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### Evidence Based Practice Strategies: Using Price Lists and Peer Coaching to Improve Medication Cost Containment and Documentation Practices in Anesthesia Providers at an Urban Level One Trauma Center

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Evidence Based Practice Strategies: Using Price Lists and Peer Coaching to Improve Medication  
Cost Containment and Documentation Practices in Anesthesia Providers at an Urban Level One  
Trauma Center

by

Abigalle Ryan Sparrow, BSN, RN

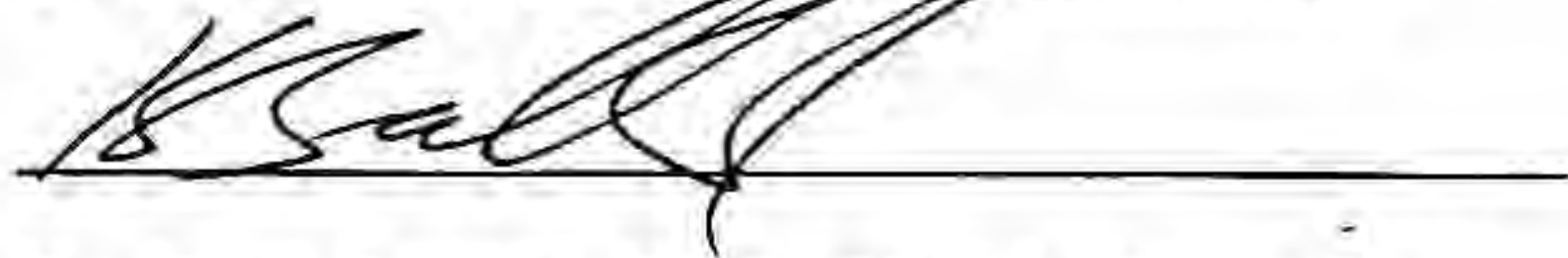
Doctor of Nursing Practice Final Scholarly Project

In Partial Fulfillment of the Requirements for the Degree  
Doctor of Nursing Practice


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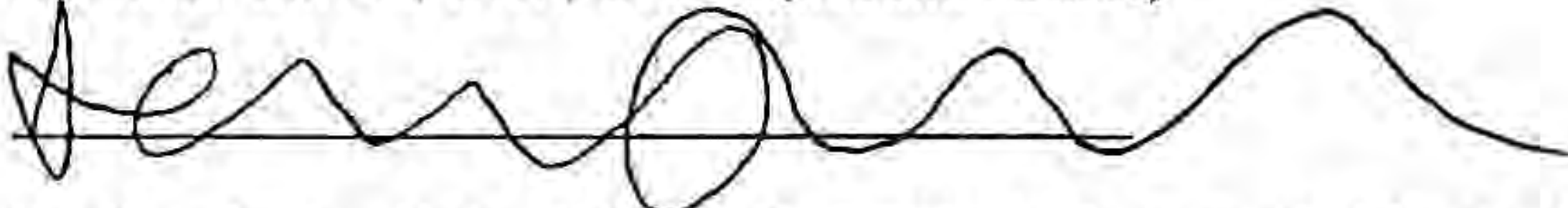
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**Evidence Based Practice Strategies: Using Price Lists and Peer Coaching to Improve Medication Cost Containment and Documentation Practices in Anesthesia Providers at an Urban Level One Trauma Center**

**Abstract**

According to the American Association of Nurse Anesthetists (AANA) guidelines for Documenting Anesthesia Care Practice and Policy Considerations, anesthesia provider documentation represents a detailed account of the patient's anesthesia care during various phases of anesthesia during their hospital stay (Documenting Anesthesia Care: Practice and Policy Considerations, 2016). The primary purpose of anesthesia documentation is to capture accurate and comprehensive information communicating a patient's anesthetic experience, which includes the documentation of all administered medications. The patient's electronic or written medical record is a legal document, which is also referenced for reimbursement, quality improvement, and review by external organizations for institutional accreditation. Despite the AANA guidelines and the existence of current hospital policy on medication administration, documentation, and reconciliation, recent discussions with key stakeholders from the pharmacy and anesthesia service departments revealed that the documentation practice of anesthesia providers at an urban level one trauma center are not aligned with policy to document regional anesthetic medications in the medical administration record (MAR) as required (S.J. Hyland, personal communication, May 26, 2020). According to the Anesthesia Practice Administrator at an urban level one trauma center, there are currently \$70,000 in unbilled medication charges by anesthesia each month at the facility (J. Lenihan, personal communication, February 25, 2021). This project seeks to address one component of this cost capture gap by implementing evidence-based interventions aimed at improving the rates of local anesthetic and additive medication

documentation such as exposure to medication pricing at the site of care and peer coaching (Goetz et al., 2015; Schweltnus & Carnahan, 2014; Silvestri et al., 2016). The following objectives have been established to achieve the aim of this project: 1) create and display price lists for commonly used local anesthetic medications and additives for peripheral nerve blocks at the site of care; 2) facilitate peer-based intervention that involves visual and verbal coaching related to appropriate documentation practice; 3) compare revenue loss data for local anesthetics and additives prior to and for two months following the introduction of peer coaching and placement of pricing lists at the point of care; and lastly, 4) provide recommendations for sustainment and continued monitoring to key stakeholders and anesthesia leadership.

