

Supplemental Digital Content (SDC)

SDC-Table 1. Patient Characteristics and Outcomes by Clinical Site

SDC-Table 2. Patient Characteristics and Clinical Outcomes of Private and Uninsured Insurance Type Patients

SDC-Table 3. EDOS and Readmissions (30-day) Components of Textbook Outcomes Adjusted for Reoperations and CDIV Complications

SDC-Figure 1. Case Status, Textbook Outcomes (TO) and TO Components with a Sensitivity Analysis also Adjusting for Age

SDC-Table 1. Patient Characteristics and Outcomes by Clinical Site^a

	Overall	High-burden	Medium-burden	Low-burden	p-value
Number (%)^b	34,251	6,225 (18.2)	8,991 (26.3)	19,035 (55.6)	
Age (mean (SD))	58.34 (15.98)	52.18 (14.67)	56.44 (16.24)	61.25 (15.55)	<.001
Sex (Female)	18,760 (54.8)	3,299 (53.0)	5,460 (60.7)	10,001 (52.5)	<.001
Race/Ethnicity					<.001
Black, non-Hispanic	3,982 (11.6)	386 (6.2)	1,986 (22.1)	1,610 (8.5)	
Hispanic, any race	4,816 (14.1)	4,210 (67.6)	463 (5.1)	143 (0.8)	
Multiracial, non-Hispanic	573 (1.7)	110 (1.8)	310 (3.4)	153 (0.8)	
White, non-Hispanic	24,880 (72.6)	1,519 (24.4)	6,232 (69.3)	17,129 (90.0)	
RAI					<.001
Robust (≤20)	18,571 (54.2)	4,126 (66.3)	5,545 (61.7)	8,900 (46.8)	
Normal (21-29)	11,593 (33.8)	1,497 (24.0)	2,564 (28.5)	7,532 (39.6)	
Frail (30-39)	3,657 (10.7)	489 (7.9)	798 (8.9)	2,370 (12.5)	
Very Frail (≥40)	430 (1.3)	113 (1.8)	84 (0.9)	233 (1.2)	
ADI>85 (highly deprived)	7,408 (21.6)	2,223 (35.7)	1,207 (13.4)	3,978 (20.9)	<.001
Insurance					<.001
Private	13,546 (39.5)	1,446 (23.2)	3,802 (42.3)	8,298 (43.6)	
Medicare	14,907 (43.5)	1,603 (25.8)	3,519 (39.1)	9,785 (51.4)	
Medicaid	2,826 (8.3)	967 (15.5)	1,047 (11.6)	812 (4.3)	
Uninsured	2,972 (8.7)	2,209 (35.5)	623 (6.9)	140 (0.7)	
Case Status					<.001
Elective	22,871 (66.8)	2,749 (44.2)	7,670 (85.3)	12,452 (65.4)	
Urgent	7,762 (22.7)	2,763 (44.4)	959 (10.7)	4040 (21.2)	
Emergent	3,618 (10.6)	713 (11.5)	362 (4.0)	2,543 (13.4)	
Expanded OSS (surgical-induced physiologic stress)					<.001
OSS1 (very low)	339 (1.0)	144 (2.3)	70 (0.8)	125 (0.7)	
OSS2 (low)	7,050 (20.6)	1,521 (24.4)	1,996 (22.2)	3,533 (18.6)	
OSS3 (moderate)	19,611 (57.3)	3,355 (53.9)	5,667 (63.0)	10,589 (55.6)	
OSS4 (high)	6,197 (18.1)	1,044 (16.8)	1,146 (12.7)	4,007 (21.1)	
OSS5 (very high)	1,054 (3.1)	161 (2.6)	112 (1.2)	781 (4.1)	
30-day Complications^c					
Reoperation	2,090 (6.1)	472 (7.6)	375 (4.2)	1,243 (6.5)	<.001
CDIV	1,783 (5.2)	506 (8.1)	231 (2.6)	1,046 (5.5)	<.001
Mortality	747 (2.2)	134 (2.2)	88 (1.0)	525 (2.8)	<.001
30-day EDOS^d	1,914 (5.6)	747 (12.0)	465 (5.2)	702 (3.7)	<.001
30-day Readmission^d	1,628 (4.8)	925 (14.9)	419 (4.7)	284 (1.5)	<.001
Textbook Outcomes	28,015 (81.8)	4,229 (67.9)	7,674 (85.4)	16,112 (84.6)	<.001

