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Appendix

TABLE E-1 Comparison of Descriptive Statistics (Categorical Variables) Between Included and Excluded Patients

Variable	Patients Included in Analysis							
	Overall (1-Midnight LOS + 2-Midnight LOS) (N = 46,709)		1-Midnight LOS (N = 15,009 [32.1%])		2-Midnight LOS (N = 31,700 [67.9%])		Excluded Patients: All Other LOS (N = 49,541)	
	No.	Mean (SD)	No.	Mean (SD)	No.	Mean (SD)	No.	Mean (SD)
Age* *(yr)*	46,647	65.0 (12)	15,001	65.0 (12)	31,646	65.0 (12)	49,320	66.9 (9.8)
BMI *(kg/m²)*	45,936	32.0 (8.7)	14,861	31.7 (8.2)	31,075	32.2 (8.9)	48,291	33.1 (6.5)
Preoperative albumin level *(g/dL)*	24,105	4.1 (0.4)	7,746	4.2 (0.5)	16,359	4.1 (0.4)	25,760	4.1 (3.3)
Preoperative creatinine level *(mg/dL)*	42,405	0.9 (0.3)	13,908	0.9 (0.2)	28,497	0.9 (0.3)	45,025	0.9 (0.5)
HbA1c *(%)*	11,309	5.9 (1.0)	3,628	5.8 (0.9)	7,681	5.9 (1.0)	12,298	6.2 (1.3)
Preoperative Hb level *(g/dL)*	45,847	13.8 (1.8)	14,729	13.9 (1.7)	31,118	13.7 (1.7)	48,399	13.5 (1.4)
Postoperative Hb level *(g/dL)*	45,946	11.1 (1.9)	14,651	11.7 (1.7)	31,295	10.9 (1.8)	48,603	10.3 (1.5)
Operation time, incision to closure *(min)*	46,700	81.0 (31.0)	15,008	80.0 (28.0)	31,692	81.0 (33.0)	49,493	88.7 (33.8)

*Age was de-identified. The mean (SD) was calculated after exclusion of patients with ages of ≥90 years.

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TABLE E-2 Additional Descriptive Statistics for Included and Excluded Patients

