Same Day Total Knee and Hip Surgery: Early Complication Management

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The Hospital Cost of Total Hip Arthroplasty

A Comparison between 1981 and 1990*†

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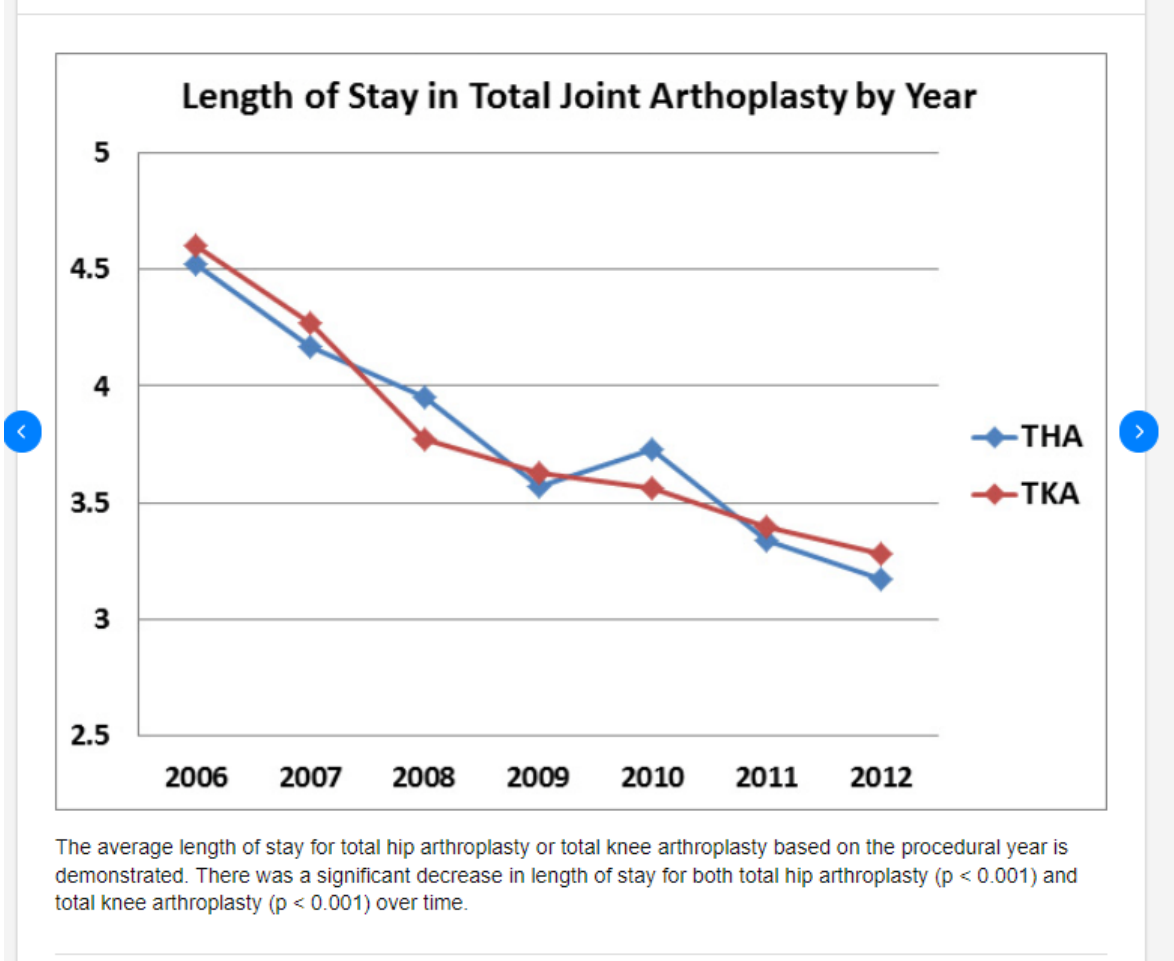
by third-party payers. The average length of stay decreased from seventeen days in 1981 to 9.3 days in 1990, and it was even lower in 1992 (6.5 days, according to a rough estimate). One factor that has contributed to the decreased length of stay at the Lahey Clinic has been the increased use of rehabilitation hospitals. Goldstein et al. recently demonstrated the importance of discharge-planning in the reduction of hospital cost after total joint arthroplasty. Lombardi et al. found an economic and clinical benefit for patients who had had total knee arthroplasty who were discharged early from the hospital and were transferred to a skilled nursing-care facility. The decreased length of stay at the Lahey Clinic has not been associated with an increase in the rate of complications or readmission.