Abbreviations: ADI, Area Deprivation Index; CDIV, Clavien-Dindo Level IV; EDOS, Emergency Department visits/Observation Stays; OSS, Operative Stress Score; RAI, Risk Analysis Index; SD, Standard Deviation

^aBurden level categorized based upon the proportion of uninsured patients at each clinical site

^bPercent calculation by row, the rest of the percent calculations were by column

^cComplications defined as 30 days from date of the index surgery

^dEDOS and Readmissions defined as 30 days from date of hospital discharge of the index surgery; EDOS and Readmissions were evaluated independently; membership in one group does not exclude a case from membership in the other

SDC-Table 2. Patient Characteristics and Clinical Outcomes of Private and Uninsured Insurance Type Patients

	Overall	Private	Uninsured	p-value
Number (%)^a	16,518	13,546 (82.0)	2,972 (18.0)	
Age (mean (SD))	49.81 (12.61)	50.39 (12.59)	47.20 (12.39)	<.001
Sex (Female)	9,506 (57.5)	7,991 (59.0)	1,515 (51.0)	<.001
Race/Ethnicity				<.001
Black, non-Hispanic	1,692 (10.2)	1,429 (10.5)	263 (8.8)	
Hispanic, any race	2,894 (17.5)	1,012 (7.5)	1,882 (63.3)	
Multiracial, non-Hispanic	351 (2.1)	277 (2.0)	74 (2.5)	
White, non-Hispanic	11,581 (70.1)	10,828 (79.9)	753 (25.3)	
RAI				<.001
Robust (≤20)	13,020 (78.8)	10,509 (77.6)	2,511 (84.5)	
Normal (21-29)	2,508 (15.2)	2,159 (15.9)	349 (11.7)	
Frail (30-39)	932 (5.6)	842 (6.2)	90 (3.0)	
Very Frail (≥40)	58 (0.4)	36 (0.3)	22 (0.7)	
ADI >85 (highly deprived)	3,293 (19.9)	2,190 (16.2)	1,103 (37.1)	<.001
Clinical Sites^b				<.001
High-burden	3,655 (22.1)	1,446 (10.7)	2,209 (74.3)	
Medium-burden	4,425 (26.8)	3,802 (28.1)	623 (21.0)	
Low-burden	8,438 (51.1)	8,298 (61.3)	140 (4.7)	
Case Status				<.001
Elective	11,688 (70.8)	10,389 (76.7)	1,299 (43.7)	
Urgent	3,361 (20.3)	2,071 (15.3)	1,290 (43.4)	
Emergent	1,469 (8.9)	1,086 (8.0)	383 (12.9)	
Expanded OSS (surgical-induced physiologic stress)				<.001
OSS1 (very low)	181 (1.1)	107 (0.8)	74 (2.5)	
OSS2 (low)	3,627 (22.0)	2,760 (20.4)	867 (29.2)	
OSS3 (moderate)	9,583 (58.0)	7,985 (58.9)	1,598 (53.8)	
OSS4 (high)	2,773 (16.8)	2,373 (17.5)	400 (13.5)	
OSS5 (very high)	354 (2.1)	321 (2.4)	33 (1.1)	
30-day Complications^c				
Reoperation	837 (5.1)	658 (4.9)	179 (6.0)	.010
CDIV	499 (3.0)	372 (2.7)	127 (4.3)	<.001
Mortality	146 (0.9)	125 (0.9)	21 (0.7)	.302
30-day EDOS^d	928 (5.6)	580 (4.3)	348 (11.7)	<.001
30-day Readmissions^d	741 (4.5)	406 (3.0)	335 (11.3)	<.001
Textbook Outcomes	14,020 (84.9)	11,815 (87.2)	2,205 (74.2)	<.001