	Patients Included in Analysis							
	Overall (1-Midnight LOS + 2-Midnight LOS) (N = 46,709)		1-Midnight LOS (N = 15,009 [32.1%])		2-Midnight LOS (N = 31,700 [67.9%])		Excluded Patients: All Other LOS (N = 49,541)	
Variable*	No.	%	No.	%	No.	%	No.	%
Surgeon caseload								
<100 cases/yr	16,119	34.51	4,299	28.64	11,820	37.29	21,014	42.42
≥100 cases/yr	30,590	65.49	10,710	71.36	19,880	62.71	28,527	57.58
Hospital caseload								
<200 cases/yr	1,075	2.30	149	0.99	926	2.92	2,393	4.83
≥200 cases/yr	45,634	97.70	14,860	99.01	30,774	97.08	47,148	95.17
Age†								
<50 yr	2,723	5.83	879	5.86	1,844	5.82	3,024	6.10
50 ≤ age < 65 yr	20,225	43.30	6,666	44.41	13,559	42.77	17,694	35.72
65 ≤ age < 80 yr	21,114	45.20	6,695	44.61	14,419	45.49	23,335	47.10
≥80 yr	2,647	5.67	769	5.12	1,878	5.92	5,488	11.08
BMI								
Missing	773	1.65	148	0.99	625	1.97	1,250	2.52
<20 kg/m²	243	0.52	67	0.45	176	0.56	338	0.68
20 ≤ BMI < 25 kg/m²	3,990	8.54	1,296	8.63	2,694	8.50	4,320	8.72
25 ≤ BMI < 30 kg/m²	12,666	27.12	4,361	29.06	8,305	26.20	12,322	24.87
30 ≤ BMI < 35 kg/m²	13,724	29.38	4,586	30.56	9,138	28.83	13,675	27.60
35 ≤ BMI < 40 kg/m²	9,108	19.50	2,841	18.93	6,267	19.77	9,909	20.00
≥40 kg/m²	6,205	13.28	1,710	11.39	4,495	14.18	7,727	15.60
Bilateral	592	1.27	45	0.30	547	1.73	3,835	7.74
Sex								
Missing	18	0.04	<10	0.01	16	0.05	<10	0.00
Male	19,600	41.96	7,197	47.95	12,403	39.13	16,236	32.77
Female	27,086	57.99	7,809	52.03	19,277	60.81	33,302	67.22
Unknown	<10	0.01	<10	0.01	<10	0.01	<10	0.00
Marital status								
Missing	27	0.06	<10	0.01	25	0.08	19	0.04
Married or common law	33,779	72.32	11,322	75.43	22,457	70.84	29,581	59.71
Divorced or separated	4,302	9.21	1,272	8.47	3,030	9.56	5,925	11.96
Widowed	3,922	8.40	1,021	6.80	2,901	9.15	7,755	15.65
Single	4,383	9.38	1,305	8.69	3,078	9.71	5,979	12.07
Unknown	296	0.63	87	0.58	209	0.66	282	0.57
Smoking status								
Missing	<10	0.02	<10	0.01	<10	0.02	11	0.02
Never	23,412	50.12	7,317	48.75	16,095	50.77	25,880	52.24
Previous	18,300	39.18	5,933	39.53	12,367	39.01	19,048	38.45
Current	4,447	9.52	1,525	10.16	2,922	9.22	4,384	8.85
Unknown	541	1.16	232	1.55	309	0.97	218	0.44
Alcohol use in social history								
No	21,311	45.63	6,285	41.87	15,026	47.40	27,761	56.04
Yes	25,398	54.37	8,724	58.13	16,674	52.60	21,780	43.96
Side								
Left	22,852	48.92	7,315	48.74	15,537	49.01	24,153	48.75
Right	23,857	51.08	7,694	51.26	16,163	50.99	25,388	51.25
Primary payer								
Commercial	18,446	39.49	6,169	41.10	12,277	38.73	15,479	31.24
Medicaid	1,428	3.06	401	2.67	1,027	3.24	1,818	3.67
Medicare	22,491	48.15	7,231	48.18	15,260	48.14	28,933	58.40
Other	4,344	9.30	1,208	8.05	3,136	9.89	3,311	6.68

