



OBJECTIVE

- During the COVID-19 pandemic, hospitals were encouraged to **pause elective surgeries** for benign indications and prioritize non-surgical cancer treatments.
- However, **little research has quantified how hospitals altered their surgical practices across modalities** (i.e., Robotic-assisted, laparoscopic, or open)
- We aim to **identify changes in elective surgical practice during the peak months of the pandemic and determine if these were different across surgical modalities** using a nationwide hospital administrative database in the US.

CONCLUSION

- General surgical volumes declined** after the beginning of the COVID-19 pandemic. The largest decline was observed in April 2020. Compared to one year pre-pandemic:
 - Laparoscopy: ↓ 24%
 - Open: ↓ 23%
 - Robot-assisted: ↓ 7%

METHODS

Study Design

- Premier Healthcare Database®
- Elective general surgical procedures
 - Cholecystectomy
 - Colectomy
 - Ventral & Inguinal Hernia Repair
 - Rectal Resection
 - Sigmoidectomy
- March 2019 - February 2021
- Among hospitals contributing data across the entire study period
- Outcomes**
 - Surgical Volume

Analysis

- Comparison Groups: Robotic-assisted vs Open & Robotic-assisted vs Laparoscopic
- Comparison Time: **12 months before and after beginning of COVID-19 pandemic** (Mar. 2019 – Feb. 2020 vs Mar. 2020 – Feb. 2021)
- Poisson regression adjusted for patient and clinical characteristics:
 - Patient age & sex
 - Comorbidity index
 - Hospital region

RESULTS

Figure 1. General surgical volumes by modality, Mar 2019 – Feb 2021

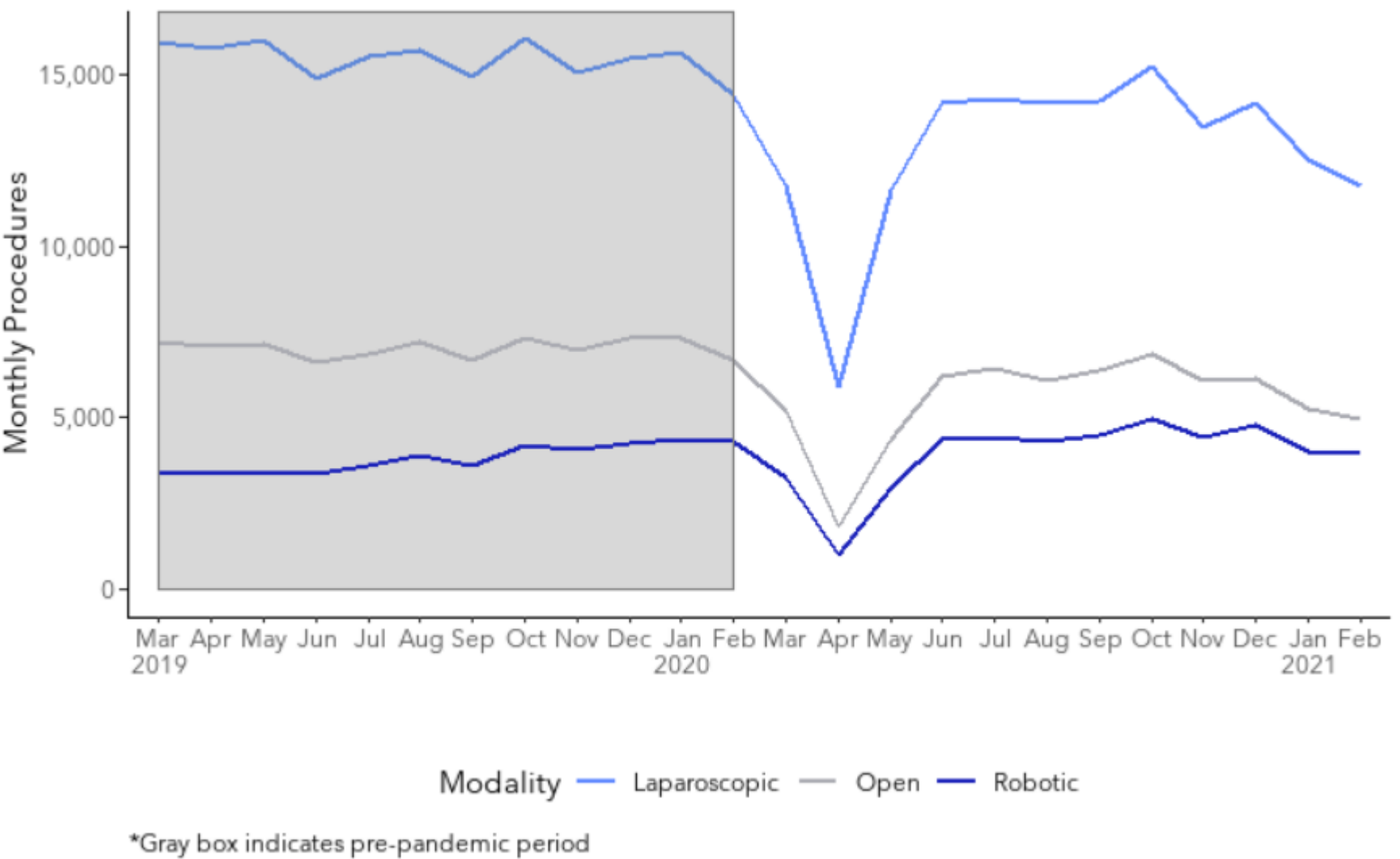


Figure 2. Year-Over-Year change by month in surgical volume for post-pandemic period compared to pre-pandemic period by modality, Mar 2019 - Feb 2021

