

**Readmission Rates for TKR/THR Procedures in Washington State:
Summary of Findings from 2011 CHARS Data**

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Key Takeaways

- None of the complications included in the warranty had a total readmission rate higher than 1% and most of the rates were at or close to 0
- The highest readmission rate observed at a WA hospital that performed at least 40 procedures was 4.6% (periprosthetic joint complication within 90 days for TKR)
- The majority of TKR/THR readmissions are not caused by the complications that are included in the warranty

Summary of Comprehensive Hospital Abstract Reporting System (CHARS)

- Contains coded hospital inpatient discharge information from 1987-2012
- Data source: Billing systems using National Uniform Billing Codes, International Classification of Disease Version 9 and State specific codes
- Patient population: All patients hospitalized in Washington State (all payers, all ages) *except* for Veteran’s Affairs or military hospitals and most Group Health Cooperative hospitals¹
- Not risk-adjusted

Notes about Methods

- Used CHARS dataset that includes 2011 index hospitalizations – for index hospitalizations from December, it includes readmissions in January 2012
- Used a single ICD-9 procedure code to identify TKR and THR (81.54 and 81.51, respectively) without restricting it by diagnosis, so these rates include some procedures that would be excluded from the warranty (i.e. procedures done for reasons other than osteoarthritis, such as fracture)
- Detailed methods are available upon request – email requests to bree@qualityhealth.org

Individuals may request unblinded data about readmission rates for TKR/THR procedures at their own institution by emailing bree@qualityhealth.org

¹ The Department of Health only receives information from Group Health about patients at its Central Hospital.

SOURCE: CHARS DATA FOR INDEX HOSPITALIZATIONS IN 2011 – SEE PAGE 1 FOR DETAILS ABOUT CHARS AND THE METHODS USED FOR THIS ANALYSIS

Readmission Rates in 2011 CHARS Data for Warranty Complications in WA State

Total Knee Replacement

Time Period	Complication	Total Readmission Rate for Washington State (n = 12683)	Highest Readmission Rate Observed in a WA Hospital*
7 Days	Acute myocardial infarction	0	0
	Pneumonia	0.08%	0.2% (n = 509)
	Sepsis	0.3%	2.4% (n = 41)
30 Days	Death	0.02%	0.3% (n = 363)
	Wound infection	0.2%	3.6% (n = 56)
	Pulmonary embolism	0.2%	3.6% (n = 56)
	Surgical site bleeding	0	0
90 Days	Mechanical complication	0.2%	1.8% (n = 57)
	Periprosthetic joint complication	0.3%	4.6% (n = 66)
All-cause 30-day TKR Readmission Rate: 4.8% 95% confidence interval (4.5%, 5.2%)			

* = Excluding hospitals with n < 40.

Total Hip Replacement

Time Period	Complication	Total Readmission Rate for Washington State (n = 7255)	Highest Readmission Rate Observed in a WA Hospital*
7 Days	Acute myocardial infarction	0	0
	Pneumonia	0.01%	1.5% (n = 66)
	Sepsis	0.2%	1.8% (n = 57)
30 Days	Death	0.1%	1.5% (n = 66)
	Wound infection	0.2%	1.5% (n = 66)
	Pulmonary embolism	0.1%	0.9% (n = 116)
	Surgical site bleeding	0	0
90 Days	Mechanical complication	1.0%	4.1% (n = 49)
	Periprosthetic joint complication	0.3%	2.8% (n = 109)
All-cause 30-day THR Readmission Rate: 4.8% 95% confidence interval (4.3%, 5.3%)			

* = Excluding hospitals with n < 40.