History of bleeding disorder								
Missing	<10	0.01	<10	0.01	<10	0.01	18	0.04
Yes	534	1.14	194	1.29	340	1.07	644	1.30
No	46,139	98.78	14,800	98.61	31,339	98.86	48,850	98.61
Unknown	31	0.07	13	0.09	18	0.06	29	0.06
History of DVT/PE								
Missing	<10	0.01	<10	0.01	<10	0.01	15	0.03
Yes	2,759	5.91	838	5.58	1,921	6.06	4,155	8.39
No	43,897	93.98	14,154	94.30	29,743	93.83	45,327	91.49
Unknown	47	0.10	15	0.10	32	0.10	44	0.09
Preoperative use of assistive device								
Missing	10	0.02	<10	0.01	<10	0.03	36	0.07
Yes	11,698	25.04	3,403	22.67	8,295	26.17	17,179	34.68
No	32,587	69.77	10,578	70.48	22,009	69.43	30,888	62.35
Unknown	2,414	5.17	1,026	6.84	1,388	4.38	1,438	2.90
Preoperative anticoagulation use								
Missing	<10	0.01	<10	0.01	<10	0.01	14	0.03
None	273	0.58	104	0.69	169	0.53	321	0. 65
Anticoagulation only	12,718	27.23	2,903	19.34	9,815	30.96	18,223	36.78
Aspirin only	20,407	43.69	8,149	54.29	12,258	38.67	16,817	33.95
Both	13,305	28.48	3,851	25.66	9,454	29.82	14,166	28.59
Preoperative narcotic use								
Missing	<10	0.01	<10	0.01	<10	0.01	<10	0.02
No	35,703	76.44	11,691	77.89	24,012	75.75	35,772	72.21
Yes	11,003	23.56	3,317	22.10	7,686	24.25	13,761	27.78
Diabetes mellitus								
Missing	1,311	2.81	129	0.86	1,182	3.73	3,705	7.48
No	36,350	77.82	12,113	80.70	24,237	76.46	34,831	70.31
Type I	291	0.62	75	0.50	216	0.68	355	0.72
Type II	8,237	17.63	2,481	16.53	5,756	18.16	10,178	20.54
Unknown	78	0.17	32	0.21	46	0.15	62	0.13
Yes, type unknown	442	0.95	179	1.19	263	0.83	410	0.83
ASA class								
Missing	11	0.02	<10	0.01	10	0.03	23	0.05
I	883	1.89	346	2.31	537	1.69	592	1.19
II	25,984	55.63	8,945	59.60	17,039	53.75	22,084	44.58
III	19,460	41.66	5,622	37.46	13,838	43.65	25,911	52.30
IV	352	0.75	93	0.62	259	0.82	901	1.82
Unknown	19	0.04	<10	0.01	17	0.05	30	0.06
Intraoperative complications								
Missing	<10	0.01	<10	0.01	<10	0.01	<10	0.02
Yes	224	0.48	64	0.43	160	0.50	365	0.74
No	46,482	99.51	14,944	99.57	31,538	99.49	49,167	99.25
Anesthesia type								
Missing	<10	0.00	<10	0.00	<10	0.00	<10	0.00
Any spinal	31,376	67.17	9,324	62.12	22,052	69.56	33,426	67.47
General	15,332	32.82	5,685	37.88	9,647	30.43	16,113	32.52
Approach								
Missing	<10	0.02	<10	0.01	<10	0.02	17	0.03
Medial parapatellar	38,538	82.51	11,808	78.67	26,730	84.32	41,985	84.75
Lateral parapatellar	141	0.30	73	0.49	68	0.21	102	0.21
Midvastus, VMO splitting	6,570	14.07	2,655	17.69	3,915	12.35	6,410	12.94
Subvastus	1,168	2.50	350	2.33	818	2.58	800	1.61

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Other	134	0.29	82	0.55	52	0.16	57	0.12
Unknown	149	0.32	39	0.26	110	0.35	170	0.34
TXA use								
Missing	1,133	2.43	118	0.79	1,015	3.20	3,573	7.21
Yes	34,983	74.90	1,2072	80.43	22,911	72.27	31,707	64.00
No	10,567	22.62	2,806	18.70	7,761	24.48	14,227	28.72
Unknown	26	0.06	13	0.09	13	0.04	34	0.07
Blood transfusion								
Missing	<10	0.01	<10	0.01	<10	0.01	10	0.02
Yes	187	0.40	5	0.03	182	0.57	2,720	5.49
No	46,517	99.59	15,002	99.95	31,515	99.42	46,809	94.49
Unknown	<10	0.00	<10	0	<10	0.00	<10	0.00
Discharged to ECF								
Missing	<10	0.01	<10	0.01	<10	0.01	<10	0.02
No	45,362	97.12	14,935	99.51	30,427	95.98	32,717	66.04
Yes	1,343	2.88	73	0.49	1,270	4.01	16,815	33.94

*Statistics with a cell size of <10 were not reported according to protocol. VMO = vastus medialis obliquus, TXA = tranexamic acid, and ECF = extended care facility. †Ages of ≥90 years were de-identified.