## **Introduction**

Peripheral nerve blocks are a pre-operative procedure that assist in perioperative and post-operative pain management. A variety of local anesthetics and additive medication are used in these procedures. Anesthesia providers such as anesthesiologists, medical residents, certified registered nurse anesthetists (CRNAs), and student registered nurse anesthetists (SRNAs) are responsible for the delivery and documentation of regional anesthetics at an urban level one trauma center. According to the AANA guidelines for Documenting Anesthesia Care Practice and Policy Considerations (2016), anesthesia provider documentation represents a detailed account of the patient's anesthesia care during various phases of anesthesia during their hospital stay. The primary purpose of anesthesia documentation is to capture accurate and comprehensive information communicating a patient's anesthetic experience, which includes the documentation of all administered medications. The patient's electronic or written medical record is a legal document, which is also referenced for reimbursement, quality improvement, and review by external organizations for institutional accreditation. To ensure the appropriate charges are billed to the patient, documentation of the prescribed medication and dosage must be completed in a specific manner (S.J. Hyland, personal communication, May 26, 2020).

## **Problem Identification**

Discussions with key stakeholders from the pharmacy and anesthesia service departments revealed that the anesthesia providers working at an urban level one trauma center are not routinely documenting regional anesthetic medications in the MAR as required by organizational policy (S.J. Hyland, personal communication, May 26, 2020). According to the Anesthesia Practice Administrator at an urban level one trauma center, there are currently \$70,000 in unbilled medication charges by anesthesia each month at the facility (J. Lenihan, personal

communication, February 25, 2021). Currently, key elements of documentation by anesthesia providers at the facility are inadequate to ensure correct billing. Providers are documenting medications in chart note format and omitting documentation of medication in the patient's Medication Administration Record (MAR). Chart notes do not directly tie to billing, and as a result, the organization loses revenue when providers document medications in this manner (S.J. Hyland, personal communication, May 26, 2020). Data from the pharmacy department at the facility demonstrates a gap in practice through revenue loss. The following table contains data on missed cost captures related to documentation of two local anesthetic medications and one additive over a six-month period from 8/1/2019-2/28/2020 (S.J. Hyland, personal communication, January 8, 2021). These three medications were selected as they are most often used in the delivery of peripheral nerve blocks. The time frame of 8/1/2019-2/28/2020 was selected to eliminate confounding data related to the COVID-19 pandemic's effects on clinical practice. The vials not documented are unaccounted for in stock data and medication documentation, leading to missed cost capture. Table 1 indicates the missed cost capture of two local anesthetics and one additive used in peripheral nerve blocks at the facility.

**Table 1.**

***Missed Cost Capture of Two Local Anesthetics and One Additive in PNBs***

<b>Medication</b>	<b>Cost per Vial</b>	<b>Purchased Vials</b>	<b>Documented Administrations</b>	<b>Total Missed Cost Capture</b>
0.5% Ropivacaine, 30 mL vial	\$5.60	250	85	\$924
0.2% Ropivacaine, 10 mL vial	\$2.77	440	30	\$1,135
10 mg Dexamethasone PF, 1 mL vial	\$6.00	1,525	1,298	\$1,362

The total missed costs related to inadequate documentation of these three medications from 8/1/2019-2/28/2020 is \$3,421. If documentation patterns of anesthesia providers follow a similar pattern throughout a calendar year, the total loss for the organization would be \$6,841 for these select three medications. Other medications are used in local anesthesia; however, data could not be provided on these medications due to confounding data (S.J. Hyland, personal communication, January 8, 2021). Additionally, new standardization of medications used in peripheral nerve blocks at the facility include the above concentrations of ropivacaine and additives such as dexamethasone and epinephrine (M. Eckhart, personal communication, March 1, 2021). Omission of the other local anesthetics and additives used at the facility from Table 1 indicates that overall loss of revenue is higher than \$6,841 annually for medications used in peripheral nerve blocks. The organization will benefit financially from closing this practice gap.

When approached about documentation discrepancies, anesthesia providers illustrate a knowledge gap related to the practice of medication documentation that allows for appropriate billing to the patient (S. J. Hyland, personal communication, May 26, 2020). This practice gap can be addressed through peer coaching involving visual and verbal cues that encourage providers to document medications per facility policy (Goetz et al., 2015; Schweltnus & Carnahan, 2014; Silvestri et al., 2016). This policy states “all medications administered to a patient will be documented in the appropriate location of the patient’s medical record” (Medication Administration, 2020).

Anesthesia providers at the facility do not document local anesthetics in the MAR appropriately to ensure correct billing, demonstrated by revenue loss illustrated in Table 1.

According to a previously completed gap analysis by a clinical pharmacist, the overarching issue is a lack of awareness of billing procedures and costs of medication (S.J. Hyland, personal communication, May 26, 2020).

As evidenced from the literature, one dual option solution that could help improve anesthesia provider documentation practices would be to incorporate the strategic placement of local anesthetic price lists at the point of care (Goetz et al., 2015; Silvestri et al., 2016) and utilize peer to peer coaching (Schwellnus & Carnahan, 2014). This project seeks to address one component of this practice gap by implementing evidence-based interventions aimed at improving the rates of local anesthetic and additive medication documentation such as exposure to medication pricing at the site of care and peer coaching. The following objectives have been established to achieve the overall aim of this project: 1) create and display price lists for commonly used local anesthetic medications and additives for peripheral nerve blocks at the site of care; 2) facilitate peer-based intervention that involves visual and verbal coaching related to appropriate documentation practice; 3) compare revenue loss data for local anesthetics and additives prior to and for two months following the introduction of peer coaching and placement of pricing lists at the point of care; and lastly, 4) provide recommendations for sustainment and continued monitoring to key stakeholders and anesthesia leadership.