Abbreviations: ADI, Area Deprivation Index (>85 defined as highly deprived); CDIV, Clavien-Dindo Level IV; EDOS, Emergency Department visits/Observation Stays; OSS, Operative Stress Score; RAI, Risk Analysis Index; SD, Standard Deviation

^aPercent calculation by row, the rest of the percent calculations were by column

^bBurden level categorized based upon the proportion of uninsured patients at each clinical site

^cComplications defined as 30 days from date of the index surgery

^dEDOS and Readmissions defined as 30 days from date of hospital discharge of the index surgery; EDOS and Readmissions were evaluated independently; membership in one group does not exclude a case from membership in the other

SDC-Table 3. EDOS and Readmissions (30-day^a) Components of Textbook Outcomes Adjusted for Race, Frailty^b, Operative Stress^c, Area Deprivation Index, Insurance Type, Reoperations and CDIV Complications

Predictors	EDOS			Readmissions		
	aOR	CI	p-value	aOR	CI	p-value
Race/Ethnicity (Ref = White, non-Hispanic)						
Black, non-Hispanic	1.153	0.987 – 1.346	.072	1.001	0.836 – 1.198	.991
Hispanic, any race	1.250	1.060 – 1.474	.008	1.002	0.854 – 1.174	.985
Multiracial, non-Hispanic	1.147	0.812 – 1.620	.436	1.289	0.911 – 1.825	.152
ADI >85 (Ref = ADI ≤85)	1.012	0.904 – 1.133	.837	0.934	0.823 – 1.061	.297
Insurance (Ref = Private)						
Medicare	1.221	1.073 – 1.388	.002	1.245	1.074 – 1.444	.004
Medicaid	1.671	1.423 – 1.963	<.001	1.629	1.365 – 1.944	<.001
Uninsured	1.524	1.295 – 1.793	<.001	1.258	1.059 – 1.495	.009
Urgent/Emergent (Ref = Elective)	0.995	0.894 – 1.107	.928	1.127	1.000 – 1.270	.050
30-day Complications^d						
Reoperations	1.634	1.384 – 1.928	<.001	4.634	4.004 – 5.361	<.001
CDIV	0.962	0.788 – 1.176	.708	1.384	1.153 – 1.661	<.001

Abbreviations: ADI, Area Deprivation Index (>85 defined as highly deprived); aOR, Adjusted Odds Ratio; CI, 95% Confidence Interval; EDOS, Emergency Department visits/Observation Stays; OSS, Operative Stress Score; RAI, Risk Analysis Index; Ref, Reference Value

^aEDOS and Readmissions defined as 30 days from date of hospital discharge of the index surgery

