

## PURPOSE

### Can pre-operative pain medication administration improve post-op pain management for patients undergoing Laparoscopic Cholecystectomy?

- Post-operative management of Laparoscopic Cholecystectomy was often challenging due to efforts commonly required to simultaneously manage **pain** and nausea.
- Literature had suggested the administration of pain medication pre-operatively could reduce post-operative pain and in doing so, potentially reduce post-operative narcotic administration.

The purpose of this study was to evaluate that claim and implement interventions to reduce post-operative pain thereby improving post-operative results for Laparoscopic Cholecystectomy patients.

## GOALS

**Patient self-report\* of post-operative pain reduction through administration of 1000mg PO acetaminophen pre-operatively for patients who underwent laparoscopic cholecystectomy as evidenced by ...**

- **10% reduction in overall narcotic administration**
- **10% reduction in length of stay due to pain in the post anesthesia care unit (PACU) greater than two hours**

Our overall goal was better pain control resulting in the use of fewer narcotics, lower incidence of narcotic-induced nausea and vomiting, shorter lengths of stay, and more satisfied patients.

\* Numerical rating pain scale (0 = no pain, 10 = severe pain)

## DATA COLLECTION

**Data Collectors:** Peri-operative nurses

**Source of the Data:** Patient charts ; patient self-report of pain

**Length of Data Collection:** A time frame of one year was chosen to ensure appropriate sample size to support data. The project encompassed data from January-December 2016.

## DATA

The data obtained included the total number of patients undergoing Laparoscopic Cholecystectomy during 2016 with six months of data prior to implementation of the project and six months of data after implementation of the project.



- Data was collected on 69 cases during the 6 months prior to the study and 65 cases during the 6 month period during the study. In all, data was collected on 134 cases.
- Data was collected with respect to patient pain level upon arrival to PACU and at discharge, duration of stay in PACU, and whether or not pain was a contributing factor to duration of stay, and narcotic usage both intra-operatively and post-operatively.

## DATA ANALYSIS

### Length of Stay

During the 6-month period *prior to implementation* ...

- 46% (32 patients) had a length of stay in PACU greater than 2 hours
- 26% (18 patients) of extended stays in PACU were related to pain

During the 6-month period *after implementation* ...

- 42% (30 patients) had a length of stay lasting more than two hours
- 7% (5 patients) of lengths of stays greater than 2 hours were related to pain

Note: While the extended length of stay related to pain was reduced, the overall length of stay was only reduced by 4%. We suspect our inability to correlate the data is most likely related to a variety of other factors that were not isolated out during the study such as patient resting comfortably in recovery for an extended period instead of anxiously recovering in pain; and/or block schedule and volume changes; or orientation of new PACU staff during the study period, which impacted length of stay due to overall timing limitations.

### Narcotic Usage

During the 6-month period *prior to implementation* ...

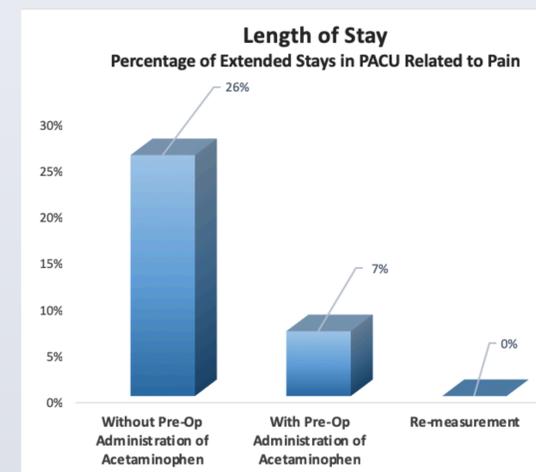
- 7.6% (5) of patients required zero narcotic pain medication in PACU

During the 6-month period *after implementation* ...

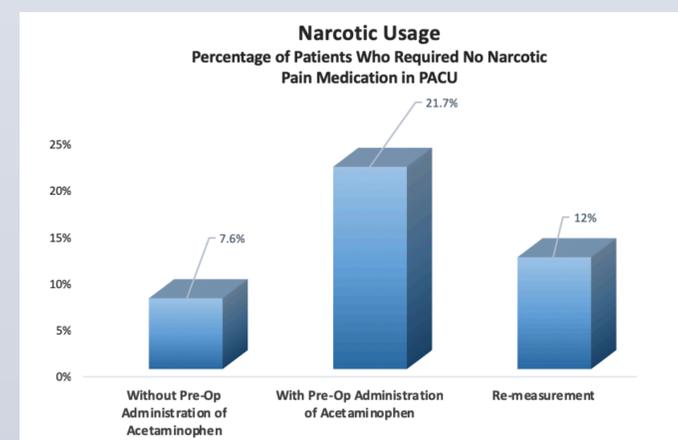
- 21.7% (14) required zero narcotic pain medication in PACU

While goals were not established for the following data analyses, we also found the following: **The administration of acetaminophen pre-operatively eliminated the need for any patient to receive three different IV narcotics in PACU (a decrease of 7.6%). The same results were obtained during the re-measure phase of the study.**

## PERFORMANCE TO GOAL



**Goal Surpassed: 19% reduction in extended stay due to pain.**



**Goal Surpassed: 14% decrease in patients who required narcotics in PACU**

## CORRECTIVE ACTION

All patients undergoing Laparoscopic Cholecystectomy, unless contraindicated, now receive 1000mg PO Acetaminophen pre-operatively per surgeon pre-op order. As a result of this study, the surgeon practice has extended the protocol to all of their facility patients with the exception of procedures where patient self-report of post-operative pain is a consistent 0-1 without the intervention and if contraindicated by patient health status.

## RE-MEASUREMENT

With a group of 34 patients, the same data was collected during the 3-month re-measurement period.

- Less than 1% of patients required an extended length of stay due to pain (26% improvement over baseline)
- 12% (4 patients) required no narcotic in PACU (4.4% improvement over baseline)

In considering re-measure data, the QAPI committee determined the findings represented a sustained significant improvement in overall pain control management in this population. No changes were recommended to the previously adopted protocol for pre-operative acetaminophen administration.

## ADDITIONAL CORRECTIVE ACTION

None required, although Process Improvement Committee is currently studying post-op nausea reduction strategies for this population.

## COMMUNICATION FINDINGS

The project was presented to the QAPI Committee on January 17, 2017 and approved by the board of managers on January 25, 2017. The results of the study were shared widely with the medical staff and their practice staff. In addition to internal communication, results were also shared with community through social media outlet and facility website blog titled "Take a Couple Tylenol and Call Me in the Morning."

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