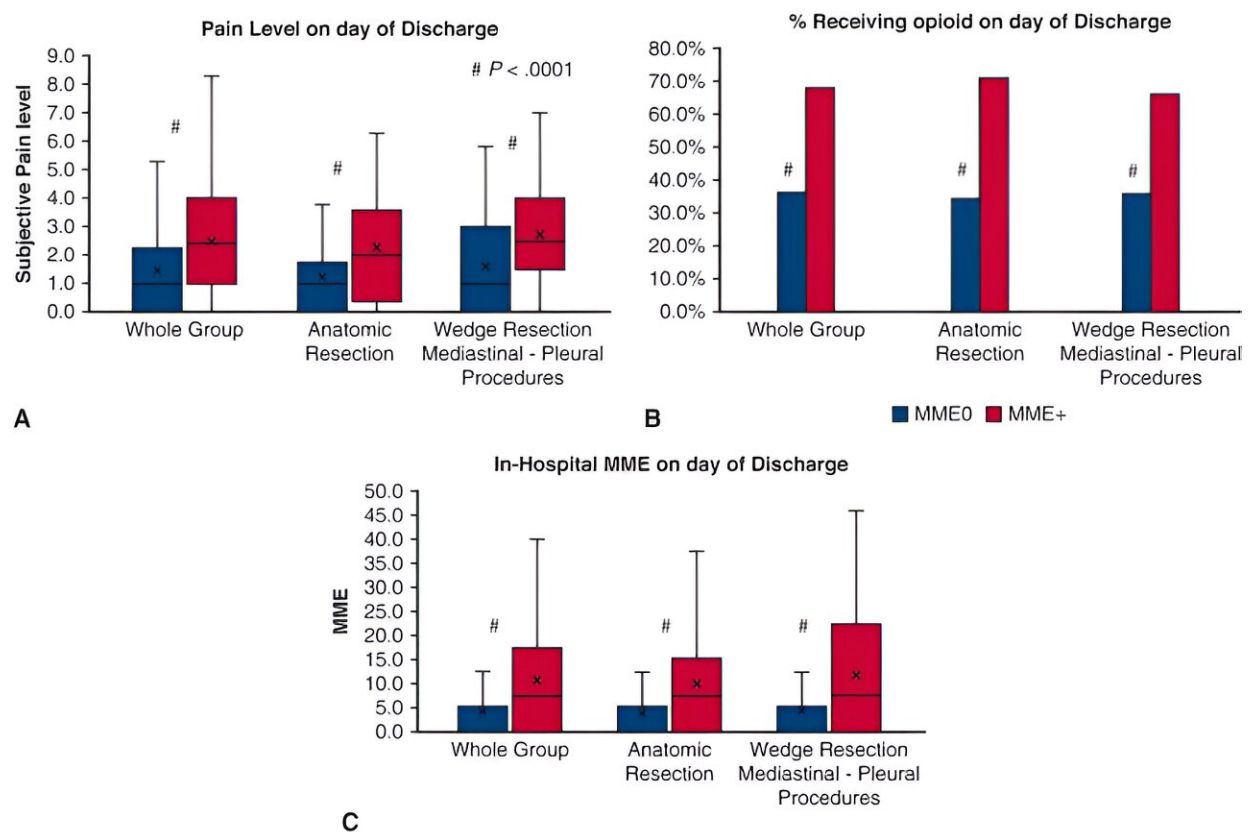


Thoracic surgeons who treat lung cancer are helping reduce patients' risk of opioid dependence, study shows

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Comparative analysis of subjective pain levels (A), the amount of in-hospital opioid use (B), and the percentages of patients receiving opioid (C) on the day of discharge from hospital of the entire cohort and its subgroups following indicated robotic thoracoscopic procedures. Data are presented using box-whisker plots (median: —, mean: x); vertical bars indicate minimal and maximal values. MME, Milligram morphine equivalent. Credit: *JTCVS Open* (2023). DOI:

Researchers at Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine have found that robot-assisted surgeries and new patient-care protocols are enabling lung cancer surgery patients to go home earlier, with less pain and almost always without a need for potentially addictive opioids.