### **Review of the Literature**

The PICO format provides a framework for examining and answering a specific question related to the previously described problem (Melnik & Fineout-Overholt, 2005). The PICO format was used to develop the clinical question as well as provide strategic keys search terms to obtain the best evidence from the literature for this project. The four components include “population of interest [P], intervention of interest [I], comparison of interest [C], and outcome



of interest [O]” (Melnyk & Fineout-Overholt, 2005, p. 29). The clinical practice-focused question (based on PICO format elements) guiding this project asks: ((P) In anesthesia providers at an urban level one trauma center (I) can the development and presentation of a multifaceted EBP plan, which consists of providing a price list for local anesthetic medications and additives used in peripheral nerve blocks at the point of care in addition to peer coaching, (C) compared to current practices involving non-compliant documentation and subsequent financial losses due to undocumented anesthetic medications, (O) help change anesthesia provider documentation compliance and anesthetic medication costs?

A thorough review of the literature was conducted using key search terms stemming from the PICO question. Electronic databases are used as a source of evidence to find literature that supported, did not support, or showed inconclusive results related to the PICO question. The tool OneSearch was used to search for literature. This tool performs a broad search of several databases at once, and the articles found for the literature review came from Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Cochrane Database of Systematic Reviews (CDSR). Search strategies such as keyword searching, Boolean phrasing, and limits were used to find literature related to the PICO question. Keywords for the literature search initially included: *local anesthesia, peripheral nerve block, documentation, local anesthesia documentation, documentation policy, care documentation, medication documentation, medication administration, charting, charting compliance, healthcare, operating room, anesthesia, barcode medication documentation, and BCMA*. Review of the medication documentation process at the facility revealed that barcode medication administration is not the primary method of documentation by anesthesia providers. Due to this deviation in practice in comparison to the literature, interventions that address barriers to barcode medication administration would not be

preferred interventions for this facility. To address the causes of noncompliance identified in the initial search, the keywords were then expanded to include: *charge display*, *price display*, *coaching*, and *peer coaching*. Boolean phrasing such as the use of *and/or* were used to narrow or widen the literature search results. Limits were used to filter for articles less than five years old, academic journals, and articles in English. A rapid critical appraisal checklist from Melnyk and Fineout-Overholt (2019) was used to evaluate each study design, and the evidence and literature found was synthesized to address the PICO question.

The literature review yielded one systematic review (level I), one scoping review (level I), one quasi-experimental study (level III), one retrospective study (level III), one systematic review of descriptive and qualitative studies (level V), five expert opinions (level VII), as well as care documentation recommendations. The articles explore documentation standards, solutions to address high healthcare costs, and potential barriers to improving documentation.

### ***Care Documentation Standards***

According to the American Association of Nurse Anesthetists (AANA), perioperative anesthesia care documentation consists of thirteen components:

1. Name and facility identification number of the patient
2. Name of all anesthesia professionals involved in the patient's care
3. Immediate preanesthesia assessment and evaluation (e.g., change in health status, reevaluation of NPO status)
4. Anesthesia safety checks (e.g., check of equipment, drugs supply, gas supply)
5. Monitoring of the patient (e.g., oxygenation, ventilation, circulation, body temperature, skeletal muscle relaxation)
6. Airway management techniques

7. Name, dosage, route, and time of administration of drugs and anesthetics
8. Technique(s) used and patient positioning (e.g., document who positioned the patient, type of position used)
9. Name and amounts of IV fluids (e.g., when applicable blood and blood products)
10. Intravenous/intravascular lines inserted (e.g., techniques for insertion, location)
11. Any complications, adverse reactions, or problems during anesthesia
12. Status of the patient at the conclusion of anesthesia
13. Documentation in a timely and legible manner (*Documenting Anesthesia Care: Practice and Policy Considerations*, 2016).

Notable on this list and relevant to the identified issue at the level one trauma center's Bone and Joint Center is point 7, documentation of name, dosage, route, and time of administration of drugs and anesthetics. In addition, the facility's policy for medication administration outlines the following standards:

1. Medications shall be administered to patients only upon the order of a practitioner who has been granted privileges at this institution.
2. Any person administering medications shall be appropriately licensed/certified or under the direct supervision of an appropriately licensed person. This does not prohibit self-administration of medications by the patient.
3. All medications administered to a patient will be documented in the appropriate location of the patient's medical record.
4. Before dispensing or removal from an Automated Dispensing Cabinet (ADC) (e.g., Pyxis), a pharmacist will review all medication orders unless a licensed independent practitioner controls the ordering, preparation, and administration of the medication

(i.e., Emergency Department, Surgery), or in an urgent situation when the resulting delay would harm the patient (i.e., override from the ADC following a valid order).

*(Medication Administration, 2020).*

Review of the AANA standards for documentation and comparison to the facility's policy on medication administration was performed to evaluate if organizational policy change would be a valid intervention to address documentation noncompliance. Because the policy aligns with AANA standards, revising the policy would not be a valuable intervention.

### ***Barriers to Documentation of Care***

Issues with the medication documentation workflow cause providers to find workarounds to solve commonly encountered problems. A meta-analysis (level II evidence) by Lee et al. (2015) examines the reasons for medication documentation non-compliance in the context of workflows and electronic health records (EHR) that utilize BCMA, as well as suggests potential solutions to address these barriers. The authors divide common issues with the medication documentation workflow into five subtypes: 1) poor visual and audio interface, 2) poor physical and ergonomic design, 3) poor information integrity, 4) abnormal situation for system use, and 5) user reluctance and negligence.

According to an uncontrolled cohort study (level IV evidence) by Dunn and Anderson (2019), several factors can hinder medication documentation by anesthesia staff. 1) If the documentation is not part of the typical workflow for providers despite being an available option, they may have a difficult time remembering to add the medications into the medication administration record (MAR) or the anesthesia record. 2) Providers perceive extra steps required for medication documentation as time-wasting tasks. 3) There are many distractions in the dynamic preoperative and operative environments, taking away from the focus needed to start

and stop workflows to document medications consistently. 4) The operating room (OR) staff is in constant flux, with new employees joining and leaving the care team and environment overall often. This variability in staff leads to gaps in education on medication administration protocol and a lack of familiarity with the organization workflow (Dunn & Anderson, 2019).

