

SUPPLEMENTAL MATERIAL

Table S1. International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) codes used to identify study population.

Inclusion criteria	
CABG	36.1x
Acute deep vein thrombosis	451.11, 451.19, 451.83, 451.81, 453.40, 453.41, 453.42, 453.82, 453.84, 453.85, 453.86, 453.87, 453.89, 453.2
Pulmonary embolism	415.1, 415.11, 415.13, 415.19
Exclusion criteria	
SAVR	35.21, 35.22
Aortic root procedures	38.44, 38.45
Tricuspid valve procedures	35.14, 35.27, 35.28
Pulmonic valve procedures	35.13, 35.25, 35.26
Mitral valve procedures	35.12, 35.23, 35.24

CABG: coronary artery bypass grafting; SAVR: surgical aortic valve replacement

Table S2. International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) or Clinical Classification Software (CCS) codes used to identify comorbidities.

Comorbidity	
Hyperlipidemia	CCS 53
Prior history of VTE (including chronic VTE)	V12.51, 453.7X, , 453.5X
Smoking	305.1-305.13
CPB use	39.61, 39.66

CCS: Clinical Classification Software; CPB: cardiopulmonary bypass; VTE: venous thromboembolism.

All other comorbidities in Table 1 were identified using the Elixhauser comorbidities included with the NIS.

Table S3. International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) codes used to identify in-hospital complications.

In-hospital complication	
Stroke	997.01, 997.02, 431, 433.x1, 434.x1, 344.6x
Acute Respiratory Failure	518.81 , 518.82, 518.84, 799.1, 786.09, 518.4, 518.51
AKI	584.5, 584.6, 584.7, 584.8, 584.9
AKI-D	584.x + 39.95
Bleeding	430, 431, 432.x, 336, 362.43, 362.81, 363.61, 363.62, 363.72, 364.41, 3736.32, 377.42, 379.23; 423.0 + 37.0; 923.x + 729.71, 924.x + 729.72, 922.2-9 + 729.73; 456.0, 456.20, 530.7, 530.82, 531.00, 531.01, 531.20, 531.21, 531.40, 531.41, 31.60, 531.61, 532.00, 532.01, 532.20, 532.21, 532.40, 532.41, 532.60, 532.61, 533.00, 533.01, 533.20, 533.21, 533.40, 533.41, 533.60, 533.61, 534.00, 534.01, 534.20, 534.21, 534.40, 534.41, 534.60, 534.61, 569.3, 578.0, 578.1, 578.9, 568.81, 599.70, 599.71, 719.1x, 784.7, 784.8, 459, 998.11, 998.12, 285.1 + 998.00, 998.09, 785.50, 785.59, 276.52 + 00.17 + 99.0x

AKI: acute kidney injury; AKI-D: AKI requiring dialysis

Table S4. Multivariable analysis of in-hospital outcomes, in PE and DVT-only groups.

Outcome	No PE	PE	P value	No DVT	DVT-only	P value
In-hospital mortality						
Incidence (%)	1.8	10.0		1.8	5.6	
Unadjusted OR [95% CI]	Ref	6.17 [4.04-9.42]	<0.001	Ref	3.32[2.33-4.75]	<0.001
Adjusted OR [95% CI] *	Ref	3.46 [2.07 - 5.78]	<0.001	Ref	1.43 [0.96-2.13]	0.08
AKI						
Incidence (%)	16.5	33.2		16.3	41.8	
Unadjusted OR [95% CI]	Ref	2.51 [1.93-3.27]	<0.001	Ref	3.68[3.11-4.36]	<0.001
Adjusted OR [95% CI] *	Ref	1.83 [1.34-2.50]	<0.001	Ref	2.43 [1.95-3.02]	<0.001
AKI-D						
Incidence (%)	1.2	2.9		1.2	4.3	

