

Clinical Science

# Patient experiences after hospitalizations for elective surgery



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## KEYWORDS:

Rehospitalization;  
Surgical  
complications;  
Care coordination;  
Patient-centered  
outcomes

## Abstract

**BACKGROUND:** Little is known from patients' perspective about the quality of postdischarge care and the causes of rehospitalization after elective surgery.

**METHODS:** A prospective observational cohort study was conducted.

**RESULTS:** Of 400 patient participants, 374 completed the 30-day follow-up questionnaire (completion rate, 94%). Half of all unplanned rehospitalizations (experienced by 13% of patients) and nonre-hospitalization emergency department visits (experienced by 6%) occurred within 10 days of discharge. Patients used emergency departments and were rehospitalized at facilities near their homes (mean distance traveled, 12.1 mi). The most common primary reason for rehospitalization was postoperative complications, according to patient report, clinical records, and administrative data. Poor perceived care coordination was associated with higher readmission risk.

**CONCLUSIONS:** Patients perceive surgical complications as dominating the reasons for rehospitalizations after elective surgery. Strategies to improve care quality around elective surgery at referral centers should target the discharge process and the coordinated management of postoperative complications through care received at regional hospitals.

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The Centers for Medicare and Medicaid Services Readmission Reduction Program went into effect on October 1, 2012, and hospitals are now financially penalized for excess readmissions for patients hospitalized with acute myocardial infarction, congestive heart failure, and pneumonia.<sup>1</sup> In

2014, conditions subject to the penalty will likely be expanded beyond these 3 diagnoses, and the possibility looms of an all-cause rehospitalization penalty.<sup>2</sup> Given these potential consequences, individual hospitals and providers are under pressure to innovate strategies to address deficiencies in care quality contributing to excess patient rehospitalizations. However, insufficient knowledge exists to guide this effort when it comes to the heterogeneous postdischarge experiences of patients, particularly for those without the better studied conditions such as heart failure, and especially little is known about patient experiences after elective surgery.

An analysis of Medicare claims data found that the 15% rate of readmission after primarily surgical index stays is lower than the 20% rate after medical index stays and

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indicated that the majority of readmissions were due to chronic medical conditions.<sup>3</sup> However, discrepancies between studies of claims and clinical data have raised questions as to whether surgical patients are more often rehospitalized for direct complications of surgery rather than for chronic medical conditions.<sup>4,5</sup> In response to the demand for research driven by patient-centered outcomes,<sup>6</sup> we undertook a prospective cohort study of adults undergoing elective surgery to deepen our understanding of their experiences during the 30 days after hospital discharge. Understanding patients' perspectives may help identify opportunities to intervene and reduce postoperative rehospitalizations. The objectives of this study were (1) to compare patient-reported reasons for rehospitalization after elective surgery with reasons distilled from clinical and administrative data; (2) to assess the influence of environmental and socioeconomic risk factors on surgical readmissions; and (3) to characterize the pattern of postdischarge hospital use after elective surgery.

## Methods

To be inclusive of a variety of surgical procedures, we recruited patients encountered in the perioperative medicine clinic at Northwestern Memorial Hospital (NMH), a large academic surgical referral center in Chicago affiliated with Northwestern University's Feinberg School of Medicine. Patients underwent preanesthesia medical evaluations in the clinic if they met the following criteria: (1) the patient's primary physician did not include a preoperative medical evaluation in the patient's chart or (2) the patient had complex medical comorbidities amenable to comanagement during the ensuing postoperative hospitalization. Comanagement is a growing model of inpatient care involving referral to a medical generalist or specialist for managing perioperative medical issues.<sup>7</sup>

A list of all patients encountered in the perioperative medicine clinic was obtained each week. Patients on this list whose subsequent postoperative inpatient stays lasted >24 hours were approached during a weekday by a research assistant who administered a 10-item questionnaire to consenting subjects. These patients were contacted by telephone 30 days after hospital discharge to undergo a second 10-item questionnaire with multiple subitems. The majority of patients or their surrogates were contacted on the first attempt, but calls were repeated periodically up to 4 weeks after the initial call until contact was made.

The in-hospital questionnaire elicited self-reported race and environmental and socioeconomic domains of rehospitalization risk as documented in a study by Arbaje et al,<sup>8</sup> including single marital status, not living at home, living alone, low level of support from friends and family, lack of reliable access to transportation for medical care, low education, low income (<\$25,000), and impaired activities of daily living and instrumental activities of daily living. The postdischarge questionnaire elicited details (location, date,

physician, circumstances) about each episode of rehospitalization, emergency department (ED) use, and/or outpatient clinic visits during the 30-day period. When the patient was unable to recall the exact date of services, he or she was prompted to identify the week of service, the first business day of which was used as an estimate. Separate items also asked patients to rate the overall care coordination during their hospitalizations (excellent, very good, good, fair, or poor), care coordination after discharge (excellent to poor), overall health (excellent to poor), and bodily pain (none, very mild, mild, moderate, or severe) using validated instruments.<sup>9</sup>

Administrative and clinical information obtained from participants' medical records included date of birth, body

**Table 1** Patient and procedure characteristics of study participants

Characteristic	Value
Total	400
Women	232 (58%)
Age (y)	61.1 (52.1–69.1)
Charlson comorbidity index	1 (0–2)
BMI (kg/m <sup>2</sup> )	
Underweight (<18.5)	6 (1%)
Normal (18.5–25)	66 (17%)
Overweight (25–30)	121 (30%)
Obese class I (30–35)	86 (22%)
Obese class II (35–40)	51 (13%)
Obese class III (>40)	70 (17%)
ASA class	
I/II	389 (97%)
III/IV	11 (3%)
Wound classification	
Clean/clean-contaminated	386 (96%)
Contaminated/dirty-infected	14 (4%)
Index hospitalization length of stay (d)	3.5 (3.1–6.2)
Primary surgical procedure, n (%)	
Orthopedic (CCS procedure codes 142–164)	181 (45%)
General surgery (CCS procedure codes 68–99)	93 (23%)
Urologic (CCS procedure codes 100–118)	39 (10%)
Neurosurgical (CCS procedure codes 1–9)	28 (7%)
Airway and thoracic (CCS procedure codes 36–42)	13 (3%)
Other	11 (3%)
Endocrine (CCS procedure codes 10–12)	8 (2%)
Skin and soft tissue (CCS procedure codes 168–175)	8 (2%)
Vascular (CCS procedure codes 51–63)	7 (2%)
Gynecologic (CCS procedure codes 119–141)	6 (2%)
Hematologic (CCS procedure codes 34–67)	4 (1%)
Breast (CCS procedure codes 165–167)	2 (1%)

Data are expressed as number (percentage) or as median (interquartile range).

ASA = American Society of Anesthesiologists; BMI = body mass index; CCS = Clinical Classification System.

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