

TITLE:Thirty Day Unplanned Readmission After Total Hip Arthroplasty At a Teaching Community Hospital: Rate, Reasons, and Risk Factors

AUTHOR(S): Blinded Copy -- Leave Blank

AFFILIATION(S): Blinded Copy -- Leave Blank

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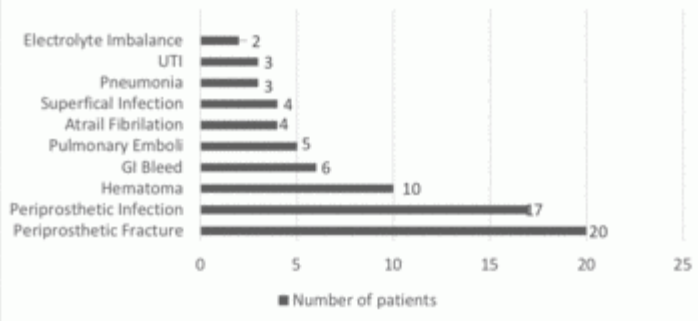
**Introduction:** Unplanned readmission after Total Hip Arthroplasty (THA) has an increasing prevalence in the United States. Readmissions are now a metric for hospital quality of care, yet there are mixed results on variables associated with unplanned readmission. In this changing healthcare environment it is critical for institutions to identify risk factors for unplanned readmissions after THA.

**Methods:** This study utilizes retrospective chart review and hospital administrative database query to report causes, demographics, and medical comorbid risk factors for 30 day readmission after undergoing primary THA between 2011 and 2016 at a teaching community hospital.

**Results:** This study identified 4,459 primary THA procedures of which 96 (2.1%) were unplanned readmissions. Periprosthetic fracture (20.8%) and periprosthetic infection (17.7%) were the most common causes of readmission. Patients discharged to rehab (OR 2.44; 95 CI 1.36 – 4.37; p=0.0026) were correlated significantly with risk of 30 day readmission. History of anemia (OR:2.62; CI 1.44-4.787; p=.0016), Obstructive sleep apnea (OR: 2.272; CI: 1.173-4.4; p=.0150), and asthma (OR: 2.51; CI 1.16-5.403; p=.0184) were significant independent risk factors for 30 day readmission. Higher Charlson Comorbidity Index (p=.0493) was shown to correlate with quicker readmission within 30 days of discharge.

**Conclusion:** Patients with a history of anemia, obstructive sleep apnea, and asthma should be medically optimized before and after undergoing THA in the community setting. Implementing post-surgical emphasis on discharging patients with home care options rather than to rehab may decrease thirty day readmissions.

### Top 10 THA Readmission Diagnoses (N=96) 2.2%



## Patient Co-morbid Conditions

Co-morbid -n%	Readmission (n190)		No Readmission (N=436)		P-value
	n	%	n	%	
Hypertension	61	63.54%	2391	54.80%	0.0866
Hyperlipidemia	22	22.82%	780	17.88%	0.2035
Obesity and morbid obesity	6	6.25%	181	4.15%	0.2967
Hypothyroidism	19	19.79%	521	11.94%	0.0197
Diabetes	12	12.50%	428	9.81%	0.3820
Depressive disorder and major depressive disorder	5	5.21%	213	4.88%	0.8099
Coronary atherosclerosis of native coronary artery	10	10.42%	261	5.98%	0.0720
Gastro-esophageal reflux	8	8.33%	392	8.98%	0.8252
Anemia	14	14.58%	232	5.32%	<0.0001
Obstructive sleep apnea	11	11.46%	214	4.90%	0.0084
Anxiety disorder	13	13.54%	404	9.26%	0.1541
History of tobacco use	8	8.33%	240	5.50%	0.2310
Chronic airway obstructive disease	3	3.12%	101	2.31%	0.4903
Atrial fibrillation	7	7.29%	154	3.52%	0.0854
Asthma	8	8.33%	137	3.14%	0.0122
Chronic kidney disease	2	2.08%	36	0.83%	0.1967
Arteriovenous bypass	4	4.17%	75	1.72%	0.0894
Rheumatoid arthritis	1	1.04%	82	1.88%	1.0000
Cardiac dysrhythmias NEC	0	0.00%	41	0.94%	1.0000
Bipolar disorder NOS	1	1.04%	13	0.30%	0.2630
Chronic obstructive pulmonary disease	1	1.04%	97	2.22%	0.7245
Chronic obstructive asthma NOS	2	2.08%	19	0.44%	0.0739

### Multivariate Analysis of Predictors of Readmission within 30 Days

Variable	Odds Ratio	95% Confidence Interval		p-Value
Age 65+	1.009	0.99	1.029	0.3408
Gender (Male)	1.175	0.762	1.81	0.4652
Ethnicity (White)	0.636	0.346	1.168	0.1443
<b>Discharge Status</b>				
Home	0.844	0.509	1.4	0.5107
Rehab	2.444	1.366	4.374	0.0026
Length of Stay>3 days	1.303	0.766	2.215	0.3283
<b>Risk Factor</b>				
Hypothyroidism	1.546	0.898	2.663	0.1160
Anemia	2.626	1.441	4.787	0.0016
Obstructive sleep apnea	2.272	1.173	4.4	0.0150
Asthma	2.512	1.168	5.403	0.0184

### Patient Characteristics

	Readmission (N=96)		No Readmission (N=4363)		p-value
<b>Demographics</b>					
Age - mean (SD), range	67.7 (10.9)	39 - 91	65.2 (11.7)	20 - 97	0.0365
Age 65+ - no. %	60	62.5%	2241	51.4%	0.0308
Gender (Male) - no. %	42	43.8%	1958	44.9%	0.8261
<b>Race</b>					
Caucasian	83	86.5%	3918	89.8%	0.2860
African American	0	0.0%	19	0.4%	1.0000
Bi-racial	13	13.5%	275	6.3%	0.0043
<b>Discharge Status</b>					
Routine discharge	24	25.0%	1610	36.9%	0.0167
Home health	41	42.7%	1892	43.4%	0.8979
SNF	12	12.5%	439	10.1%	0.4332
Rehab	18	18.8%	288	6.6%	<0.0001
Length of Stay - mean(SD), range	3.18 (2.9)	1 - 21	2.44 (1.8)	1 - 32	0.0132