

Research Objective

- Traditionally, opioids have been prescribed for pain control after surgery, however, the need for this is being called into question.
- Data directly comparing opioids and opioid sparing modalities for postoperative pain are sparse, and prior investigations have historically focused on either the day of surgery or nonsurgical context.
- Recently, the Comparing Analgesic Regimen Effectiveness and Safety (CARES) trial has been launched, an ongoing randomized control trial (RCT) assessing postoperative pain scores between opioid and NSAID regimens after surgery. However, results will not be available until 2026.
- Emulated target trials have emerged as a contemporary method to leverage existing observational data to estimate the impact of interventions when RCTs are impractical or not possible.
- To anticipate the results of the CARES trial we used the framework of target trial emulation to compare outcomes associated with opioid and NSAID regimens in the postoperative period.

Principal Findings

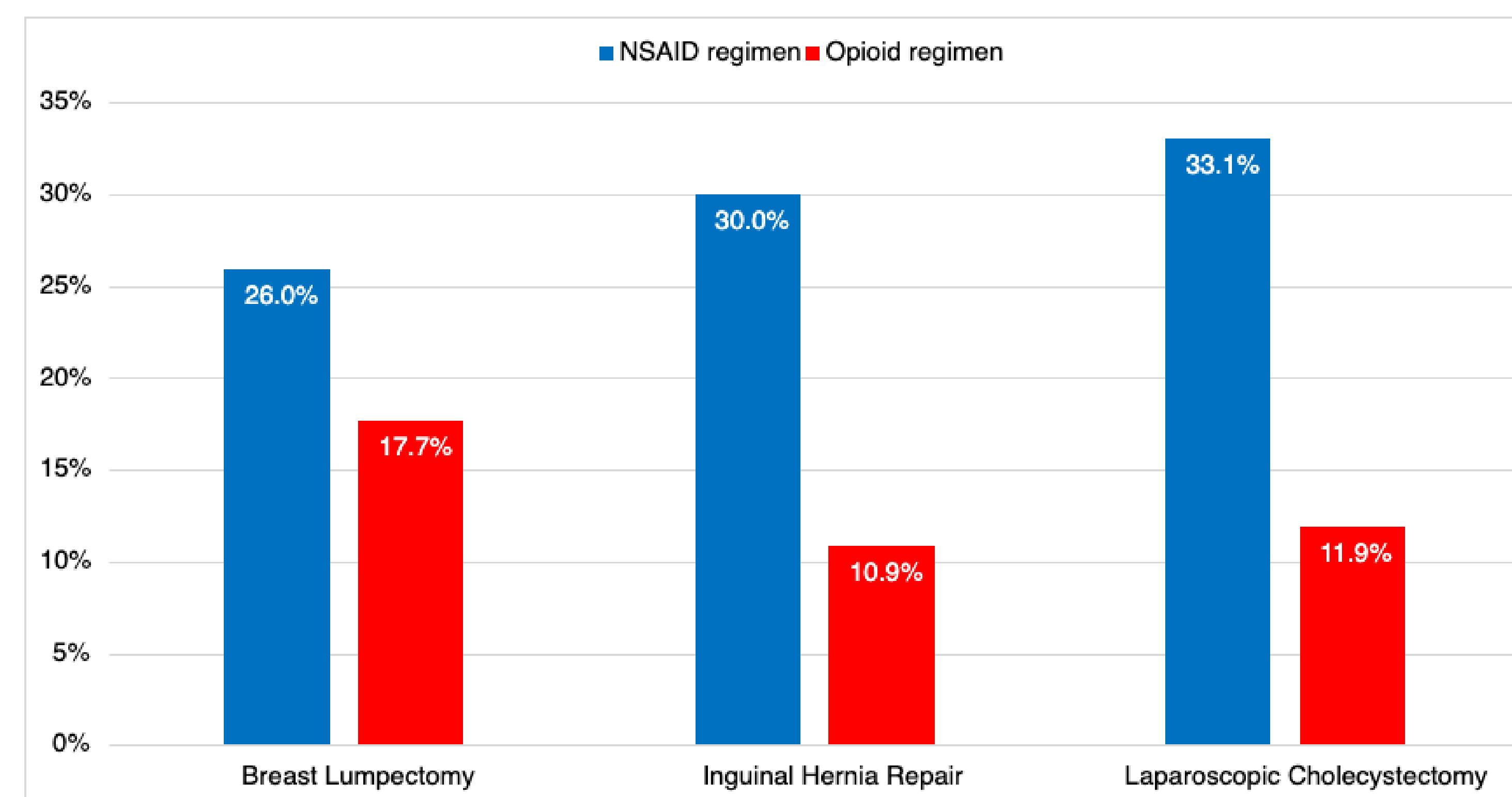


Figure 1: Percentage of Patients Receiving Analgesic Refills of either Opioid or NSAID Prescriptions between 1-30 Days after Discharge from Surgery.