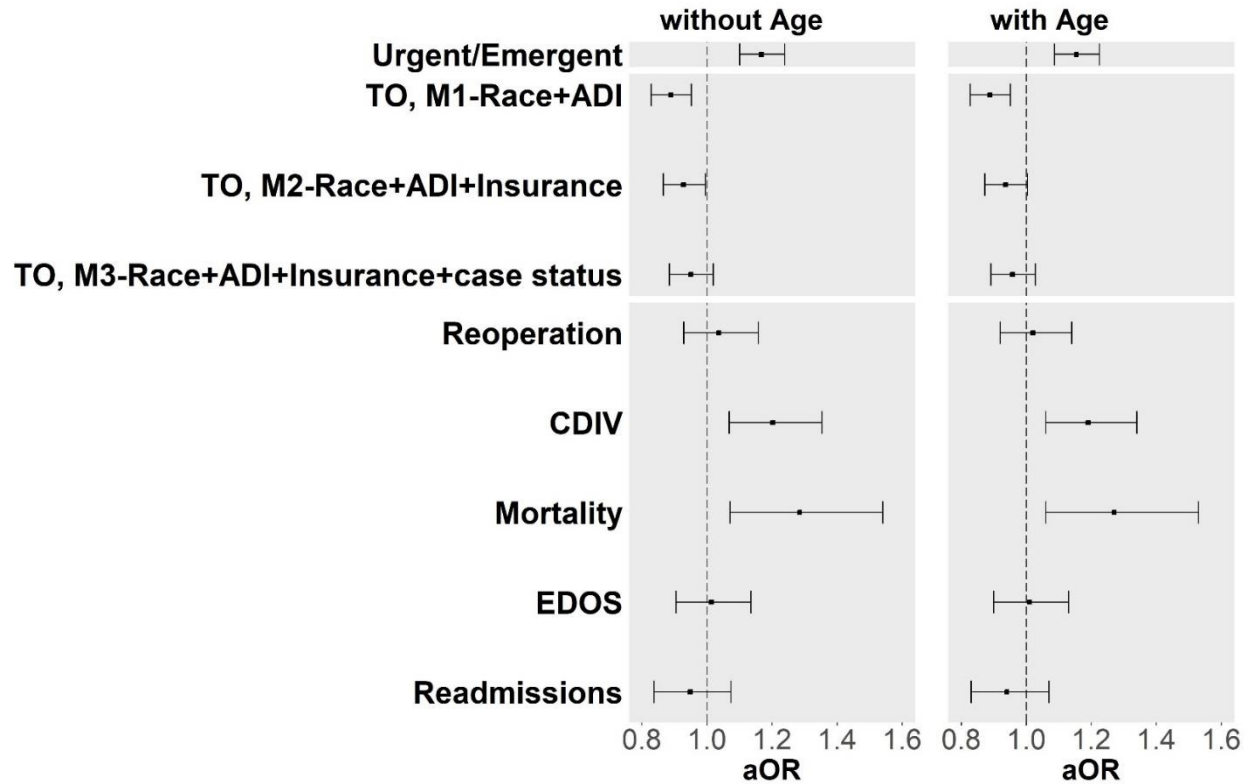
^bAdjustments for frailty by the Risk Analysis Index (RAI) not shown

^cAdjustments for operative stress by the expanded Operative Stress Score not shown

OSS3 moderate stress, OSS4 high stress and OSS5 very high stress

^dComplications defined as 30 days from date of the index surgery

EDOS and Readmissions were evaluated independently; membership in one group does not exclude a case from membership in the other



SDC-Figure 1. Case Status, Textbook Outcomes (TO) and TO Components with a Sensitivity Analysis also Adjusting for Age

Forest plot of **Tables 2, 3 & 5** (left) with a sensitivity analysis also adjusting for age groups of 18-44 (reference group), 45-64 and ≥ 65 years of age (right). TO nested models were adjusted for Risk Analysis Index and expanded Operative Stress Score in addition to the variables listed in models 1-3 (M1-M3).

Urgent/emergent cases (**Table 2**) were adjusted for race/ethnicity Risk Analysis Index/frailty, Area Deprivation Index >85 and insurance type.

TO nested models (**Table 3**) were adjusted for Risk Analysis Index and expanded Operative Stress Score in addition to the variables listed in models 1-3 (M1-M3).

TO components (**Table 5**) were adjusted for Risk Analysis Index, expanded Operative Stress Score, race/ethnicity, Insurance Type and urgent/emergent case status (M3 model variables).

Abbreviations: ADI, Area Deprivation Index; aOR, adjusted Odds Ratio; CDIV, Clavien-Dindo IV complications; EDOS, Emergency Department visits/Observation Stays; RAI, Risk Analysis Index