

University of Massachusetts Medical School

eScholarship@UMMS

Senior Scholars Program

School of Medicine

2015-04-29

Location of All-cause 30-day Readmission Following Total Joint Replacement: Surgical Hospital Versus Outside Hospital

Leslie R. Harrold

University of Massachusetts Medical School

Et al.

Let us know how access to this document benefits you.

Follow this and additional works at: <https://escholarship.umassmed.edu/ssp>



Part of the [Health Services Administration Commons](#), [Health Services Research Commons](#), [Orthopedics Commons](#), [Rehabilitation and Therapy Commons](#), and the [Surgical Procedures, Operative Commons](#)

Repository Citation

Harrold, Leslie R.; Ayers, David C.; Noble, Philip; O'Keefe, Regis; Bowen, Tom; Sloan, Matthew; and Franklin, Patricia D., "Location of All-cause 30-day Readmission Following Total Joint Replacement: Surgical Hospital Versus Outside Hospital" (2015). University of Massachusetts Medical School. *Senior Scholars Program*. Paper 193.

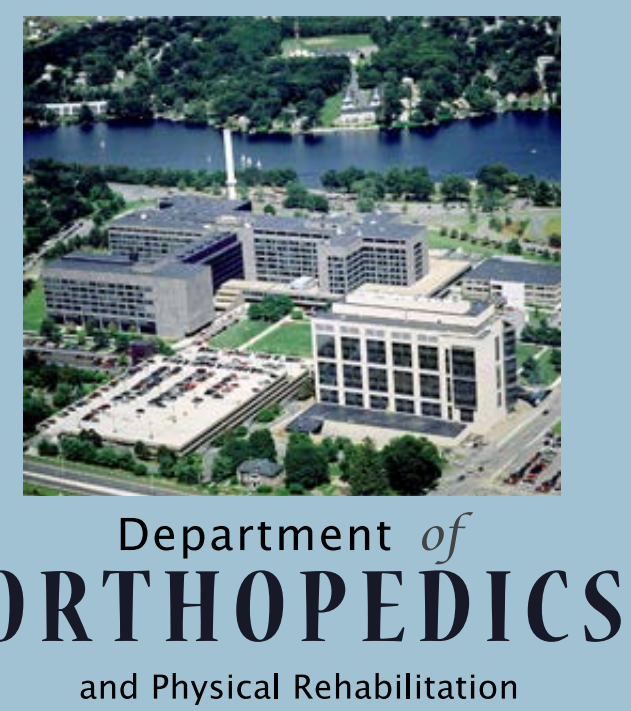
<https://escholarship.umassmed.edu/ssp/193>

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in Senior Scholars Program by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.



Location of all-cause 30-day readmission following total joint replacement: surgical hospital versus outside hospital

Leslie Harrold MD MPH, David Ayers MD, Philip Noble PhD, Regis O'Keefe MD PhD, Tom Bowen MD, Matthew Sloan MS, Patricia Franklin MD MBA MPH



Department of Orthopedics and Physical Rehabilitation, University of Massachusetts Medical School

BACKGROUND

Total Joint Replacement (TJR) is a common inpatient procedure, with over 1 million performed annually. While these surgeries provide great pain relief and improved function, the short-term complication rate is around 8 percent. The Centers for Medicare and Medicaid Services (CMS) is now reporting hospital-level complication rates and readmission following TJR.

Despite new public reports, evaluating post-hospital complications and hospital readmissions in the United States is limited under the current system. It is a challenge to quantify post-hospital care delivered to patients at locations other than the surgical hospital. In addition, there is no central database to identify patient health care use and follow outcomes. The CMS provide this information for patients over age 65, however this data is unavailable for younger patients. This lack of comprehensive follow-up leads to numerous unidentified post-hospital complications and prevents providers from properly identifying and improving on potential issues.

In order to circumvent incomplete capture of complications, information can be sought directly from patients about post-hospital health care utilization. This approach provides a more complete record in comparison with methods that evaluate complications treated only at the surgical hospital.

METHODS

Participants undergoing TJR between 5/10/11 and 5/17/11 were identified from the Function and Outcomes Research in Comparative Effectiveness Registry (FORCE-TJR) cohort. The cohort is a nationally representative sample of TJR patients undergoing total knee replacement and total hip replacement. Patients are asked to self-report complications on the six-month follow-up questionnaire. The questionnaire specifically inquires about any emergency department visit, outpatient surgery, or hospital admission that occurred within six months of the total joint replacement surgery.

