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### Educating Providers: Timely post-operative pain management in a Level IV Neonatal Intensive Care Unit (NICU)

Jamesia Donato

*Children's Mercy Hospital*

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**Title: Educating Providers: Timely post-operative pain management in a Level IV Neonatal Intensive Care Unit (NICU)**

**Submitting/Presenting Author (must be a trainee):** Jamesia Donato, MD

**Primary Email Address:** jddonato@cmh.edu

**Resident/Psychology Intern**

**Fellow**

**Primary Mentor (one name only):** Eugenia Pallotto, MD, MSCE

**Other authors/contributors involved in project:** Denise Smith RN, MSN, Darian Younger MHA, MS, Alexandra Oschman, PharmD, BCPPS

**IRB Number (if applicable):**

**Describe role of Submitting/Presenting Trainee in this project (limit 150 words):**

Responsible for providing mandatory education to Physicians and Neonatal Nurse practitioners about their role in eliminating postop pain including use of a pain treatment algorithm and post-operative order plan.

**Problem Statement/Question, Background/Project Intent (Aim Statement), Methods (include PDSA cycles), Results, Conclusions limited to 500 words**

**Problem Statement/Question:**

To increase the percentage of patients receiving acetaminophen within one hour after surgery to greater than 70% by July 2020.

**Background/Project Intent (Aim Statement):**

NICU patients often encounter painful procedural interventions and can have significant short and long-term consequences from inadequately treated pain. Ensuring adequate pharmacological and non-pharmacological pain management while minimizing associated risks is paramount. Our NICU is part of the Children's Hospitals Neonatal Consortium "Erase Pain" collaborative to improve management of postop pain in neonates.

SMART Aim: To increase the percentage of patients receiving acetaminophen within one hour after surgery to greater than 70% by July 2020.

**Methods (include PDSA cycles):**

A multidisciplinary team developed pain treatment algorithms and postop order plans to standardize the approach to postop pain management. Providers were educated about their role in eliminating postop pain through mandatory educational sessions. Expectations include discussing

pain management plan on rounds and during pre and postop team handoffs, utilize standard pain treatment algorithms (Fig.1) and order plans (Fig. 2). The order plan prioritizes the acetaminophen order to STAT, to support administration within the first hour after return from surgery. Process measures include compliance with use of the post op pain algorithm and order plan. Baseline patient data was reviewed from May-July 2019 and post education data obtained August-October 2019.

### **Results:**

Provider compliance with the order plan improved from May-October of 2019, from 21% of patients (14/67) before education to 71% (66/93) (Fig. 3). Acetaminophen was administered within the first hour postoperatively more often after provider education, improving from a baseline of 46% to 72% (Fig. 3). The percentage of patients receiving acetaminophen within the first hour was greater than 70% in August and October and is attributed to correct use of the order plan and algorithm. The percentage of elevated pain scores, monitored as a balancing measure, increased from 13% to 20% during this time period. Opioid exposure review as a balancing measure is ongoing.

### **Conclusions:**

Educating providers about the importance of discussing postop pain and administering multimodal analgesia is effective in improving ordering practices and timely acetaminophen administration. With an increase in the percentage of consecutive elevated pain scores, addressing additional system factors is needed for optimal postop pain treatment. Future aims include investigating events contributing to delayed acetaminophen administration and implementing interventions to improve pain management and sustainability.