Outcome	No PE	PE	P value	No DVT	DVT-only	P value
Unadjusted OR [95% CI]	Ref	2.48 [1.17-5.27]	<0.001	Ref	3.76[2.46-5.74]	<0.001
Adjusted OR [95% CI] *	Ref	1.89 [0.80-4.47]	0.14	Ref	1.52 [0.92 – 2.53]	0.12
Acute Respiratory Failure						
Incidence (%)	17.3	45.2				
Unadjusted OR [95% CI]	Ref	3.96 [3.10-5.05]	<0.001	Ref	4.03 [3.43-4.73]	<0.001
Adjusted OR [95% CI] *	Ref	2.93 [2.26-3.80]	<0.001	Ref	2.63 [2.20- 3.14]	<0.001
Stroke						
Incidence (%)	1.8	2.5	1.8	8.5		
Unadjusted OR [95% CI]	Ref	1.37 [0.61-3.08]	0.52	Ref	5.15 [3.80-6.98]	<0.001
Adjusted OR [95% CI] *	Ref	0.97 [0.42 – 2.21]	0.94	Ref	3.18 [2.25 – 4.50]	<0.001

Outcome	No PE	PE	P value	No DVT	DVT-only	P value
Bleeding						
Incidence (%)	6.6	19.1	6.5	17.7		
Unadjusted OR [95% CI]	Ref	3.34 [2.38-4.70]	<0.001	Ref	3.07 [2.47 – 3.78]	<0.001
Adjusted OR [95% CI] *	Ref	2.49 [1.74-3.56]	<0.001	Ref	2.06 [1.65 – 2.58]	<0.001
Length of stay						
Days ± SE	8.58 ± 0.01	17.09 ± 0.31		8.55 ± 0.01	16.80 ± 0.10	
Unadjusted parameter estimate†	Ref	1.99[1.84-2.15]	<0.001	Ref	2.01 [1.92-2.11]	<0.001
Adjusted parameter estimate*†	Ref	1.77[1.64-1.90]	<0.001	Ref	1.67[1.60-1.75]	<0.001
Average hospital cost						

Outcome	No PE	PE	P value	No DVT	DVT-only	P value
Mean ± SE (\$)	46,073 ± 52	74,563 ± 1528	-	45,936 ± 52	78,401 ± 1068	-
Unadjusted parameter estimate†	Ref	1.62 [1.49-1.77]	<0.001	Ref	1.71[1.60-1.82]	<0.001
Adjusted parameter estimate*†	Ref	1.47[1.35-1.60]	<0.001	Ref	1.46 [1.38-1.55]	<0.001

PE: pulmonary embolism; DVT: deep vein thrombosis; AKI: acute kidney injury; AKI-D: AKI requiring dialysis; OR: odds ratio; SE: standard error

*Adjusted for age, race, sex, insurance status, hospital characteristics, and all comorbidities listed in Table 1.

†Parameter estimates represent the antilog of the β regression coefficients obtained from the log-transformed regression models.

Table S5. Association of OPCAB with in-hospital mortality.

Mortality	Unadjusted OR [95% CI]	Adjusted OR [95% CI]	P value [‡]
Overall mortality*	1.25 [1.09 – 1.44]	1.16 [1.00 – 1.34]	0.05
In VTE group †	1.72 [0.96 – 3.07]	1.78 [0.90 – 3.53]	0.10
In non-VTE group †	1.23 [1.06 – 1.41]	1.15 [0.99 – 1.33]	0.08

OPCAB: off-pump coronary artery bypass grafting; OR: odds ratio; VTE: venous thromboembolism.

*Adjusted for age, race, sex, insurance status, VTE status, hospital characteristics, and all comorbidities listed in Table 1.

† Adjusted for age, race, sex, insurance status, hospital characteristics, and all comorbidities listed in Table 1.

‡ P values provided for adjusted analyses.

Table S6. In-hospital mortality in patients undergoing CABG with and without VTE (excluding OPCAB cases).

	No VTE	VTE	P value
Incidence of in-hospital mortality (%)	1.7	5.9	-
Unadjusted OR [95% CI]	Ref	3.73 [2.67 – 5.21]	<0.001
Adjusted OR [95% CI]*	Ref	1.87 [1.29 – 2.71]	0.001

CABG: coronary artery bypass grafting; OPCAB: off-pump coronary artery bypass grafting; OR: odds ratio; VTE: venous thromboembolism.

*Adjusted for age, race, sex, insurance status, hospital characteristics and all comorbidities listed in Table 1.