The articles by Lee et al. (2015) and Dunn and Anderson (2019) were selected for the literature review because they outline several reasons that may explain charting noncompliance in the clinical environment. These deductions may assist in providing recommendations to the organization for strategies to address documentation noncompliance. For example, peer coaching may address several of the above stated issues by encouraging anesthesia providers to document medications in the MAR despite distractions in the OR environment and changes to personnel.

### ***Strategies to Improve Documentation of Care***

A meta-analysis (level II evidence) by Lee et al. (2015) examines five categories of systems issues for BCMA noncompliance, as well as suggests three potential solutions to common issues. To address issues with poor visual and audio interface, the authors suggest modification of the user interface and system utilizing human factors design principles, allowing the user to perform their work efficiency and without frustration. To address user reluctance and negligence, Lee et al. (2015) recommends educating users of system procedures and guidelines in addition to training on variances in the system and its documentation sequence and requirements. To address poor system operating environment, the authors suggest identifying issues that typically preclude the users from performing their role's task in documentation such as "noise, lack of space, interruptions, and emergency situations...lack of workstations, poor wristband designs, and inaccessibility to bar codes" (Lee et al., 2015). Although some issues may

be uncontrollable, the authors recommend optimizing the environment to improve efficiency, productivity, and safety.

This article was chosen to provide background to reasons for documentation noncompliance. Although barcode medication administration is not typically used by anesthesia providers at the facility, barriers to documentation may be similar. Interventions that coach providers on documentation procedures and consequences of noncompliance such as revenue loss may be successful in affecting documentation rates.

### ***Cost Charge Displays Effect on Providers***

According to two systematic reviews by Silvestri et al. (2016) (level V evidence) and Goetz et al. (2015) (level I evidence), the display of care costs is an evidence-based intervention to address high costs of care.

The systematic review by Silvestri et al. (2016) examined 19 studies published from 1983-2014 that displayed pricing of laboratory tests, imaging studies, or medications to providers at the point of care, and evaluated the display's impact on provider ordering. Fifteen of the 19 studies reported data as quantitative order costs and volume. Ten of these studies showed a statistically significant decreases in order costs and volume.

The systematic review by Goetz et al. (2015) examined 17 studies published from 1982-2013 and evaluated the effects of a price display during provider decision-making on laboratory testing, radiology testing, and medication choice. Twelve studies took place in a clinical environment, and five were conducted as surveys. Nine of the 12 clinical studies examined price display on laboratory and radiology testing. Seven of these showed statistically significant decreases in costs and number of tests ordered. Three clinical studies examined medication expenditures. Two of these showed reductions in costs. The five survey studies gave providers

10 theoretical ordering scenarios with a price display. In these studies, providers ordered fewer tests and lower costing medications.

These articles were chosen to validate pricing displays at the point of care as an evidence-based intervention to address revenue loss related to local anesthetics. As displayed in Table 1, the omission of medication documentation in the proper location in the patient medical record can lead to significant financial losses for the organizations. Although the articles by Silvestri et al. (2016) and Goetz et al. (2015) focused on cost reduction to the patient, the same principle can be applied to cost reduction for the organization.

### ***Peer Coaching as an Evidence-Based Intervention***

The scoping review (level I evidence) by Schwellnus and Carnahan (2014) examined 16 articles to evaluate the key aspects of peer coaching that make the intervention successful for practice improvement. 11 of the 16 articles focused on peer-to-peer coaching. All 16 articles showed support for peer coaching as an intervention to improve practice.

Peer coaching is described as a type of coaching where “the peers, who are often at a similar level of knowledge, engage in an equal non-competitive relationship that involves observation of the task performance and support in the implementation of changes” (Schwellnus & Carnahan, 2014, p. 39). It is necessary for providers to stay up to date with evidence-based practice, and peer coaching can be valuable to encourage practice improvement in healthcare due to the rapidly changing nature of best practice recommendations.

The ratio of coach to trainees does not affect the success of the coaching. Key components of peer coaching are:

1. A voluntary relationship based on collaboration, not competition
2. Self-evaluation

3. Coach feedback
4. The establishment of goals or preferred outcomes
5. Focus on the participants' strengths and amplification of capacity (Schwellnus & Carnahan, 2014).

This article was chosen to demonstrate that peer coaching is an evidence-based intervention for practice improvement. The article by Schwellnus and Carnahan (2014) also discusses the key components of peer coaching. These recommendations will be used to structure peer coaching for local anesthetic and additive medication documentation at the facility.

### ***Barriers to Improvement of Care Documentation***

The quasi-experimental study (level III evidence) by Dehghan et al. (2013) followed nursing documentation quality improvement after a two year clinical governance training course implementation that included 1) introduction to clinical governance, 2) key topics of clinical governance, 3) patient and public involvement, 4) education and training, 5) risk management and patient safety, 6) use of information systems, 7) clinical effectiveness and evidence-based practice, 8) clinical audits, and 9) staff and staff management. The authors selected 220 random nursing documents to assess for structure and content using a researcher-made checklist including various components of the patient health record. Following the performance of the checklist and evaluation, no statistical difference in the quality of nursing documentation was found. This article was chosen to illustrate that although the gap analysis performed by S.J. Hyland illustrated a lack of knowledge for billing procedures, education alone may not be enough to address the complex clinical issue of documentation noncompliance. Therefore, a combination of evidence-based interventions should be used to close the practice gap.

### ***Literature Review Summary***



Documentation of anesthesia care should include documentation of name, dosage, route, and time of administration of drugs and anesthetics, and be documented in the appropriate place in the patient's medical record. Several reasons for noncompliance with documentation exist, such as a lack of staff awareness of policies and procedures. These issues may be addressed through evidence-based interventions such as price displays at the point of care and peer coaching.