The improved outcomes follow the introduction in 2018 of University of Miami Health System's ERATS protocol—Enhanced Recovery After Thoracic Surgery—which was designed to achieve optimal outcomes for patients undergoing thoracic surgical procedures, most of which treat lung cancers. The ERATS protocol, which has been refined twice, is similar to guidelines initiated at some other medical centers.

"We've seen a significant reduction of [opioid](#) use both in-hospital and after discharge following robotic thoracoscopic procedures," said Dao Nguyen, M.D., a thoracic surgeon who treats and studies lung and other cancers and is the Sylvester Thoracic Cancers Group co-leader.

"Additionally, length of hospitalization has gone down, with an average 1 ½-day stay for less complicated procedures and a 2 ½-day stay for major procedures, such as lobectomies and segmentectomies. The national average for the more complex procedures is about four to five days," said Nguyen, senior author of an [article](#) in the *Journal of Thoracic and Cardiovascular Surgery Open (JTCVS Open)*.

Before ERATS was implemented, powerful opioids were often used among other options for controlling the pain that is intrinsic to all chest [surgery](#) procedures, whether open or minimally invasive, but negative side effects were common. While all components of ERATS are

important, and they work synergistically to improve [patient outcomes](#), effective pain control is the cornerstone of the protocol, the authors said.

They found they could drastically reduce patients' postoperative need for potent and potentially addictive opioid drugs like oxycodone and hydromorphone by using intercostal nerve blocks—injections of medication under the ribs—that combine a long-acting local anesthetic with a fast-acting, short-duration one.

Patients also are given safe, nonaddictive pain relievers like ibuprofen, acetaminophen and gabapentin. The authors said optimal pain control, in addition to reducing reliance on opioids, helps patients start moving more quickly, experience more effective chest [physical therapy](#), have fewer complications and enjoy an improved sense of well-being.

Patients' pain levels have gone down as ERATS has evolved, with the greatest pain control achieved after the latest refinement in January 2020, according to the study.

"On the day of discharge, patients reported pain levels of zero to 2 or 3 on the Numeric Pain Rating Scale, where 10 denotes the most severe [pain](#) imaginable," Nguyen said.

The single-institution, retrospective study of patient records included 466 patients who underwent surgery performed by thoracic surgeons in the DeWitt Daughtry Department of Surgery at the University of Miami. Of the 466, 211 patients underwent complex, major operations, and 255 had less complicated procedures performed.

In all, 309 patients were discharged with no opioid prescriptions, and of these, 275 remained opioid-free. Of the 157 patients discharged with prescriptions for oxycodone and/or the nonaddictive synthetic opioid tramadol for up to three days, 150 patients filled the prescriptions; seven

did not.

Overall, the researchers found:

- About 60% of patients (282) were discharged home without the need for oral opioids and remained opioid-free.
- Only 11% of 275 patients (34) discharged without opioid prescriptions later needed one—a single fill of tramadol, a nonaddictive drug.
- Seven of 157 patients (11%) who went home with handwritten prescriptions for opioids never filled them.

"Further analysis found that only 3% of patients would require opioids for reasons related to their operations over the next 180 days," Nguyen said. "This is in contrast to the 10% of patients, a statistically significant difference, who need opioids in the post-discharge period and become persistent opioid users. Achieving nearly opioid-free post-discharge status—thanks in large part to robotic [thoracic surgery](#)—minimizes opioid availability and contributes to the fight against the opioid epidemic."

Nguyen is senior and corresponding author. Daniel Gross, M.D., is first author. Co-authors are Ahmed Alnajar, M.D., and Nestor Villamizar, M.D.

More information: Daniel J. Gross et al, Achieving opioid-free discharge following robotic thoracic surgery: A single-institution experience, *JTCVS Open* (2023). [DOI: 10.1016/j.xjon.2023.06.017](https://doi.org/10.1016/j.xjon.2023.06.017)

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