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

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## **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

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**Fellow**

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

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**IRB Number (if applicable):**

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

The presenting trainee was responsible for provider education (neonatologists and NNPs) regarding the goal to improve post-operative pain control in the NICU by increasing use of a post-operative pain algorithm that highlighted administration of IV acetaminophen.

**Problem Statement/Question:**

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 procedures 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: 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 data was reviewed from January-July 2019 and post education data obtained August 2019-August 2020.

**Results:**

Provider compliance with the order plan improved from a baseline of 16.7% of patients before education to 77.3% after intervention. Acetaminophen was administered within the first hour postoperatively more often after provider education, improving from a baseline of 41% to 74.7%. The percentage of patients receiving acetaminophen within the first hour was greater than 70% by July 2020 which precisely achieved our SMART AIM, shifts our center line (Fig. 3 and Fig 4) and is attributed to correct use of the order plan and algorithm. The percentage of elevated pain scores, monitored as a balancing measure, increased 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 elevated pain scores, addressing additional system factors is needed for optimal post-op pain treatment. Future aims include investigating events contributing to delayed acetaminophen administration and implement interventions to improve pain management.