

OBJECTIVE

- During the COVID-19 pandemic, hospitals were encouraged to **pause elective surgeries** for benign indications, prioritize non-surgical cancer treatments, and **minimize hospital stays** among oncology patients still undergoing surgeries.
- However, **no specific recommendations were provided about triaging procedures by surgical modality** (i.e., Robotic-assisted, laparoscopic, or open).
- We aim to identify **changes during the pandemic in surgical volume and post-operative length of stay (LOS)** among colectomies with malignant indications and if there were differences across surgical modalities.

CONCLUSION

Volumes

- Malignant colectomy volumes fell** after the beginning of the COVID-19 Pandemic, but rebounded in the second half of 2020
- Robotic-assisted surgeries more rapidly returned** to pre-pandemic volumes compared to open and laparoscopic volumes
- These differences were sustained during the second major COVID-19 wave in the winter of 2020-2021

METHODS



Study Design

- Premier Healthcare Database®
- Elective **colectomy w/ malignant indication** (n = 9,038)
- March 2019 - February 2021
- Among hospitals contributing data across the entire study period (n = 458)



Outcomes

- Surgical Volumes
- Post-operative Length of Stay (LOS)



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 (volumes) & linear regression (LOS)
- Adjusted for patient and clinical characteristics

LOS

- Post-op mean **LOS fell 0.2 days** after the beginning of the pandemic (95% CI: -0.4 - -0.1)
- Significant decreases in LOS were **largest among Robotic-assisted** malignant colectomies (-0.4 days), while no difference in LOS were detected among laparoscopic (+0.1 days) and open (-0.1 days) after the pandemic began

