

What's New in the Patient Safety World

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Length of Stay and Post-Discharge Complications in Surgical Patients

The relationship between length of stay (LOS) and complications is a complex one. Complications may increase LOS and longer LOS exposes patients to a number of iatrogenic complications. For many years, we have tried to reduce LOS for most diagnoses and conditions. Especially in the past decade, with adoption of ERAS (Enhanced Recovery After Surgery) we've seen surgical LOS decrease even further (see our February 11, 2020 Patient Safety Tip of the Week "[ERAS Rocks!](#)"). But we've always tempered our enthusiasm for getting patients out of the hospital with the concern that we may be discharging them too soon.

A new study alerts us that post-discharge complications following surgical procedures are, in fact, increasing. Li et al. ([Li 2021](#)) looked at ACS NSQIP data from 2014 to 2019 on over 500,000 patients who underwent surgical procedures of the colon and rectum; esophagus; hepatopancreatobiliary system involving the liver, pancreas, gallbladder and bile ducts; or gynecologic or urologic systems and identified complications that occurred from the date of discharge up to 30 days post-discharge. They found that the **median LOS decreased from 3 days to 2 days** over that time span. Though the overall rate of postoperative complications declined 1 percent over the five-year study, **post-discharge complications increased 12%** over the same period. As a proportion of all postoperative complications, post-discharge complications increased from 44.6% to 56.5%.

Complications that had higher rates over time included surgical site infections; other infections such as pneumonia, urinary tract infection, and sepsis; MI, cardiac arrest, stroke, and venous thromboembolism.

The authors stress that many of these complications are potentially preventable, with early recognition and management preventing progression to more serious conditions.

They also identified risk factors that were associated with a higher odds of post-discharge complications:

- Patient factors: Hispanic or "other ethnicity/race"; higher body mass index; higher American Society of Anesthesiologists class (a surrogate for general health status used to predict operative risk); loss of independent function; higher wound class (a more severe wound); and experiencing an inpatient complication
- Procedure factors: a longer operation and the type of surgical procedure

Recommendations to help avoid such complications include:

- Education of patients and their family before the operation and before discharge, aimed at equipping them to recognize concerning signs and symptoms that they should discuss with their surgeon
- Easy communication between the patient and the surgical team
- Close monitoring that is more intensive for patients at elevated risk of complications

Given that overall complication rates decreased over the period of the study, the obvious question is whether the shorter LOS had a causal relation to the higher rate of post-discharge complications. The authors do note that surgeons are often unaware of these complications until patients present to the ED or hospital and that earlier recognition of some may have prevented progression to more serious complications (eg. recognition of a wound infection might have led to prevention of sepsis). We've also noted in the past, when looking at hospital readmissions, that many complications are "medical" rather than strictly "surgical". That emphasizes the need for good communication not only between the surgeon and patient/family but also with the "medical" clinician(s) who will also be providing future care. You'd be surprised how often a patient's primary care physician is not even aware their patient was hospitalized and had surgery.

References:

Li RD, Merkow RP, Joung HSD, Chung JD, Bilimoria KY. Are We Chasing Shorter Length of Stay At the Expense of Post-Discharge Complications? Scientific Forum Presentation. American College of Surgeons Clinical Congress 2021
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