### **Project Framework**

Despite the AANA guidelines and the existence of current hospital policy on medication administration, documentation, and reconciliation, recent discussions with key stakeholders from the pharmacy and anesthesia service departments revealed that the anesthesia providers at an urban level one trauma center are not fully complying with policy to document regional anesthetic medications in the medical administration record (MAR) as required. According to the Anesthesia Practice Administrator at an urban level one trauma center, there are currently \$70,000 in unbilled medication charges by anesthesia each month at the facility (J. Lenihan, personal communication, February 25, 2021). Missed documentation of medications used in PNBs represent a significant portion of this revenue loss. With these issues in mind, the project is framed.

### **Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Model**

Permission to use the Johns Hopkins Nursing Evidence-Based Practice model (JHNEBP) was obtained from the Johns Hopkins University School of Nursing. The JHNEBP model is an approach to clinical decision making and problem-solving that involves three steps following an inquiry: 1) practice question, 2) evidence, and 3) translation. Discoveries from these three steps are translated into best practice recommendations and subsequently practice improvements. The

aim of the JHNEBP model is to ensure that current practice is evidence-based, and that any changes to best practice can be quickly implemented into patient care (Johns Hopkins Nursing EBP, n.d.). Figure 1 depicts and describes each step of the JHNEBP model.

**Figure 1. The Johns Hopkins Nursing Evidence Based Practice Model**



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### ***Practice Question***

Using the JHNEBP model, this project will ask a practice question, which aligns with the PICOT question: (P) In anesthesia providers at an urban level one trauma center (I) can the development and presentation of a multifaceted EBP plan, which consists of providing a price list for local anesthetic medications and additives used in peripheral nerve blocks at the point of care in addition to peer coaching, (C) compared to current practices involving non-compliant documentation and subsequent financial losses due to undocumented anesthetic medications, (O) help change anesthesia provider documentation compliance and anesthetic medication costs?

### ***Evidence***

A literature review has been performed to identify evidence-based interventions to address revenue loss and lack of medication documentation. Some interventions have shown to be successful, such as pricing lists displayed at the point of care and peer coaching.

### ***Translation***

Following an examination of the evidence, the project will translate these interventions into clinical and operational improvements such as pricing displays and peer coaching involving visual and verbal cues. Peer coaching will be implemented as an evidence-based intervention to encourage providers to document medications in the MAR. Pricing lists will be added to the point of care and their efficacy evaluated after two months by examining missed cost capture data for the local anesthetics and additives from the pharmacy department at the facility. This data and subsequent recommendations will be presented to stakeholders in the pharmacy and anesthesia departments upon completion of the project.

### **Project Purpose**

This project seeks to address this cost capture gap by implementing evidence-based interventions aimed at improving the rates of local anesthetic and additive medication documentation such as exposure to medication pricing at the site of care and peer coaching (Goetz et al., 2015; Schweltnus & Carnahan, 2014; Silvestri et al., 2016). The following objectives and methods are framed using the Johns Hopkins Model for EBP, and have been established to achieve the overall aim of this project: 1) create and display price lists for commonly used local anesthetic medications and additives for peripheral nerve blocks at the site of care; 2) facilitate peer-based intervention that involves visual and verbal coaching related to appropriate documentation practice; 3) compare revenue loss data for local anesthetics and additives prior to and for two months following the introduction of peer coaching and placement

of pricing lists at the point of care; and lastly, 4) provide recommendations for sustainment and continued monitoring to key stakeholders and anesthesia leadership.

### **Clinical Setting and Patient Population of Interest**

The setting for this project is a large, urban, 434 bed level one trauma surgical center located in the Midwest. The target population of interest for this project comprises of anesthesia providers, who are specialized healthcare clinicians responsible for administering local anesthetics in the preoperative area. Anesthesia providers comprise of anesthesiologists, medical residents, Certified Registered Nurse Anesthetists (CRNAs), and Student Registered Nurse Anesthetists (SRNAs). The project goal is to improve MAR documentation through the multifaceted approach of the evidence-based plan. To address the practice gap related to medication documentation and peripheral nerve blocks, a multifaceted evidence-based plan has been developed as described below. This plan has been discussed with the key stakeholders, which include anesthesiologists, the Chief CRNA, and an operating room Pharmacist at the facility who assists in quality improvement initiatives.

### **Project Significance**

This project is significant because if anesthesia provider documentation practices are improved by supportive peer coaching and strategic placement of cost lists at the point of care, the reduction of revenue losses beyond local anesthetics and additives for PNBs may occur as a result. The findings of this scholarly project can also serve as a beginning point for a greater understanding of the importance of evidence-based best practices, interventions, policy compliance, and anesthesia documentation practice impacts on healthcare facility financial revenue and losses.

### **Methods**

### **Price Lists**

The evidence-based plan includes placement of pricing lists at the point of care. The point of care sites consist of wheeling carts which contain supplies for peripheral nerve blocks and are taken into patient rooms during the anesthesia procedures. This price display will display the cost per vial of local anesthetics and additives used in peripheral nerve blocks at the facility. Accurate pricing will be obtained from the pharmacy department at the facility prior to display. The following medications are standardized for use in peripheral nerve blocks at the facility according to the Chief CRNA (M. Eckhart, personal communication, March 1, 2021), and will be included on the list:

1. 0.5% Ropivacaine, 30 mL vial
2. 0.2% Ropivacaine, 10 mL vial
3. 1 mg Epinephrine, 1 mL vial
4. 10 mg Dexamethasone, 1 mL vial

### **Peer Coaching**

According to Schweltnus and Carnahan (2014), the following components assist in making the intervention successful:

1. A voluntary relationship based on collaboration, not competition
2. Self-evaluation
3. Coach feedback
4. The establishment of goals or preferred outcomes
5. Focus on the participants' strengths and amplification of capacity (*Schweltnus & Carnahan, 2014*).