RESULTS

Volumes

Figure 1. Malignant colectomy surgical volume by modality, Mar 2019 – Feb 2021

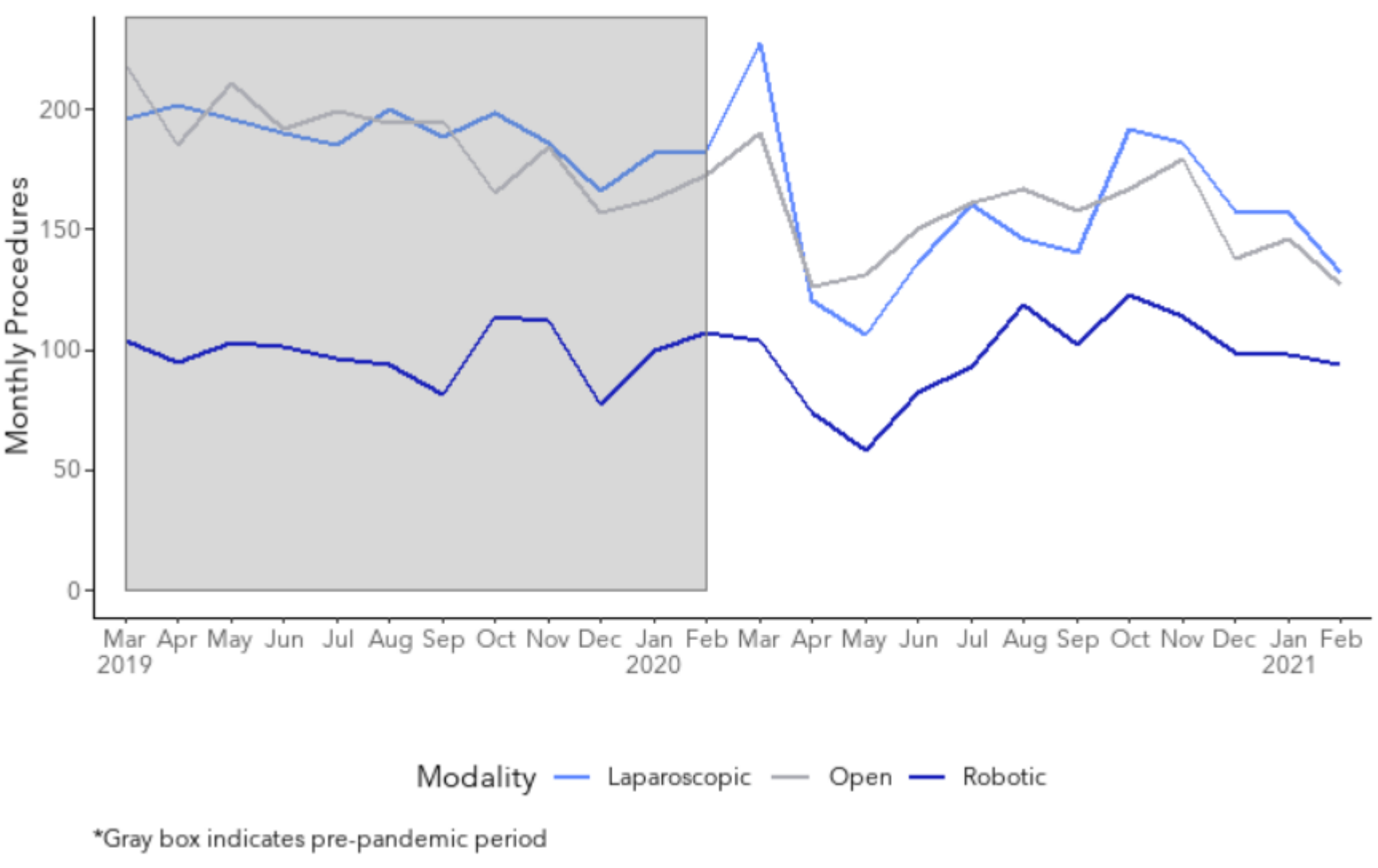


Figure 2. Year-over-year change by month in the post-pandemic period compared to the pre-pandemic period by modality & Poisson mod

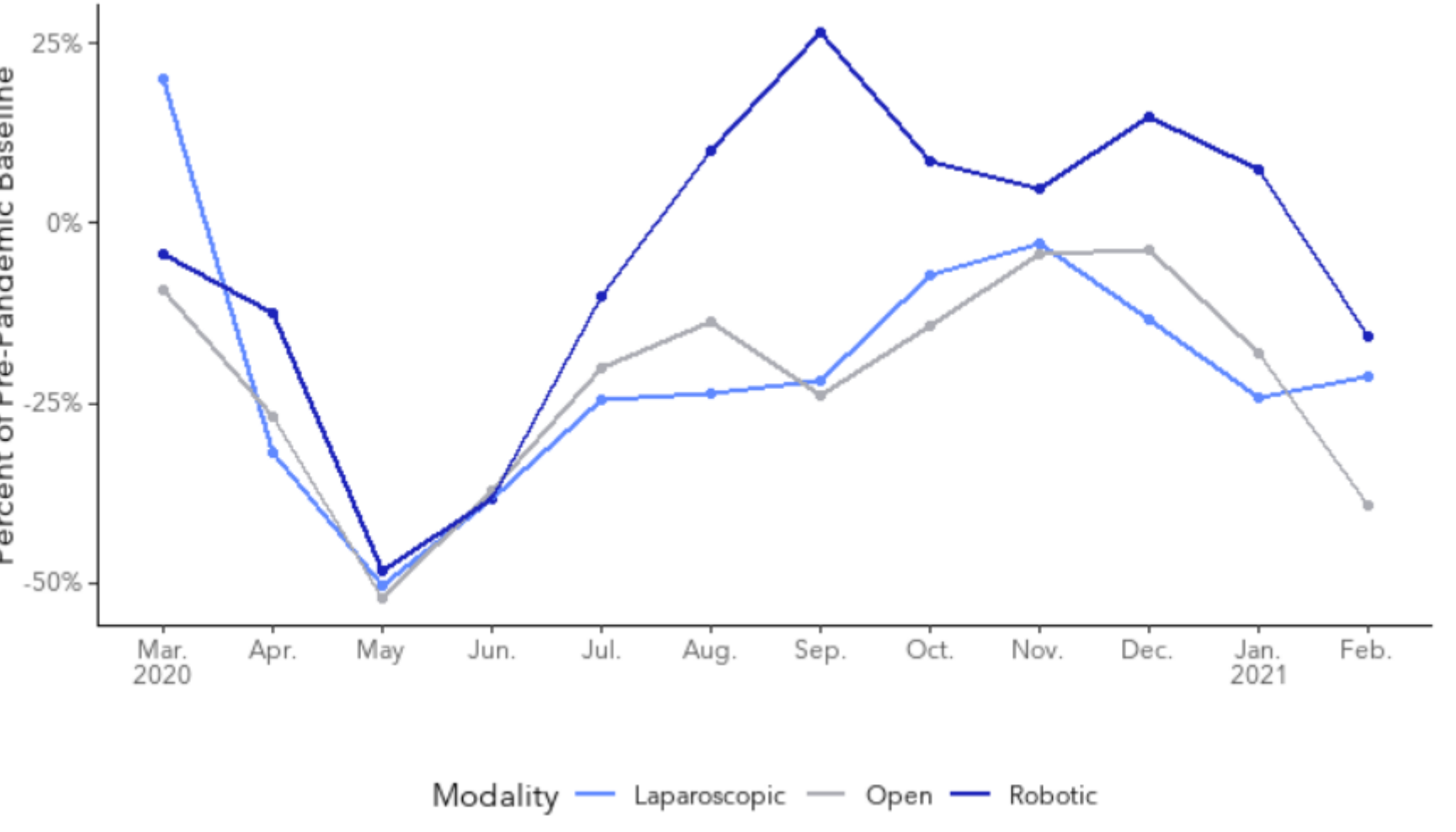


Figure 3. Model-based estimates for change in volume by modality

Modality	Annual Volume Change IRR (95% CI)
Robotic	Ref.
Laparoscopic	0.85 (0.76 – 0.93)
Open	0.83 (0.76 – 0.93)