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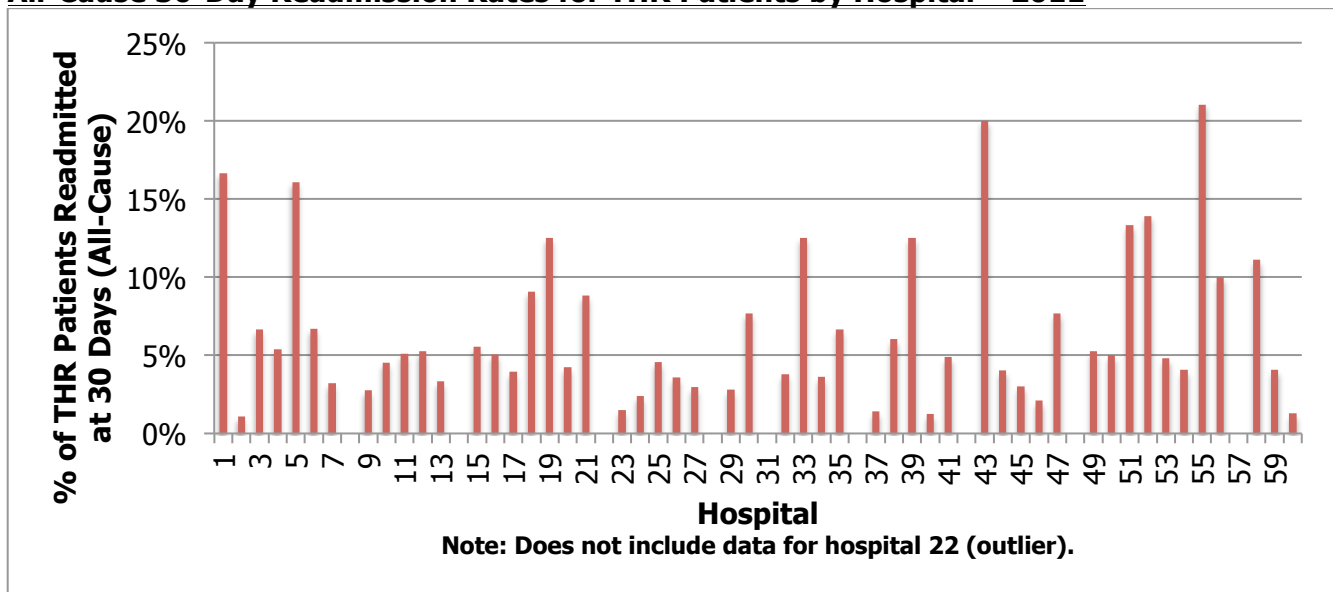
All-Cause 30-Day Readmission Rates for THR Patients by Hospital – 2011

Hospital	# THR Patients Readmitted at 30 Days	Total # THR Patients	% of THR Patients Readmitted at 30 Days	Lower 95% CI	Upper 95% CI
1	3	18	16.7%	0.0%	33.9%
2	1	91	1.1%	0.0%	3.2%
3	1	15	6.7%	0.0%	19.3%
4	8	148	5.4%	1.8%	9.0%
5	14	87	16.1%	8.4%	23.8%
6	10	149	6.7%	2.7%	10.7%
7	1	31	3.2%	0.0%	9.4%
8	0	2	0.0%	0.0%	0.0%
9	4	145	2.8%	0.1%	5.4%
10	3	66	4.5%	0.0%	9.6%
11	5	98	5.1%	0.7%	9.5%
12	2	38	5.3%	0.0%	12.4%
13	3	90	3.3%	0.0%	7.0%
14	0	37	0.0%	0.0%	0.0%
15	1	18	5.6%	0.0%	16.1%
16	5	99	5.1%	0.7%	9.4%
17	3	76	3.9%	0.0%	8.3%
18	1	11	9.1%	0.0%	26.1%
19	1	8	12.5%	0.0%	35.4%
20	6	141	4.3%	0.9%	7.6%
21	9	102	8.8%	3.3%	14.3%
22	1	2	50.0%	0.0%	119.3%
23	1	66	1.5%	0.0%	4.5%
24	11	457	2.4%	1.0%	3.8%
25	5	109	4.6%	0.7%	8.5%
26	9	250	3.6%	1.3%	5.9%
27	9	302	3.0%	1.1%	4.9%
28	0	2	0.0%	0.0%	0.0%
29	2	71	2.8%	0.0%	6.7%
30	10	130	7.7%	3.1%	12.3%
31	0	2	0.0%	0.0%	0.0%
32	12	315	3.8%	1.7%	5.9%
33	55	439	12.5%	9.4%	15.6%
34	3	83	3.6%	0.0%	7.6%
35	21	315	6.7%	3.9%	9.4%
36	0	24	0.0%	0.0%	0.0%
37	2	141	1.4%	0.0%	3.4%
38	7	116	6.0%	1.7%	10.4%

SOURCE: CHARS DATA FOR INDEX HOSPITALIZATIONS IN 2011 – SEE PAGE 1 FOR DETAILS ABOUT CHARS AND THE METHODS USED FOR THIS ANALYSIS