The visual and verbal coaching has been structured to address these recommendations.

### ***Visual Coaching***

A printed reminder to document the local anesthetics and additives used in the peripheral nerve blocks will be displayed along the price lists at point of care. This reminder will state: “Please document medications used in peripheral nerve blocks in the MAR to ensure accurate charge capture.”

Additionally, depersonalized screenshots of the documentation procedure in the flowsheets of the electronic medical record will be displayed near computers typically used by anesthesia providers to document patient care. These screenshots will provide step by step instructions to document medications in the MAR beginning with opening the patient chart and ending with completed documentation.

These two visual coaching interventions address the recommendations of self-evaluation and establishes preferred outcomes. The providers will be encouraged to self-evaluate practice and if they have appropriately documented medications. The reminders also establish that documentation in the MAR is the preferred outcome.

### ***Verbal Coaching***

Verbal coaching will take place in several forms and will be recommended at the point of care. Point of care will be defined as the immediate time-period following performance of the peripheral nerve block. This coaching will occur between providers responsible for the peripheral nerve blocks, such as anesthesiologists, CRNAs, and SRNAs. Each of these disciplines participate in different components of the peripheral nerve block procedure and documentation. Because of this variation, unique information regarding the peer coaching process will be directed to each type of provider. It will be recommended that the peer coaching will include 1) discussion of documentation in the appropriate location in the patient medical

record, which is the MAR; 2) discussion of missed cost capture in the event of a missed medication documentation; 3) appointment of responsibility for documentation to ensure completion. The team that performs peripheral nerve blocks at the facility typically consists of anesthesiologists and SRNAs. CRNAs at the facility do not perform peripheral nerve blocks but are a valuable piece of the care team that can participate in peer coaching.

SRNAs are placed in a peripheral nerve block clinical rotation for a period of four weeks. This SRNA will be the student champion for the peer coaching intervention and will collaborate with the anesthesiologists performing PNBs. Information about the peer coaching and the three previously stated expectations will be provided to these students at the beginning of their rotation, and in-person check-ins will occur at the two- and four-week marks. Discussions will occur with these students at the end of their four-week rotations to evaluate barriers to the intervention as the peer coaching occurs.

An information session will be held with the CRNAs at the facility that outlines the price list intervention and expectations for peer coaching. CRNAs at the level one trauma center do not perform blocks but are a key component of this intervention because they continually evaluate the patient chart including the MAR following the pre-operative peripheral nerve blocks. These providers can see if medications have been documented. The information session will encourage CRNAs to communicate with the provider who performed the block if medication is not documented by the end of the perioperative period, and encourage documentation in the MAR.

Implementation of verbal coaching addresses the recommendations from Schweltnus and Carnahan (2014) of a voluntary relationship based on collaboration, coach feedback, and focus on the participants' strengths and amplification of capacity. The coaching relationship will be based on collaboration of peers in the anesthesia department. Coach feedback will occur at point

of care via the anesthesiologists or SRNAs, or in communication from CRNAs to providers responsible for documenting peripheral nerve blocks. The feedback will focus on the amplification of capacity, which is performance and documentation of peripheral nerve blocks.

### **Data Collection and Evaluation**

Aggregate data from a stock count including purchased vials, documented administrations, and missed cost capture will be collected from the pharmacy department before the two-month period. This data is valuable to assess the scope of medication documentation because each vial should only be used for one patient. The purchased vials should be the same as documented administrations if all vials are used.

Following the two-month data collection period, aggregate data will again be collected from the pharmacy department. Data will be appraised and described, using basic descriptive statistic techniques. The variables will include the number of purchased vials, the number of documented vials, and the dollar amount of missed cost capture. This post-intervention data will then be compared to the pre-intervention data to evaluate the impact of the interventions. Data will not include provider information.

### **Sustainment Recommendations**

Following the implementation of price lists and peer coaching and data evaluation, recommendations for project sustainment will be delivered to the stakeholders in the pharmacy and anesthesia departments at the facility. Pending successful implementation of project interventions, these recommendations will include quarterly updates to the price lists to display the most accurate pricing along. Additionally, quarterly information sessions for anesthesia providers that include the necessity of MAR documentation for billing purposes will be



recommended. Peer coaching should be sustained to ensure documentation of local anesthetics and additives used in peripheral nerve blocks in the MAR.

### **Project Timeline**

Following the review and determination by the Nursing Evidence-Based Practice Review Committee (NEBPRC), the NEBPRC approved proposal will be submitted as part of an application to the University Institutional Review Board (IRB) for approval prior to initiating this DNP Final Scholarly Project. Once the University IRB official approval is obtained (see Appendix A), the document will be submitted to the NEBPRC. Overall project proposal review and approval by the NEBPRC and the University IRB will be completed between March 2021 and April 2021. Following approval from these committees, a presentation on the price list and peer coaching will be delivered to the CRNAs at the facility in June 2021. Following this information session, a pricing list with the most up to date pricing for medications will be displayed at the point of care for the duration of the project timeline. Additionally, visual coaching on medication documentation will be placed near computers used to document by anesthesia providers. During this two-month period, aggregate missed cost capture data will be collected with the assistance of the pharmacy department to evaluate efficacy of the pricing displays and peer coaching. A final data collection will occur at the completion of the two-month period with the assistance of the pharmacy department. Post-intervention data will be presented to the pharmacy and anesthesia department at the facility following comparison to the pre-intervention data. Recommendations for sustainment will be delivered to the pharmacy and anesthesia departments including quarterly updates to pricing and continuation of peer coaching. After all data collection is complete and presentation has been provided to anesthesia and pharmacy departments, a final scholarly written report will be developed along with a poster for

presentation in partial fulfillment of the requirements for the Doctor of Nursing Practice degree. Finally, between February 2022 and April 2022, the project will be defended and disseminated in an open forum to Nursing Department faculty and students at the University.