LOS

Figure 4. Malignant colectomy monthly mean LOS

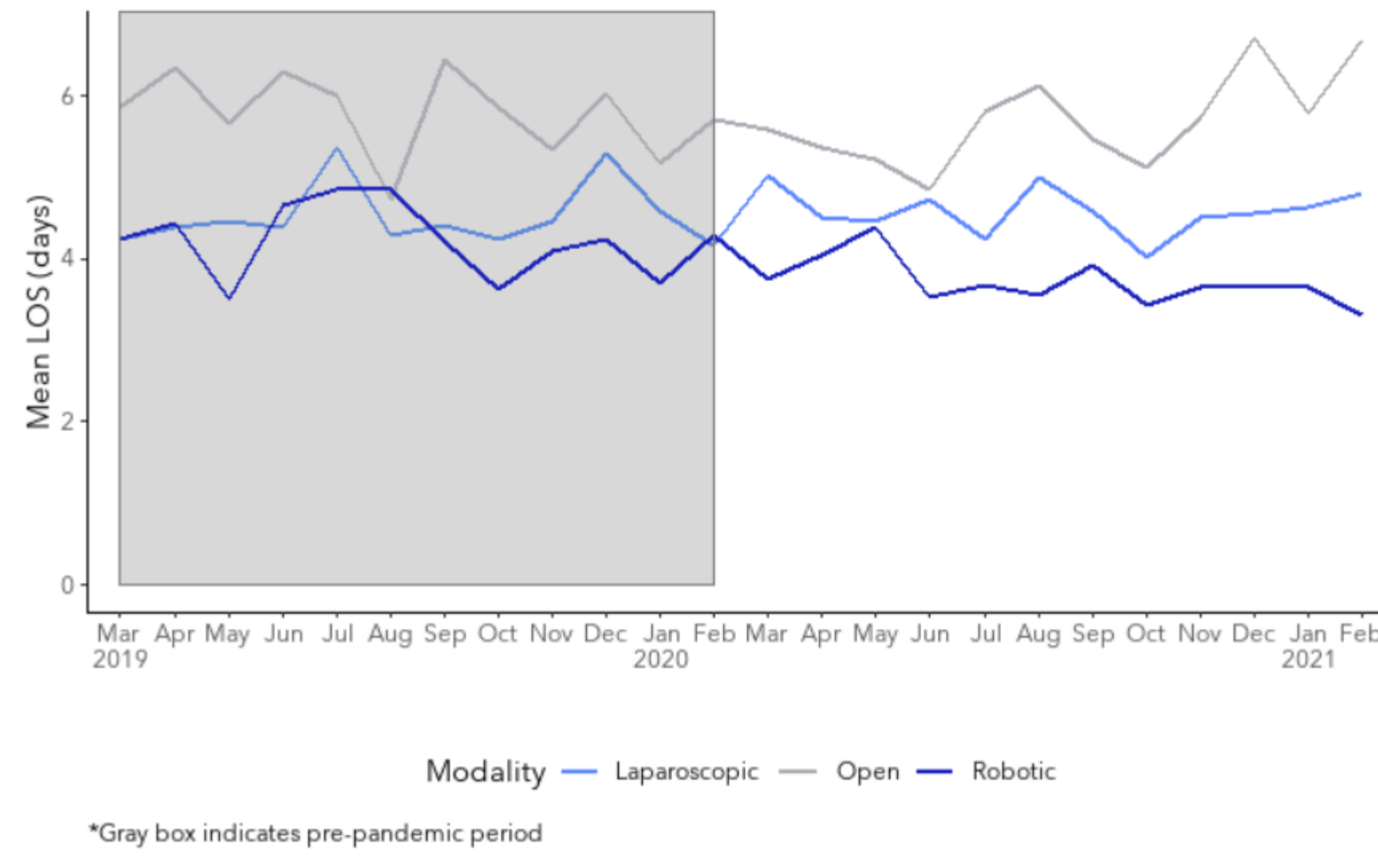


Figure 5. Model-based estimates for LOS and change in LOS by modality

Modality	Pre-pandemic baseline LOS (95% CI)	Post-pandemic LOS change (95% CI)
Robotic	4.5 days (3.4 – 5.6)	-0.4 days (-0.8 – -0.1)
Laparoscopic	4.9 days (3.8 – 5.9)	+0.1 days (-0.2 – 0.4)
Open	6.1 days (4.9 – 7.3)	-0.1 days (-0.5 – 0.2)