Arguably, our taxonomy for minimally invasive surgery is no longer sufficient to tease out the complex mechanisms that cause postoperative pain. When a new system becomes popular, will we be comparing a Robot X lobectomy to “Intuitive lobectomy” to uniport to 2-port VATS, etc., to open? It is time to upgrade our databases with port placement details and other variables that relate mechanistically to postoperative pain. That way, all thoracic surgeons can benefit from the knowledge no matter what operative system works best for them.

References

Commentary: Can we embrace our bias and move beyond it?
Scott I. Reznik, MD

One goal of any study is to eliminate bias. Responsible authors and editors watch constantly for sources of bias and use randomization or propensity matching to minimize bias. In this issue of the Journal, Rajaram and colleagues present an analysis of opioid use after robotic lobectomy (RL) compared with video-assisted thoracic surgery (VATS) and open lobectomy and report that fewer opioids are used in RL. The authors disclose their affiliations and the funding source. This may raise suspicion in the reader, since Intuitive Surgical (Sunnyvale, Calif) employs some of the authors, funded the study, and stands to benefit from results favoring robotic surgery. The authors have gone to great lengths to detail their efforts to eliminate bias, both real and perceived. The study protocol, available in the supplement, and statistical plan were created before institutional review board approval and data collection. The only deviation was a post-study sensitivity analysis requested during peer-review. The authors may have eliminated their bias, but can the reader but aside theirs?
Once source of bias that cannot be eliminated is the individual practices and beliefs of the treating physicians in the study. Both patient and surgeon expectations can drive prescribing patterns. Open surgery is associated with more pain than minimally invasive surgery, although a recent study reported that robotic surgery was associated with greater pain scores.\textsuperscript{3,5} The number of ports, size, and location of access incisions vary among surgeons. In addition, different chest tube–management strategies can affect pain. Several groups have shown that enhanced recovery after surgery (ie, ERAS) pathways can minimize opioid use through a multimodal approach.\textsuperscript{6} This variability can lead to markedly different levels of opioid use independent of technique. Perhaps surgeons performing robotic procedures are more likely to use opioid-sparing strategies.

The authors’ main message is that patients undergoing RL received lower doses of opioids compared with patients undergoing thoracoscopic and open lobectomy in the immediate postoperative period.\textsuperscript{2} Does RL hurt less than VATS or thoracotomy? Many studies rely on patient-reported pain scores, which are well validated but cannot be objectively verified.\textsuperscript{3,5} Unless there is a randomized prospective trial with uniform surgical, anesthetic, and postoperative management, we may not be able to answer this question definitively. The Premier database contains a time-stamped log of billed medications. The authors measured the use of parenteral and enteral opioids while accounting for many nonopioid analgesics, including acetaminophen, nonsteroidal anti-inflammatory drugs, local anesthetics, epidurals, and others. The average daily dose and the total dose of opioids was lower in the RL group than in the open or VATS group. More patients who underwent RL received parenteral nonopioids on the day of surgery than did patients who underwent VATS or open but less nonopioid analgesics at all other time points. From this study, we cannot know whether RL hurts, but we can believe that those patients received less analgesics of all varieties. Is this the result of a less-painful technique, different expectations, different strategies, or all of the above? By embracing the data, bias, and all—we can say yes.

References
1. Street F. Confirmation Bias and the Power of Disconfirming Evidence. Available at: https://fs.blog/2017/05/confirmation-bias/.