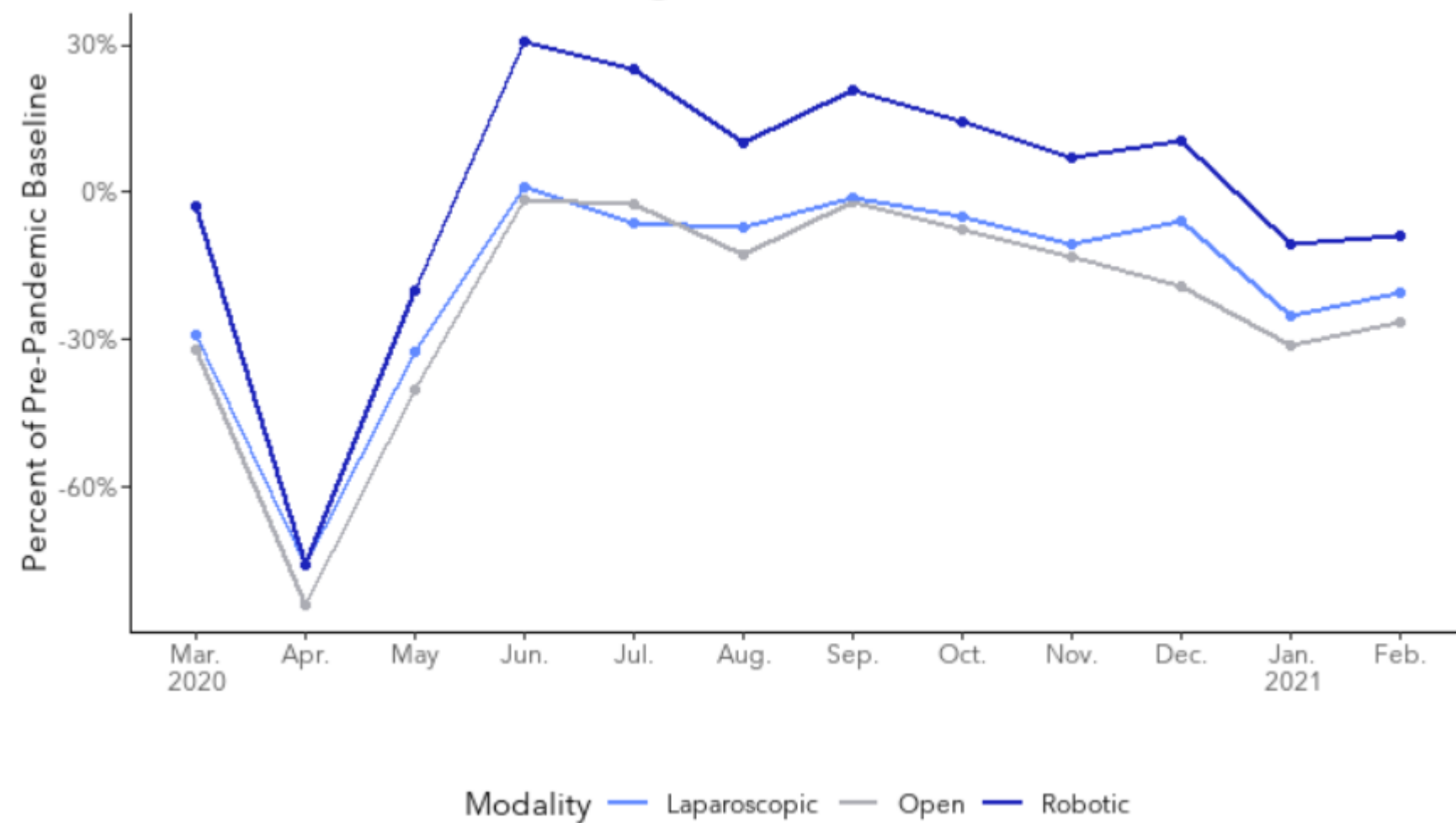


Figure 3. Poisson model results, change in annual surgical volume for post-pandemic period compared to pre-pandemic period by modality

Modality	Annual Volume Change IRR (95% CI)
Robotic	Ref.
Laparoscopic	0.82 (0.80 – 0.84)
Open	0.80 (0.77 – 0.81)

Key findings

- Hospital N = 532
- Patient N = 561,752
 - Cholecystectomy n = 269,507
 - Hernia n = 251,547
 - Colectomy n = 19,833
 - Sigmoidectomy n = 11,563
 - Rectal resection n = 9,302
- Surgical volumes declined sharply beginning in March 2020, with a rebound beginning May 2020.
- Surgical volumes were still generally at-or-below pre-pandemic values, worsening during winter surge in cases
- Robotic-assisted volumes returned to and sustained pre-pandemic values more quickly than other modalities