- Adequate sample sizes
- PPIs aid in decreasing pain levels



Synthesis of Evidence

Table 2

Synthesis of Evidence

Outcome	Singer et al., (2008)	Kelly et al., (2017)	Stoltz & Manworren (2017)	Lunoe et al., (2015)	Waterhouse et al., (2013)
Pain scores ¹	↓ ^s	↓ ^s	↓ ^s	↓ ^s	↓ ^s
Fear scores ²	∅	∅	↓ ^c	∅	∅
Sample Size	45 patients	85 patients	150 patients	205 patients	95 patients
Level of Evidence	I	II	II	I	II
Quality of Evidence	A	A	A	A	A

Note. ↓=decrease; ↑=increase; ∅=not discussed in study; s=statistical significance; c=clinical significance; ¹= primary outcome; ²= secondary outcome

Recommendations for Practice Change

- Strong evidence supporting validity and need for standardization of PPIs
- Each intervention deemed effective
- Some PPIs more effective than others

(Singer et al., 2008)

Recommendation for Practice – Evidence Based

* It is recommended to implement standardized pain prevention interventions prior to intravenous catheter insertions for pediatric patients on the inpatient surgery unit.



Patient and Family Preferences

- Family centered care approach
- Understanding and supporting a parent/caregiver
- Patient satisfaction surveys





IMPLEMENTATION



Project Setting and Population

- IPS unit of free-standing pediatric hospital
- East Tennessee and surrounding counties
- Newborn – 23 years of age
- 2019-2020, the IPS unit cared for nearly 600 pediatric patients

Project Stakeholders

- DNP Student
- Faculty Committee Chair, Community Committee Member
- IPS Management Team
- Child Life Specialists
- Pain and Palliative Care Team
- IPS Nursing Staff

Participants

- Pediatric patients requiring an IV for treatment
- Patients arriving from the ED and the OR
- Patients being directly admitted for surgery prep
- Ages 7-21
 - For utilization of age appropriate pain-scale

Barriers

- Nursing staff resistance
- Management hesitancy to change
- Unaware of specific PPIs available on unit
- Limited meeting times
- Finances available



Facilitators

- Mission of hospital being used for project
- Data collection consisting of PPIs with each IV insertion
- Creating time and space for education

Ethical Considerations

- Internal Review Boards
 - The University of Tennessee, Knoxville
 - The project site

Implementation Approach & Process

- Implementation will be focused on the basis of the 19 steps
 - JHNEBP PET Process
- Educational infograph created regarding PPIs and IV insertions

4 Benefits of Pain Prevention Interventions

Patient & Family Centered Care (PFCC)

Basic Measurements of PFCC:
1) Patient Satisfaction
2) Patient involvement
3) Patient needs



Patient needs include the need for comfort during treatment. Providing pain prevention interventions prior to IV insertions is an explicit way to provide PFCC for pediatric patients.

Health Hygiene Promotion

- High distress, anxiety, and fear related to needles in childhood can lead to avoidance of healthcare later in adulthood

- Avoidance of healthcare can create poor health hygiene for preventative and acute care.



Decreased Fear

- Fear of needles and IV insertions are a result of inherited genes and previous life events

- Education regarding the procedure and topical analgesics have been shown to decrease procedural fear



Decreased IV attempts

- Reduced stress of inserting nurse

- 76% of 40 nurses in a pediatric ED study stated IV insertion was easier after local analgesia was utilized

- Increased job satisfaction



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EVALUATION



Outcome Measures

- Pain scores for IV insertions with and without topical PPIs
 - Likert Scale
- To deem successful, data will need to show a decrease in pain



Data Evaluation, Collection, & Security

- Data Evaluation:
 - Age, Utilization of topical PPI, Offer of topical PPI, Number of total attempts
- Two weeks of data for baseline
- Four weeks of data for project implementation
- Live data table accessed from the facility with password protection
- Secondary spreadsheet created for shared use amongst statistician without sensitive HIPPA information.

Data Analysis

- Data analyzed based on the utilization of topical analgesia as a PPI, and also if PPI was offered but declined by the patient and/or family
- Chi-square tests performed for topical analgesics utilized and offered during the pre and postimplementation periods.
- Descriptive statistics for data variables.

CONCLUSION

Findings

- Upon data retrieval, Likert scale was not present
- Data obtained and processed regarding utilization or whether PPI was offered
- No statistical significance found
- Multiple limitations



Discussion

- Preventable pain
- Decreases trauma associated with pain of an IV
- Involvement of parents/caregivers
- Less anxious patient and parent/caregiver



Questions?

References

- References available upon request. Please refer to project proposal document on pages 51-52.