### **Ethical Considerations/Protection of Human Subjects**

The ethical consideration in the project involves protecting the participants' identities. Careful measures will be taken to protect personal information. Following the review and determination by the Nursing Evidence-Based Practice Review Committee (NEBPRC), the NEBPRC approved proposal will be submitted as part of an application to the University IRB for approval prior to initiating this DNP Final Scholarly Project. Once the University IRB official approval is obtained, the document will be submitted to the NEBPRC. Confidential health information such as names or unique patient/staff identifiers will not be requested, collected, or stored. All collected information will be fully de-identified prior to storage into a password-protected, secure spreadsheet as previously described. All physical data will be locked in file drawers. Only de-identified aggregate data will be shared outside of the facility with the University Nursing Department faculty and students as part of the dissemination of the project presentation (in partial fulfillment of the requirements for the degree: Doctor of Nursing Practice at the University).

### **Project Implementation**

#### **Dissemination**

After evaluation of pre-intervention data and a literature review, a presentation outlining project aims was given to the level one trauma center CRNAs in June 2021. The presentation included the data illustrating a practice gap from Table 1, as well as described project interventions. CRNAs were encouraged to maintain communication with SRNAs and

anesthesiologists performing PNBs regarding block medication documentation if the CRNAs observed a missed documentation in the patient MAR.

Following the presentation, price lists were placed at the point of care. Additionally, visual guides outlining medication documentation procedure were placed near computers used to document patient care by anesthesia providers. SRNAs and anesthesiologists were informed of the interventions and encouraged to communicate regarding medication documentation to ensure charting was completed. SRNAs in their month-long regional anesthesia rotation at the level one trauma center were educated on the project aims at the start of their rotation, and a check-in was performed at the midway and end points of the rotation to identify any barriers to the project. Throughout the project timeframe, no barriers were identified by SRNAs in their regional rotation, and anesthesiologists expressed positive feedback regarding the project aims. These interventions remained in place from 7/3/21-9/3/21.

### **Project Outcomes**

#### **Data**

##### ***Pre-Implementation***

Pre-implementation data was collected from the pharmacy department on five medications routinely used in PNBs at the level one trauma center. Some medications included in this data differed from the original data used to prove a gap in clinical practice and the price lists included at the point of care; however, these medications reflect the most up to date formularies used by the institution in PNBs at the time of data collection. This data used the net unaccounted-for vials of medications used in the level one trauma center and the price per vial to demonstrate the missed cost capture per month. This data evaluated missed cost capture over a two-month period from 1/10/21-3/9/21.

**Table 2.*****Pre-Intervention Missed Cost Capture of Medications Used in PNBs***

<b>Medication</b>	<b>Vials Removed from Pyxis</b>	<b>Average number of vials pulled per 30 days</b>	<b>Doses documented</b>	<b>Doses documented per 30 days</b>	<b>Net unaccounted for vials per month</b>	<b>Price per vial</b>	<b>Missed cost per month</b>
Dexamethasone 10 mg/1 mL PF vial	287	96	99	33	63	\$2.57	\$161.91
Epinephrine 1 mg/1 mL ampule	32	11	2	0.666667	10.333333	\$8.63	\$89.18
Ropivacaine 0.2% 20 mL vial	0	0	0	0	0	\$7.10	\$0.00
Ropivacaine 0.5% 30 mL vial	334	111	283	94.333333	16.666667	\$3.47	\$57.83
Ropivacaine 0.5% 20 mL vial	143	38	11	3.666667	44.333333	\$3.54	\$156.94

The total pre-intervention missed cost capture per month was \$465.86 for the medications in

Table 2.

***Post-Intervention***

Following the project interventions, post-implementation data was collected from the pharmacy department regarding the same five medications from the pre-intervention data. This data evaluated missed cost capture over a two-month period from 7/3/21-9/3/21.

**Table 3.*****Post-Intervention Missed Cost Capture of Medications Used in PNBs***

<b>Medication</b>	<b>Vials Removed from Pyxis</b>	<b>Average number of vials pulled per 30 days</b>	<b>Doses documented</b>	<b>Doses documented per 30 days</b>	<b>Net unaccounted for vials per month</b>	<b>Price per vial</b>	<b>Missed cost per month</b>
Dexamethasone 10 mg/1 mL PF vial	273	91	131	44	47	\$2.57	\$121.65

Epinephrine 1 mg/1 mL ampule	22	7	3	1	6	\$8.63	\$54.66
Ropivacaine 0.2% 20 mL vial	0	0	0	0	0	\$7.10	\$0.00
Ropivacaine 0.5% 30 mL vial	441	147	358	119	28	\$3.47	\$96.00
Ropivacaine 0.5% 20 mL vial	44	15	6	2	13	\$3.54	\$44.84

The total post-intervention missed cost capture was \$317.15 for the medications in Table 3.

### ***Discussion of Data***

After the project intervention, overall missed cost capture per month decreased by \$148.71, a reduction of 31.92%. This reduction of revenue loss is significant and demonstrates that peer coaching and price lists at the point of care are an effective intervention to improve cost containment related medications used in PNBs. Although some medications included in the data were not included in the price lists placed at the point of care, the coaching intervention affected all medications used in PNBs, not limited to those displayed.

### **Implications for Future Projects**

The demonstration that price lists at the point of care and verbal and visual peer coaching can improve missed cost containment can be applied to a variety of clinical settings. If issues with cost containment related to medications are identified by the anesthesia department in the future, these strategies can be invoked to aid in potentially decreasing lost revenue. This project can also be used by incoming DNP students create projects relating to medication documentation or cost containment in the clinical setting.