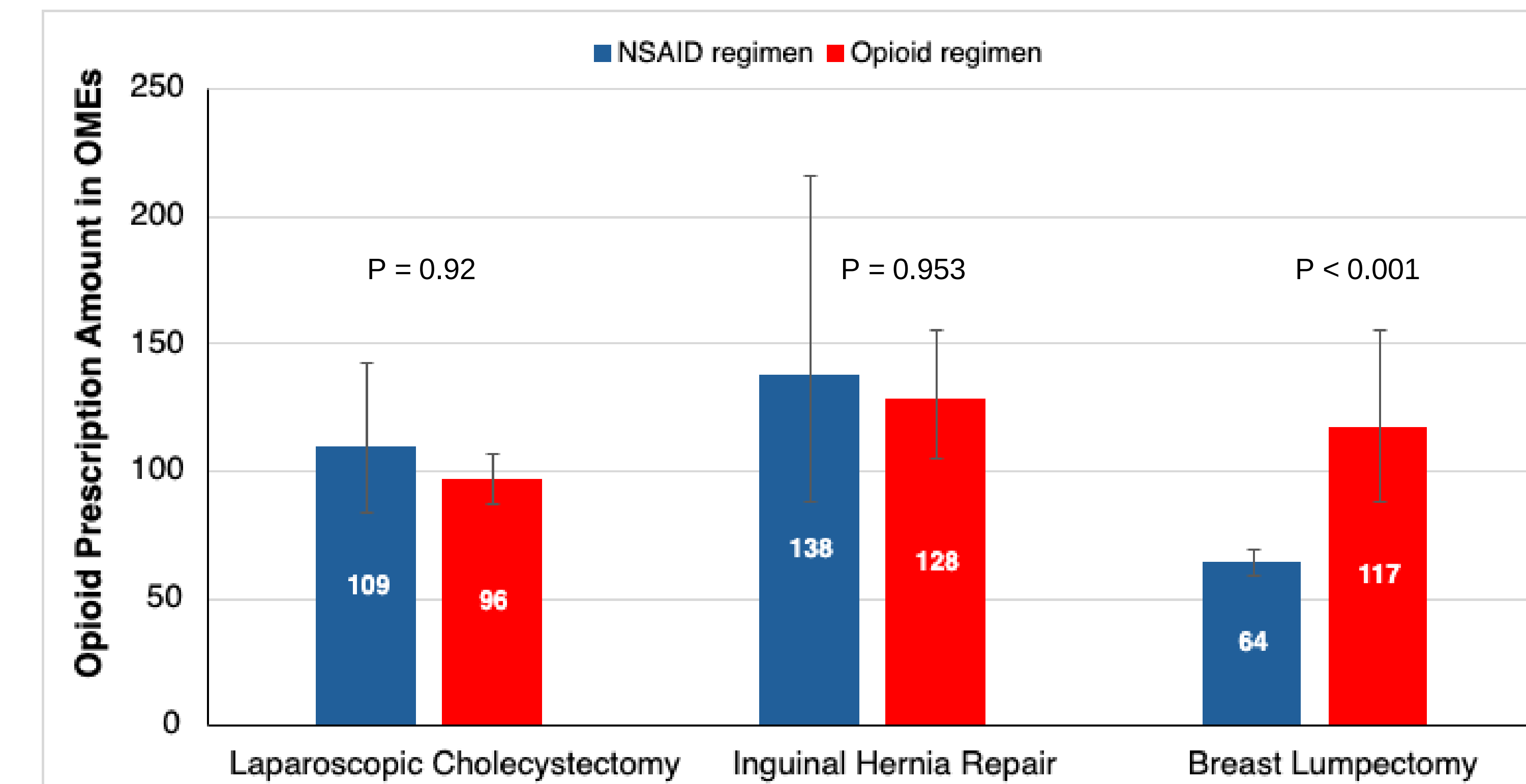
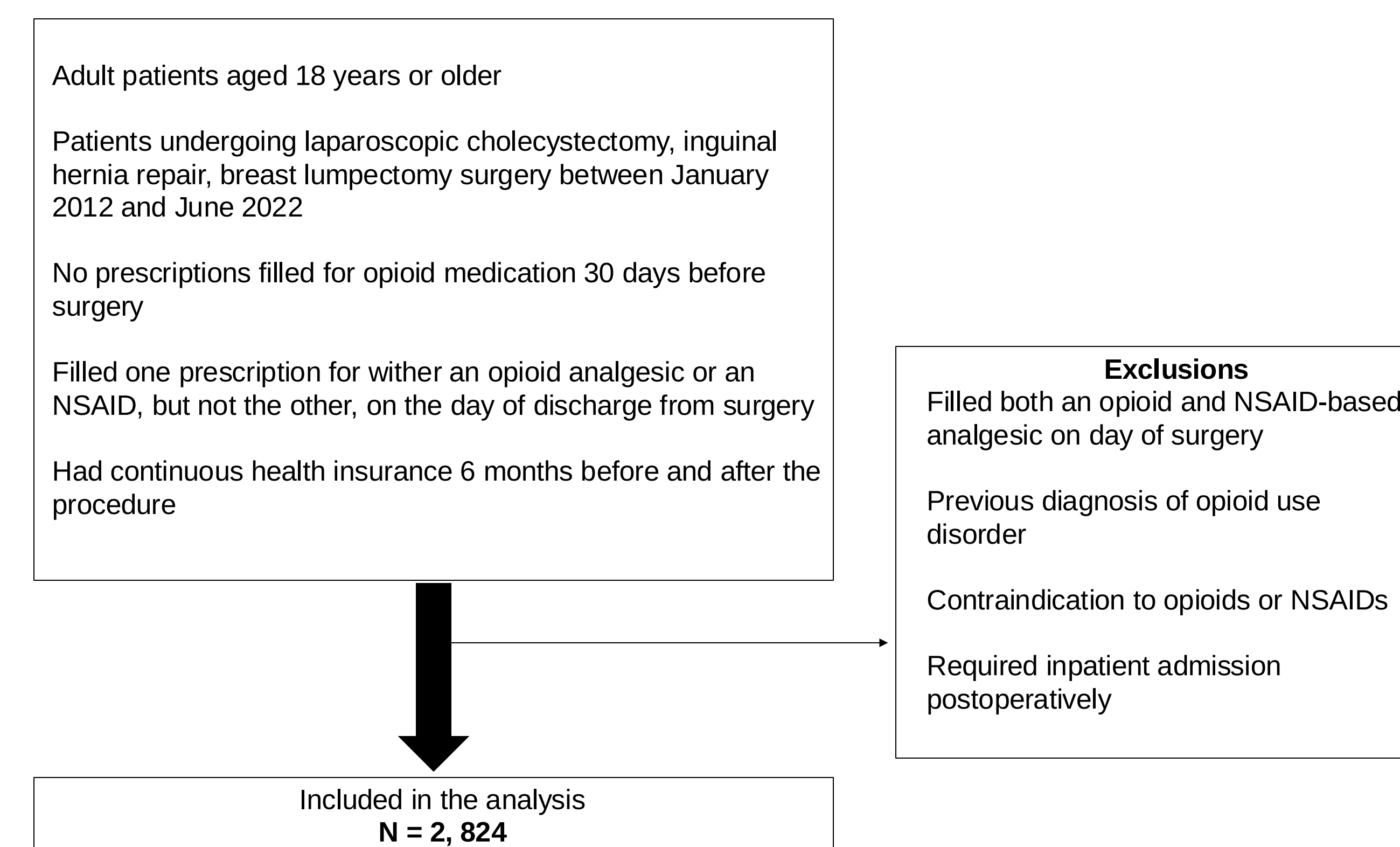


