

**The following content was supplied by the authors as supporting material and has not been copy-edited or verified by JBJS.**

**Appendix 1.** Keywords included and excluded in the search criteria to capture patients with deep vein thrombosis (DVT) or pulmonary embolism (PE).

INCLUDED TERMS	EXCLUDED TERMS
BLOOD CLOT	ASPIRATION
CLOT	FRACTURE
LEG SWELLING	MI
SWOLLEN LEG	MYOCARDIAL INFARCT
BLOOD THINNER	INFARCT
CALF	HEART ATTACK
PRESSURE	FALL
ULTRASOUND	PAIN
US	CONSTIPATION
DOPPLER	NAUSEA
VENOGRAM	CHF
SONOGRAM	HEART FAILURE
EMERGENCY DEPARTMENT	MI
ED	
EMERGENCY ROOM	
ER	
BLOOD CLOT	
CLOT	
LUNG	
PULMONARY EMBOLISM	
PE	
SPIRAL CT	
CT	
VQ SCAN	
WELLS SCORE	
DIMER	
CHEST X-RAY	
CHEST X RAY	
CHEST RADIOGRAPH	
PULMONARY ANGIOGRAPHY	
RAPID BREATHING	
HEMOPTYSIS	
SOB	
SHORTNESS OF BREATH	
EMERGENCY DEPARTMENT	
ED	
EMERGENCY ROOM	

ER

CHEST PAIN

BLOOD THINNER

HEPARIN

LOW MOLECULAR WEIGHT HEPARIN

LMWH

ENOXAPARIN

COUMADIN

WARFARIN

RIVAROXABAN

XARELTO

APIXABAN

ELIQUIS

DABIGATRAN

PRADAXA

EDOXABAN

SAVAYSA

---

**Appendix 2.** Keywords included and excluded in the search criteria to capture patients with a bleeding event.

<b>INCLUDED TERMS</b>	<b>EXCLUDED TERMS</b>
GI BLEED	GASTROINTESTINAL INFECTION
GASTROINTESTINAL BLEED	GASTROINTESTINAL CONSTIPATION
INTESTINAL BLEED	CONSTIPATION
INTESTINAL HEMORRHAGE	GI INFECTION
GI HEMORRHAGE	GI CONSTIPATION
GASTROINTESTINAL HEMORRHAGE	INTRAOPERATIVE BLEED
RECTAL BLEED	INCLUDING BLEEDING
INTERNAL BLEED	BLEEDING PROBLEMS: NO
MELENA	NO BLEEDING
VOMITING BLOOD	
BLOOD VOMIT	
BLOOD IN THE STOOL	
BLOOD IN STOOL	
BLOODY STOOL	
GASTROINTESTINAL	
#GI#	
BLEEDING FROM WOUND	
WOUND BLEEDING	
BLEEDING	
HEMORRHAGE	
HEMORRHAGIC SHOCK	
MAJOR BLEEDING	

**Appendix 3.** International Classification of Diseases (ICD) codes used in the electronic query for acute postoperative hemorrhage

<b>Description</b>	<b>ICD-9 code</b>	<b>ICD-10 code</b>
Acute postoperative hemorrhage	998.10 – 998.19, 285.1, 459.0	D62', 'D78.01', 'D78.02', 'D78.21', 'D78.22', 'E36.01', 'E36.02', 'G97.31', 'G97.32', 'G97.51', 'G97.52', 'H59.111', 'H59.112', 'H59.113', 'H59.119', 'H59.121', 'H59.122', 'H59.123', 'H59.129', 'H59.311', 'H59.312', 'H59.313', 'H59.319', 'H59.321', 'H59.322', 'H59.323', 'H59.329', 'H95.21', 'H95.22', 'H95.41', 'I97.410', 'I97.411', 'I97.418', 'I97.42', 'I97.610', 'I97.611', 'I97.618', 'I97.62', 'J95.61', 'J95.62', 'J95.830', 'K91.61', 'K91.62', 'K91.840', 'K91.841', 'L76.01', 'L76.02', 'L76.21', 'L76.22', 'M96.810', 'M96.811', 'M96.831', 'N99.61', 'N99.62', 'N99.820', 'N99.821', 'R58', 'T88.8XXA'

**Appendix 4.** International Classification of Diseases (ICD) codes used in the electronic query for allergic reactions

<b>Description</b>	<b>ICD-9 code</b>	<b>ICD-10 code</b>
Other anaphylactic shock, not elsewhere classified	995.0	T78.2X
Angioneurotic edema, not elsewhere classified	995.1	T78.3X
Unspecified adverse effect of drug medicinal and biological substance not elsewhere classified	995.2	T50.9X
Allergy, unspecified	995.2	T78.40
Other allergy	995.3	T78.49
Adverse effect of nonopioid analgesics, antipyretics and antirheumatics	965.X	T39.X
Anaphylactic reaction due to adverse effect of correct drug or medicament properly administered	-	T88.6
Unspecified adverse effect of drug or medicament	-	T88.7
Allergic urticaria	708.0	L50.0
Urticaria, idiopathic	708.1	L50.1
Other specified urticaria	708.8	L50.8
Urticaria, unspecified	708.9	L50.9
Rash and other nonspecific skin eruption	782.1	R21
Other skin changes	782.3, 782.62, 782.8	R23.2, R23.4, R23.8, R23.9
Dermatitis due to drugs and medicines taken internally	693.0 , 693.8 , 693.9	L27.0, L27.1, L27.8, L27.9
Pruritus, unspecified	698.8 , 698.9	L29.8, L29.9
Laryngeal edema	478.6	J38.4
Wheezing	786.07	R06.2
Bronchospasm	519.11	J98.01

**Appendix 5.** Differences in VTE prophylaxis strategy between different time periods

	<b>2000 - 2009</b>	<b>2010 - 2019</b>	
<b>VTE prophylaxis</b>	<b>N=20864</b>	<b>N=24307</b>	<b>P Value</b>
Aspirin	953 (4.56%)	17174 (70.7%)	<b>&lt;0.001</b>
Warfarin	19768 (94.5%)	4855 (20.0%)	
Heparin	134 (0.64%)	336 (1.38%)	
NOAC	23 (0.11%)	832 (3.42%)	
Others	11 (0.05%)	21 (0.09%)	

VTE, venous thromboembolism; NOAC, novel oral anticoagulant;

**Bold** values indicate statistical significance (p<0.05)

**Appendix 6.** Differences in VTE prophylaxis strategy between TKA and THA

	<b>TKA</b>	<b>THA</b>	
<b>VTE prophylaxis</b>	<b>N=21134</b>	<b>N=24037</b>	<b>P Value</b>
Aspirin	8353 (39.5%)	9774 (40.6%)	<b>&lt;0.001</b>
Warfarin	11734 (55.5%)	12889 (53.6%)	
Heparin	227 (1.07%)	243 (1.01%)	
NOAC	468 (2.21%)	387 (1.61%)	
Others	16 (0.08%)	16 (0.07%)	

VTE, venous thromboembolism; NOAC, novel oral anticoagulant; TKA, total knee arthroplasty; THA, total hip arthroplasty

**Bold** values indicate statistical significance (p<0.05)