### **Limitations**

This project had some limitations. Although no barriers to the project were identified by SRNAs, there was not a 100% reduction in revenue lost as would be expected with this feedback.

The scope of this project was also a limitation. The project evaluated the outpatient orthopedic surgery center at the level one trauma center only and did not include evaluation of PNB medication administration documentation in other areas of the hospital, although PNBs are performed elsewhere.

### **Conclusion**

This project set out to affect missed medication documentation with the intention of influencing cost containment related to medications used in PNBs using evidence-based strategies outlined in the literature. 1) Price lists of commonly used local anesthetic medications and additives for peripheral nerve blocks were created and displayed price lists at the site of care; 2) visual coaching outlining the steps for appropriated medication documentation in the MAR was placed near computers used by anesthesia providers to document patient care; 3) verbal coaching related to appropriate documentation practice was encouraged between anesthesiologists and SRNAs involved in PNBs; 4) revenue loss data for local anesthetics and additives prior to and for two months following the interventions was evaluated and compared; and lastly, 5) sustainment recommendations were delivered to key stakeholders and anesthesia leadership. Following the project intervention, overall missed cost capture per month decreased by \$148.71, a reduction of 31.92%. This project is significant because its success led to a decrease in lost revenue for the institution. Because of the success of the project as outlined in the data, this project can be used as a framework for future projects that seek to impact areas of revenue loss related to inadequate medication documentation.

## References

- Brown, L. B. (2014). Medication administration in the operating room: New standards and recommendations. *AANA Journal*, 82(6), 465–470.  
<https://doi.org/https://www.aana.com/publications/aana-journal>
- Dang, D., & Dearholt, S. (2017). *Center for Evidence-Based Practice*. Johns Hopkins Medicine. Retrieved January 29, 2021, from [https://www.hopkinsmedicine.org/evidence-based-practice/ijhn\\_2017\\_ebp.html](https://www.hopkinsmedicine.org/evidence-based-practice/ijhn_2017_ebp.html)
- Dehghan, M., Sheikhrabari, A., Sadeghi, M., Jalalian, M., & Dehghan, D. (2013). Quality improvement in clinical documentation: Does clinical governance work? *Journal of Multidisciplinary Healthcare*, 441–450. <https://doi.org/10.2147/jmdh.s53252>
- Documenting anesthesia care: Practice and policy considerations* [PDF]. (2016). American Association of Nurse Anesthetists. Retrieved November 5, 2020, from [https://www.aana.com/docs/default-source/practice-aana-com-web-documents-\(all\)/documenting-anesthesia-care.pdf?sfvrsn=ac0049b1\\_4](https://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/documenting-anesthesia-care.pdf?sfvrsn=ac0049b1_4)
- Dunn, L., & Anderson, J. (2019). Barcode medication administration implementation in the operating room. *American Journal of Health-System Pharmacy*, 76(10), 636–637.  
<https://doi.org/10.1093/ajhp/zxz039>
- Elhalawani, I., Jenkins, S., & Newman, N. (2013). Perioperative anesthetic documentation: Adherence to current Australian guidelines. *Journal of Anaesthesiology Clinical Pharmacology*, 29(2), 211. <https://doi.org/10.4103/0970-9185.111726>
- Goetz, C., Rotman, S. R., Hartoularos, G., & Bishop, T. F. (2015). The effect of charge display on cost of care and physician practice behaviors: A systematic review. *Journal of General Internal Medicine*, 30(6), 835–842. <https://doi.org/10.1007/s11606-015-3226-5>

*Johns Hopkins Nursing EBP*. (n.d.). Daemen Library. Retrieved January 29, 2021, from

<https://libguides.daemen.edu/EBP/johns-hopkins-EBP>

Lee, B., Lee, S., Kwon, B., & Yi, J. (2015). What are the causes of noncompliance behaviors in bar code medication administration system processes? *International Journal of Human-Computer Interaction*, 31(4), 227–252. <https://doi.org/10.1080/10447318.2014.986641>

*Measuring and responding to deaths from medical errors*. (2016, March 22). Agency for Healthcare Research and Delivery. Retrieved August 10, 2020, from

<https://psnet.ahrq.gov/perspective/measuring-and-responding-deaths-medical-errors>

*Medication administration* (OH.POL.RX-910.009) [Policy and procedure]. (2020). OhioHealth.

Moran, K., Burson, R., & Conrad, D. (2020). *The doctor of nursing practice project: A framework for success* (3rd ed.). Jones and Bartlett Learning.

Schwellnus, H., & Carnahan, H. (2014). Peer-coaching with health care professionals: What is the current status of the literature and what are the key components necessary in peer-coaching? A scoping review. *Medical Teacher*, 36(1), 38–46.

<https://doi.org/10.3109/0142159x.2013.836269>

Silvestri, M. T., Bongiovanni, T. R., Glover, J. G., & Gross, C. P. (2015). Impact of price display on provider ordering: A systematic review. *Journal of Hospital Medicine*, 11(1), 65–76.

<https://doi.org/10.1002/jhm.2500>



Appendix A



INSTITUTIONAL REVIEW BOARD

Original Review  
 Continuing Review  
 Amendment

Dear Dr. Ballard,

With regard to the employment of human subjects in the proposed research:

**HS # 20/21-65**

**Ballard, Sparrow & Sribanditmongkol: Evidence Based Practice Strategies: Using Price ...**

THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

We have determined that the proposed project does not meet the definition of research according to 45 CFR Part 46.102.

(1) *Research* means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities.

As such, further IRB review is not required.

Date: 28 April 2021

Signed: *Meredith C. Frey*  
Chairperson

(Revised January 2019)