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TABLE E-3 Model-1 Results*

Variable	OR	95% Wald Confidence Limits		P Value
LOS: 1 midnight vs. 2 midnights	0.768	0.682	0.865	<0.0001

*Unadjusted OR for readmission (yes vs. no) using a full data set without propensity score matching and without covariates (n = 46,709).

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TABLE E-4 Model-2 Results*

Variable†	OR	95% Wald Confidence Limits		P Value
LOS: 1 midnight vs. 2 midnights	0.8875	0.7795	1.0103	0.0711
Age				
50 ≤ age < 65 vs. <50 yr	0.6927	0.5543	0.8656	0.0012
65 ≤ age < 80 vs. <50 yr	0.8073	0.6404	1.0178	0.0702
≥80 vs. <50 yr	1.5084	1.1459	1.9856	0.0034
BMI	0.994	0.9848	1.0033	0.2044
Operation time, incision to closure	1.0037	1.0016	1.0057	0.0004
Preoperative Hb level	0.9188	0.8806	0.9587	0.0001
Surgeon caseload: ≥100/yr vs. <100/yr	0.959	0.8325	1.1049	0.5626
Hospital caseload: ≥200/yr vs. <200/yr	1.8193	1.1542	2.8678	0.0100
Sex: male vs. female	1.4753	1.3056	1.6672	0.0000
Smoking				
Never vs. current	0.7995	0.6638	0.9629	0.0183
Previous vs. current	0.964	0.8022	1.1585	0.6960
Marital status: single vs. married	1.283	1.141	1.4428	0.0000
Laterality: right vs. left	1.0614	0.9563	1.178	0.2626
Bilateral: yes vs. no	0.7753	0.4527	1.3279	0.3540
Primary payer				
Medicaid vs. commercial	1.1771	0.8719	1.5892	0.2869
Medicare vs. commercial	1.1265	0.9585	1.324	0.1483
Other vs. commercial	1.2056	0.9067	1.6031	0.1983
Discharge disposition: ECF vs. non-ECF	1.4236	1.1119	1.8226	0.0051
ASA class				
II vs. I	1.5286	0.8345	2.8002	0.1694
III vs. I	2.5562	1.3909	4.6981	0.0025
IV vs. I	3.3331	1.5986	6.9496	0.0013
Approach				
Medial parapatellar vs. lateral parapatellar	0.7431	0.3204	1.7235	0.4891
Midvastus vs. lateral parapatellar	0.6738	0.2849	1.5937	0.3687
Other vs. lateral parapatellar	0.5984	0.1814	1.9744	0.3992
Subvastus vs. lateral parapatellar	0.9829	0.3949	2.4466	0.9705
Diabetes mellitus				
Type I vs. none	2.1695	1.4088	3.3409	0.0004
Type II vs. none	1.0273	0.8994	1.1735	0.6912
Type unknown vs. none	1.1541	0.6958	1.9142	0.5788
Preoperative anticoagulation use: yes vs. no	1.3016	1.0795	1.5693	0.0057
Preoperative narcotic use: yes vs. no	1.3078	1.1612	1.473	0.0000
Preoperative use of assistive device: yes vs. no	1.2908	1.1495	1.4495	0.0000
History of DVT/PE: yes vs. no	1.3426	1.1146	1.6172	0.0019
History of bleeding disorder: yes vs. no	1.1962	0.8074	1.7723	0.3716
Tranexamic acid use: yes vs. no	0.888	0.7815	1.009	0.0684

Anesthesia type: general vs. any spinal	0.9893	0.8743	1.1193	0.8638
Blood transfusion: yes vs. no	1.0879	0.5411	2.1871	0.8132
Any intraoperative complication: yes vs. no	2.2359	1.2981	3.8513	0.0037
Alcohol use in social history: yes vs. no	0.8026	0.7199	0.8948	0.0001

*Unadjusted OR for readmission (yes vs. no) using a full data set without propensity score matching (n = 46,709). ECF = extended care facility. †Ages of ≥90 years were de-identified and categorized into ≥80-year subgroup.