Hospital	# THR Patients Readmitted at 30 Days	Total # THR Patients	% of THR Patients Readmitted at 30 Days	Lower 95% CI	Upper 95% CI
39	2	16	12.5%	0.0%	28.7%
40	1	79	1.3%	0.0%	3.7%
41	14	287	4.9%	2.4%	7.4%
42	0	26	0.0%	0.0%	0.0%
43	1	5	20.0%	0.0%	55.1%
44	4	99	4.0%	0.2%	7.9%
45	2	66	3.0%	0.0%	7.2%
46	20	955	2.1%	1.2%	3.0%
47	10	130	7.7%	3.1%	12.3%
48	0	3	0.0%	0.0%	0.0%
49	3	57	5.3%	0.0%	11.1%
50	9	180	5.0%	1.8%	8.2%
51	2	15	13.3%	0.0%	30.5%
52	11	79	13.9%	6.3%	21.6%
53	14	291	4.8%	2.4%	7.3%
54	16	392	4.1%	2.1%	6.0%
55	4	19	21.1%	2.7%	39.4%
56	2	20	10.0%	0.0%	23.1%
57	0	29	0.0%	0.0%	0.0%
58	1	9	11.1%	0.0%	31.6%
59	2	49	4.1%	0.0%	9.6%
60	2	155	1.3%	0.0%	3.1%
Total	349	7255	4.8%	4.3%	5.3%

All-Cause 30-Day Readmission Rates for THR Patients by Hospital – 2011



SOURCE: CHARS DATA FOR INDEX HOSPITALIZATIONS IN 2011 – SEE PAGE 1 FOR DETAILS ABOUT CHARS AND THE METHODS USED FOR THIS ANALYSIS

All-Cause 30-Day Readmission Rates for TKR Patients by Hospital – 2011

Hospital	# TKR Patients Readmitted at 30 Days	Total # TKR Patients	% of TKR Patients Readmitted at 30 Days	Lower 95% CI	Upper 95% CI
1	12	65	18.5%	9.0%	27.9%
2	0	138	0.0%	0.0%	0.0%
3	2	41	4.9%	0.0%	11.5%
4	4	313	1.3%	0.0%	2.5%
5	31	144	21.5%	14.8%	28.2%
6	17	425	4.0%	2.1%	5.9%
7	2	78	2.6%	0.0%	6.1%
8	13	330	3.9%	1.8%	6.0%
9	8	109	7.3%	2.4%	12.2%
10	6	172	3.5%	0.7%	6.2%
11	2	66	3.0%	0.0%	7.2%
12	6	115	5.2%	1.2%	9.3%
13	0	120	0.0%	0.0%	0.0%
14	0	25	0.0%	0.0%	0.0%
15	24	537	4.5%	2.7%	6.2%
16	9	363	2.5%	0.9%	4.1%
17	0	10	0.0%	0.0%	0.0%
18	0	28	0.0%	0.0%	0.0%
19	10	260	3.8%	1.5%	6.2%
20	5	171	2.9%	0.4%	5.4%
21	0	4	0.0%	0.0%	0.0%
22	6	111	5.4%	1.2%	9.6%
23	23	652	3.5%	2.1%	4.9%
24	6	260	2.3%	0.5%	4.1%
25	14	374	3.7%	1.8%	5.7%
26	9	271	3.3%	1.2%	5.5%
27	1	10	10.0%	0.0%	28.6%
28	8	141	5.7%	1.9%	9.5%
29	36	268	13.4%	9.4%	17.5%
30	1	5	20.0%	0.0%	55.1%
31	18	509	3.5%	1.9%	5.1%
32	103	557	18.5%	15.3%	21.7%
33	2	118	1.7%	0.0%	4.0%
34	14	570	2.5%	1.2%	3.7%
35	4	72	5.6%	0.3%	10.8%
36	14	251	5.6%	2.7%	8.4%
37	15	203	7.4%	3.8%	11.0%
38	1	26	3.8%	0.0%	11.2%
39	12	231	5.2%	2.3%	8.1%

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40	21	458	4.6%	2.7%	6.5%
41	7	89	7.9%	2.3%	13.5%
42	11	212	5.2%	2.2%	8.2%
43	0	3	0.0%	0.0%	0.0%
44	3	117	2.6%	0.0%	5.4%
45	42	1139	3.7%	2.6%	4.8%
46	0	1	0.0%	0.0%	0.0%
47	9	249	3.6%	1.3%	5.9%
48	2	12	16.7%	0.0%	37.8%
49	0	5	0.0%	0.0%	0.0%
50	3	117	2.6%	0.0%	5.4%
51	9	247	3.6%	1.3%	6.0%
52	0	19	0.0%	0.0%	0.0%
53	16	153	10.5%	5.6%	15.3%
54	13	534	2.4%	1.1%	3.7%
55	19	649	2.9%	1.6%	4.2%
56	2	44	4.5%	0.0%	10.7%
57	1	57	1.8%	0.0%	5.2%
58	0	27	0.0%	0.0%	0.0%
59	0	17	0.0%	0.0%	0.0%
60	4	56	7.1%	0.4%	13.9%
61	12	335	3.6%	1.6%	5.6%
Total	612	12683	4.8%	4.5%	5.2%

All-Cause 30-Day Readmission Rates for TKR Patients by Hospital – 2011

