

Use of minimally invasive surgery could lower health care costs by hundreds of millions a year

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A new analysis of surgical outcomes nationwide concludes that more use of minimally invasive surgery for certain common procedures can dramatically reduce post-operative complications and shave hundreds of millions of dollars off the nation's health care bill.

Results of the research, conducted by Johns Hopkins investigators and published March 25 in *JAMA Surgery*, indicate that American hospitals collectively could prevent thousands of post-surgical complications and save between \$280 million and \$340 million a year by using more minimally invasive procedures instead of [traditional open surgery](#) for routine operations of the appendix, colon and lungs.

"Minimally [invasive surgery](#), done in the right patients, represents an under-recognized opportunity not only for cost savings, but also for making surgery safer, reducing the very real suffering associated with surgical complications," says lead investigator Marty Makary, M.D., M.P.H., professor of surgery at the Johns Hopkins University School of Medicine.

Minimally invasive surgery, also known as laparoscopic or keyhole surgery, involves making tiny surgical incisions, or "keyholes," to access organs and operate on them, in contrast with cutting into and through much larger areas of tissue.

For the study, the research team analyzed more than 80,000 surgical cases from the National Inpatient Sample database, tracking seven common post-surgical complications and associated billing charges for certain common operations. The procedures tracked involved operations of the appendix, colon or lungs, selected because both the traditional open and the minimally invasive approaches are considered standard of care.

While not all patients are candidates for [minimally invasive treatment](#), the researchers note, the study revealed great variation in its use among those who do qualify—similar patients treated at similar hospitals.

To calculate the cost difference between traditional open and [minimally invasive surgery](#), the investigators compared the actual cost for each patient who underwent traditional surgery against the estimated cost for the same patient undergoing minimally [invasive treatment](#). In addition, the investigators calculated potential cost savings under two hypothetical scenarios: when all hospitals increased their use of minimally invasive surgery by 50 percent and when the hospitals performing the fewest such procedures, the so-called low utilizers, upped them to the level of hospitals performing in the upper one-third.

The tally showed that if all U.S. hospitals increased the number of minimally invasive procedures by 50 percent, they would avert 3,578 complications, reduce hospital stay by 144, 863 days and save \$288 million a year. If hospitals performing the fewest minimally invasive operations boosted their levels to those of their higher-performing counterparts, the collective savings would be \$337 million a year, 4,306 fewer complications and 169,819 fewer hospital days.

The research team says the findings should be heeded as a call to action by hospital leaders to increase capacity for minimally invasive treatment and create a more streamlined division of labor so that surgeons with

expertise in minimally invasive treatment can operate on patients who qualify for this approach.

The authors caution that minimally invasive surgery is not always the optimal method of treatment, and some patients are not candidates for it.

"The decision to perform an open versus minimally [invasive procedure](#) should be made according to each patient's specific case and overall health, among other factors," Makary says. "But our results make a very strong case that minimally invasive surgery is grossly underutilized and, at a minimum, ought to be offered to patients more often."

Provided by Johns Hopkins University School of Medicine

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