History of Length of Stay in Total Joint Replacement: Iowa Orthopedic Journal



The average length of stay for total hip arthroplasty or total knee arthroplasty based on the procedural year is demonstrated. There was a significant decrease in length of stay for both total hip arthroplasty ($p < 0.001$) and total knee arthroplasty ($p < 0.001$) over time.

Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente Commentary: Funding is not the only factor Commentary: Same price, better care Commentary: Competition made them do it

January 2002 · The BMJ 324(7330):135 - 143
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18 years at Kaiser Permanente

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LOS in the United Kingdon

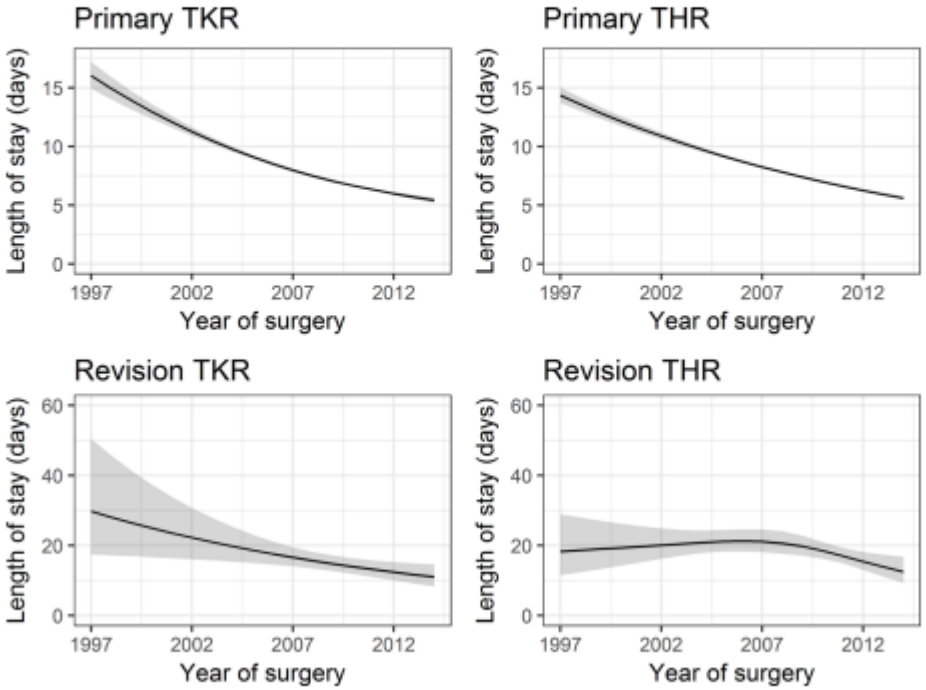

Figure 2 Trends in length of stay. Estimated effect of year of surgery on length of stay (in days). THR, total hip replacement; TKR, total knee replacement.