For each positive report of postoperative complication, the pertinent medical records are retrieved and reviewed and discharge diagnoses are used to identify whether the complication is a surgical site symptom or a medical complication. The location of the care is identified as the surgical hospital or an outside hospital.

We report on the location of all readmissions within 30 days of discharge from the initial TJR surgery.

RESULTS

Table 1. Location of all-cause 30-day readmission following TJR

TJR N=110	Readmissions to TJR hospital N=82 (75.5%)	Readmissions to non-TJR hospital N=28 (24.5%)	P value
Patient Characteristics			
Median age	69	69	
Mean (SD)	67.1 (10.9)	66.6 (13.4)	0.860
25 th , 50 th , and 75 th percentiles	58, 69, 75	60.75, 69, 75.5	
Gender (% female)	52 (63.4)	19 (67.8)	0.671
Site Characteristics			
Rural setting (%)	2 (2.4)	2 (7.1)	0.276
Urban setting(%)	78 (95.1)	26 (92.9)	
Readmission characteristics			
Surgical joint symptoms (%)*	28 (34.1)	5 (17.9)	0.151
Medical complications (%)	54 (65.9)	23 (82.1)	
MI	2 (2.4)	0 (0)	
DVT/PE	8 (9.6)	3 (11.1)	
Pneumonia	1 (1.2)	2 (7.4)	
C. difficile	6 (7.2)	1 (3.7)	
Other	41 (50)	17 (60.7)	
Mean number days post-op (SD)	15.19 (9.58)	17.07 (10.64)	
Median number of days	13	18	

*Includes stiffness (for knees), knee/hip complication other, dislocation (for hips), periprosthetic fracture, wound complication, bleeding/hemorrhage and infection.

Table 2. Location of all-cause 30-day readmission following TKR

TKR N=71	Readmissions to TKR hospital N=52 (76.1%)	Readmissions to non-TKR hospital N=18 (23.9%)	P value
Patient Characteristics			
Median age	71	69	
Mean (SD)	69.6 (9.6)	70.2 (9.98)	0.823
25 th , 50 th , and 75 th percentiles	62, 71, 79	66, 69, 77.5	
Gender (% female)	34 (65.4)	12 (66.7)	0.566
Site Characteristics			
Rural setting (%)	1 (2)	2 (11.1)	0.160
Urban setting(%)	51 (98.1)	16 (88.9)	
Readmission characteristics			
Surgical joint symptoms (%)*	16 (30.8)	4 (22.2)	0.560
Medical complications (%)	36 (69.2)	14 (77.8)	
MI	2 (3.7)	0 (0)	
DVT/PE	6 (11.1)	2 (11.8)	
Pneumonia	1 (1.9)	2 (11.8)	
C. difficile	5 (9.3)	0 (0)	
Other	28 (53.8)	10 (55.6)	
Mean number days post-op (SD)	15.8 (9.9)	16.2 (10.3)	
Median number of days	14.5	17	

*Includes stiffness (for knees), knee/hip complication other, dislocation (for hips), periprosthetic fracture, wound complication, bleeding/hemorrhage and infection.

RESULTS

In total, our sample yielded 112 validated patient-reported readmissions following TJR. Of these readmissions, 75% were treated at the surgical hospital and 25% were treated at an outside hospital. Patients receiving care at the surgical hospital were similar in terms of demographics compared with those seeking care at an outside hospital in terms of mean age (66.7 years vs. 66.9 years, p=0.92), and gender (67.9% male vs. 63.1% male, p=0.65).

Additionally, the mean number of days since discharge was similar (16.7 days vs. 15.1 days, p = 0.45) among patients treated at the surgical hospital compared with those treated at an outside hospital.

Discharge diagnoses varied by the location of care. At the surgical hospital, discharge diagnoses identified surgical site symptoms as the cause of 36.9% of admissions and medical conditions as the cause of 63.1% of admissions. When compared with discharge diagnoses at outside hospitals, surgical site symptoms accounted for 17.9% of admissions and medical conditions for 82.1% (p=0.067).

CONCLUSION

Public reporting of all post-TJR discharge complications is currently used to compare quality of care between hospitals. However, our study demonstrates that hospitals and surgeons may underestimate their complication rates by 25%. This suggests that novel approaches, such as direct to patient contact, are needed to minimize missing post-hospital event data.

ACKNOWLEDGEMENT: This research is supported by a grant from the Agency for Healthcare Research and Quality (AHRQ) P50HS018910. (Website: www.FORCE-TJR.org)



Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement