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Authors

Hanna, Mark H
Jafari, Mehraneh D
Moghadamyeghaneh, Zhobin
[et al.](#)

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Discharge Destination after High-Risk Surgery: Impact on Readmission and Mortality

Hanna, Mark H. MD; Jafari, Mehraneh D. MD; Moghadamyeghaneh, Zhubin MD; Phelan, Michael J. PhD; Carmichael, Joseph C. MD, FACS; Mills, Steven D. MD, FACS; Imagawa, David K. MD, PhD, FACS; Pigazzi, Alessio MD, FACS; Stamos, Michael J. MD, FACS, FASCRS

Author Information

University of California–Irvine, Orange, CA

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INTRODUCTION: Readmissions remain frequent after high-risk surgery. We sought to investigate the effect of discharge destination on postoperative readmission and outcomes.

METHODS: The American College of Surgeons-National Surgical Quality Improvement Project (ACS-NSQIP) database 2012-2013 was used to identify patients who underwent high-risk surgery including coronary artery bypass grafting (n=3,812), colectomy (n=38,668), esophagostoma (n=2,167), lung resection (n=3,334), and pancreatic resections (n=11,173). Risk of readmission and outcomes were then compared depending on discharge destination.

RESULTS: The overall readmission rate after high-risk surgery was 15% (n=7,686), with pancreatic resection having the highest (17%) and lung resection the lowest (8%) individual rates. The majority of patients were discharged to either home or a skilled care facility. Among all readmitted patients, the highest proportion (82%) were readmitted from home followed by skilled care facility (12%). The most common reason for readmission was abscess (12.5%). Using multivariate analysis, readmissions originating from a skilled care facility were found to have a significantly higher mortality (adjusted odds ratio [AOR] 2.56, 95% CI, 1.72-3.80, p<0.01), higher overall morbidity (AOR 1.59, 95% CI, 1.34-1.90, p<0.01), and longer length of stay (mean difference 4.19 days, 95% CI, 3.66-4.72, p<0.01) compared with readmissions originating from home (Table).

Table. Comparing Adjusted Mean Difference/Odds Ratio Comparing Readmissions Originating from Skilled Nursing Facility vs. Home

Outcome	Mean Difference/odds ratio (95% CI)	Adjusted p value
Mortality	2.56 (1.72, 3.80)	<0.01
Overall morbidity*	1.59 (1.34, 1.90)	<0.01
Serious morbidity§	1.78 (1.52, 2.09)	<0.01
Ventilator > 48 h	4.61 (3.44, 6.19)	<0.01
Length of stay, d	4.19 (3.66, 4.72)	<0.01
Septic shock	3.85 (2.87, 5.16)	<0.01
Unplanned intubation	3.28 (2.39, 4.50)	<0.01
Pneumonia	2.05 (1.56, 2.70)	<0.01

*Overall morbidity = serious morbidity + superficial surgical site infection (AAI) + deep SSI + pneumonia + unplanned reintubation + urinary tract infection + deep venous thrombosis.

§ Serious morbidity = organ space SSI + wound dehiscence + ventilator dependence > 48 h + progressive renal insufficiency + acute renal insufficiency + CVN stroke + cardiac arrest + myocardial infarction + bleeding requiring transfusion + pulmonary embolism + sepsis + septic shock

CONCLUSIONS: Readmission after high-risk surgery is common (13%) and occurs most frequently after pancreatic resection. Patients readmitted from a skilled care facility have a 2-fold increase in morbidity and mortality. These findings suggest that patients readmitted from skilled care facilities should be specially targeted in institutional quality improvement efforts.