Figure 2: Adjusted Mean Opioid Prescription Size in Oral Morphine Equivalents (OMEs) Refilled up to 30 Days after a Procedure, by Surgery Type.

Study Design

- We closely mimicked the criteria used by the CARES trial.**
- Primary outcome:** percentage of patients with refill of either type of analgesic prescription over 1-30 days after surgery.
- Secondary outcomes:** amount of opioid prescriptions filled in oral morphine equivalents (OME) and additional fills of analgesic regimen prescription (NSAID or opioid)
- Our primary analysis was intent-to-treat and the patient was "assigned" to group at the first fill (ie prescription on date of discharge), regardless of a later fill.
- We fit logistic and linear regression models to estimate average marginal effects after adjusting for potential confounding and censoring using standardized and pooled inverse probability weights.



Conclusions/Implications

- Patients receiving NSAID regimens had higher rates of refills for analgesic prescriptions over the first 30 days after surgery compared to those receiving opioid regimens. However, the amount of opioids refilled did not differ.
- Results were consistent for laparoscopic cholecystectomy and inguinal hernia repair procedures while patients having breast lumpectomy had similar rates of refill and lower amounts of opioids refilled.
- Limitations included the inability to account for over-the-counter analgesic use and patient-reported outcomes, which are absent from claims data.
- This analysis suggests that outcomes for the CARES trial may differ based on procedure type.