Increase in Same Day Surgery: now more than 30% in Medicare

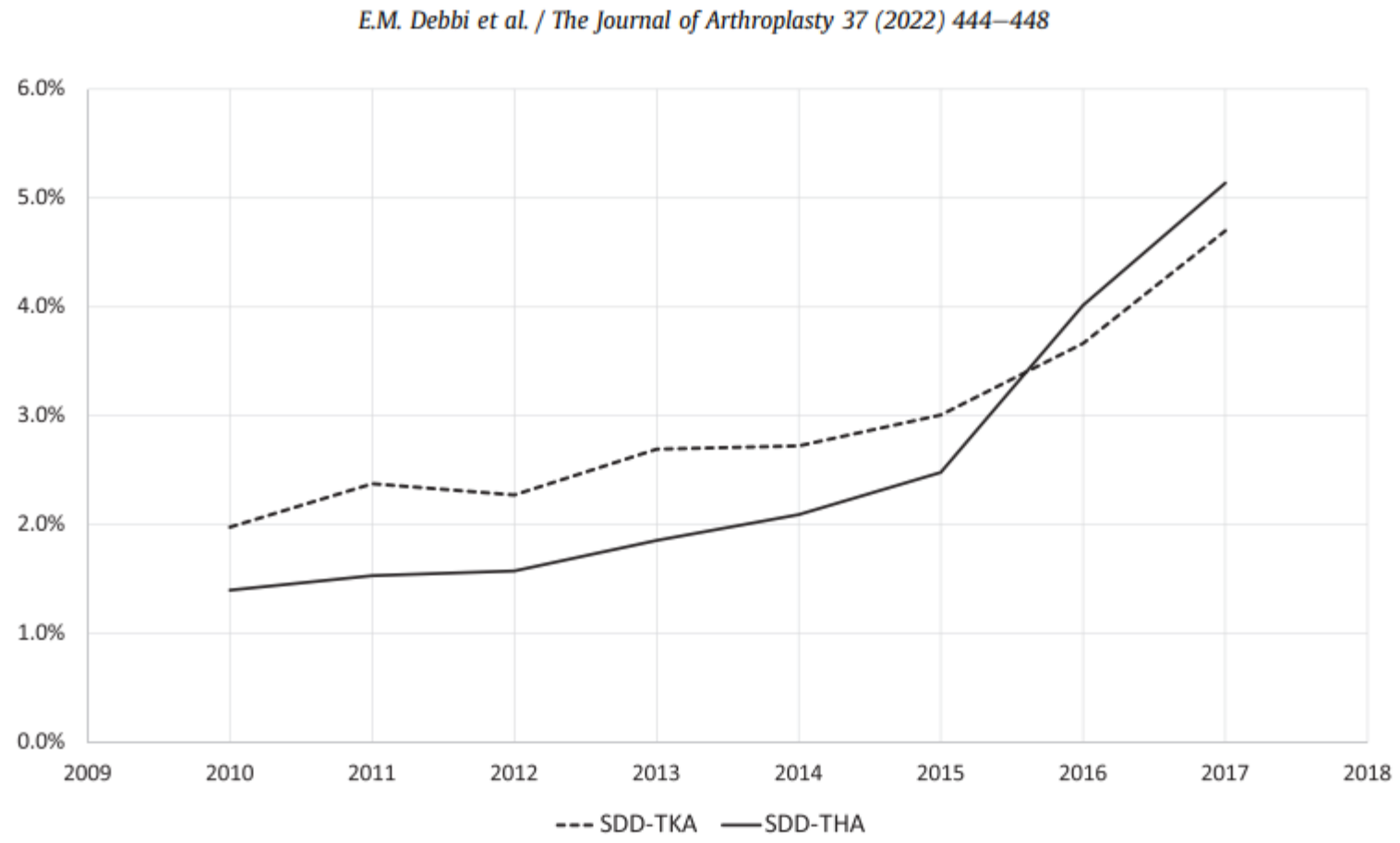

Fig. 1. Trends in same-day total hip arthroplasty (SDD-THA) and total knee arthroplasty (SDD-TKA) over time.

Steps in Achieving Same Day Surgery

Anesthesia Changes:

1. Shorter acting spinal anesthetics vs general anesthesia
2. Reduce fluid infusion during surgery
3. Regional blocks for pain control

Further pain related changes:

1. Periarticular blocks (anti-inflammatories, long acting local, Clonidine)
2. Tranexemic Acid
3. Mutimodal pain control (Tylenol, NSAIDs, lower narcotic need)

Steps in Achieving Same Day Surgery

System Changes:

1. Physical Therapy same day of surgery
2. Preoperative expectation setting and classes – such as PT
3. Additional support for at home patients (total joint coordinators for instance)

Surgical changes:

1. Minimally invasive approaches (MIS knee, Anterior hip)

Institution of same-day total joint replacement at an urban safety net hospital during the COVID-19 pandemic

E. Mark Hammerberg [a,b,*], Nicholas J. Tucker [a,b], Stephen C. Stacey [a,b], Cyril Mauffrey [a,b], Austin Heare [a,b], Luis A. Verduzco [c,d], Joshua A. Parry [a,b]

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Median ASA was 3, and median Charlson comorbidity score was 2. Rate of same-day surgery for total joint replacements increased from 4.5% in September 2020 to 100% in September 2021. On major patient outcomes, 3.8% of patients (n = 5) required conversion to inpatient admission.

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Steps in Achieving Same Day Surgery

Research Needed and Done:

1. Is it safe to do same day surgery?
2. Do some patient populations have higher risk, and should they not be done same day?
3. Does the site of service matter – ie ASC vs Hospital

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Same-Day Discharge Total Hip and Knee Arthroplasty: Trends, Complications, and Readmission Rates

Eytan M Debbi [1], Gina M Mosich [1], Ilya Bendich [1], Milan Kapadia [1], Michael P Ast [1], Geoffrey H Westrich [1]

Table 3
Complications.

Complications	SDD-TKA (n = 35,564)	Non-SDD TKA (n = 1,195,529)	*P* Value	SDD-THA (n = 12,187)	Non-SDD-THA (n = 545,321)	*P* Value	SDD-TKA vs SDD-THA *P* Value
AMI	0.2%	0.2%	1.000	0.1%	0.2%	.333	.359
Mechanical	0.8%	0.6%	<.001[a]	1.7%	1.9%	.087	<.001[a]
PE	0.7%	0.9%	.002[a]	0.4%	0.5%	.030[a]	<.001[a]
PNA	0.5%	0.5%	.621	0.5%	0.4%	.294	1.000
Sepsis	0.2%	0.2%	.659	0.1%	0.2%	.197	.297
SSB/wound dehiscence	0.0%	0.0%	.549	0.0%	0.0%	.668	.127
Infection	0.3%	0.3%	.870	0.4%	0.5%	.648	.114

SDD, same-day discharge; TKA, total knee arthroplasty; THA, total hip arthroplasty; AMI, acute myocardial infarction; PE, pulmonary embolism; PNA, pneumonia; SSB, surgical site bleeding.

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Primary Knee

Outpatient Total Knee Arthroplasty Shows Decreasing Complication Burden From 2010 to 2020

Robert A. Burnett MD [a], Joseph Serino MD [a], Edward S. Hur MD [a], John D.D. Higgins MD [a], P. Maxwell Courtney MD [b], Craig J. Della Valle MD [a]

1. Outpatient total knee replacements increased from 1.9% of all discharges in 2010 to 13.8% in 2020 – Pearl Diver Database.
2. Match cohort of inpatient total knees had an average LOS of 2.4 days
3. There was a significant decline in overall complications from 2010 to 2020, and no difference in the matched cohorts.

Original Research

An Increase in Same-day Discharge After Total Joint Arthroplasty During the COVID-19 Pandemic Does Not Influence Patient Outcomes: A Retrospective Cohort Analysis

Brook A. Mitchell, BS [a], Liam M. Cleary, BS [a], Linsen T. Samuel, MD, MBA [a, b], Benjamin R. Coobs, MD [b], Miles A. Thomas, BS [a], Stephen C. Martinkovich, MD [a, b, c], Joseph T. Moskal, MD, FACS [a, b, *]

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Patient Selection Criteria

Table 1
Criteria for same-day arthroplasty.

Patients considered for outpatient knee and hip replacements should have no conditions or circumstances that would preclude rapid discharge after surgery and must meet the following criteria:

- ASA 1 or 2. ASA 3 patients *may be* considered but *must* be approved by the anesthesiology department at least one week in advance and may necessitate a medicine consult prior to discharge.
- Unilateral, uncomplicated, primary hip or knee arthroplasty
- Pre-operative BMI ≤40 kg/m2
- Age <70 years at time of surgery
- Pre-operative hemoglobin >12 g/dL
- No history of seizure disorder, active liver disease, or active kidney disease (preoperative GFR >60)
- Diabetics with HgA1c < 8 (glucose ~150 mg/dL)
- Drinks less than 14 alcoholic beverages per week and no history of alcohol withdrawal
- No history of cardiopulmonary disease that would necessitate inpatient monitoring after surgery. Hypertensive patients with values SBP<160 and DBP<100 *taken as outpatient* are eligible for outpatient surgery. Also, patients with COPD who have normal exercise capacity and do not require oxygen may be eligible for outpatient arthroplasty pending anesthesiology review.
- No history of DVT, PE, TIA/stroke, MI, or other thromboembolic event
- Preoperative ambulatory status does not require the use of a walker or wheelchair
- Ideally, no chronic pre-operative opioid medication use or history of opioid addiction; *however*, opioid use due to pain from the arthritic joint that will undergo surgery is permissible as long as it is ≤ 10 mg oxycodone per day (or equivalent)
- No history of significant nausea with opiate use (exception: patients who have nausea with one type of opiate but have proven to tolerate others are permissible)
- Not immunocompromised or taking immunomodulatory medications (i.e. RA patients)
- Assistance available at home after discharge on a 24-h basis for at least the first 2 postoperative days
- Patient must be willing to have a spinal anesthetic. Patients with lumbar spine pathology (i.e. surgery, scoliosis, sciatica), CSF disorders (i.e. normal pressure hydrocephalus, pseudotumor cerebri), or blood thinners (not including aspirin) require review by the anesthesiology department at least one week in advance.

Association Between Same-Day Discharge Total Joint Arthroplasty and Risk of 90-Day Adverse Events in Patients with ASA Classification of ≥3

Nithin C. Reddy, MD, Heather A. Prentice, PhD, Elizabeth W. Paxton, PhD, Adrian D. Hinman, MD, Abraham G. Lin, MD, and Ronald A. Navarro, MD

Investigation performed at Surgical Outcomes and Analysis, Kaiser Permanente, San Diego, California

Results: The cohort included a total of 5,250 patients who underwent total hip arthroplasty and 9,752 patients who underwent total knee arthroplasty, of whom 1,742 (33.2%) and 3,283 (33.7%) had same-day discharge, respectively. Same-day discharge hip arthroplasty was noninferior to an inpatient stay in terms of emergency department visits (hazard ratio [HR], 0.73; 1-sided HR 95% upper bound [UB], 0.84), readmissions (HR, 0.47; 95% UB, 0.61), and complications (HR, 0.63; 95% UB, 0.75); we did not have evidence of noninferiority for mortality (HR, 0.84; 95% UB, 1.97). Same-day discharge knee arthroplasty was noninferior to an inpatient stay in terms of emergency department visits (HR, 0.79; 95% UB, 0.87), readmission (HR, 0.80; 95% UB, 0.95), complications (HR, 0.72; 95% UB, 0.82), and mortality (HR, 0.53; 95% UB, 1.03).

Arthroplast Today. 2021 Feb 1;7:182-187. doi: 10.1016/j.artd.2020.12.006. eCollection 2021 Feb.

Preoperative Predictors of Same-Day Discharge After Total Knee Arthroplasty

Justin J Turcotte [1], Nandakumar Menon [1], McKayla E Kelly [1], Jennifer J Grover [1], Paul J King [1], James H MacDonald [1]

Affiliations + expand

PMID: 33553547 PMCID: PMC7856419 DOI: 10.1016/j.artd.2020.12.006

Conclusion: For patients undergoing primary TKA, increased age, body mass index ≥35, female gender, nonwhite race, primary hypertension, ≥3 comorbidities, and American Society of Anesthesiologists score ≥3 decrease the likelihood of SDD. A predictive model based on readily available patient presentation and comorbidity characteristics may aid surgeons in identifying patients that are candidates for SDD or ASC-based TKA.

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Major Questions Around Same Day Discharge for Total Joint Replacement:

1. Is it safe to do?
    1. *Great evidence exists to say "Yes".*
    2. *Even in the sickest patients (ASA 3) it is safe to do!*
2. What Site of Service is appropriate
    1. *This is where patient selection is important. The sicker patients might have problems and might need a hospital back up – just as in inpatient surgery. This is essentially the question Who is Appropriate to have surgery in an ambulatory surgery center – a different question than who is safe to have same day surgery.*

Major Questions Around Same Day Discharge for Total Joint Replacement:

1. What is required to make it happen?
    1. *Anesthesia changes: Spinals, Blocks, Low Fluid*
    2. *Multimodal Pain Control: Tyenol, Periarticular Blocks, NSAIDs*
    3. *No Foleys*
    4. *Available PT immediately after surgery*
    5. *Pre and post op resources to support the patient*

2. What is NOT needed
    1. *Change in surgical approach*

What is possible?

Up to 80% of cases being done same day


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