Supplementary Table 1: Candidate predictors and their definitions

Variable	Type of variable	Categories
Demographic and lifestyle factors		
Age at delivery in years	Continuous	
Smoking status (latest smoking status during or before pregnancy)	Binary	Smoker or non-smoker
BMI (Kg/m^2) (Latest BMI before pregnancy)	Continuous	
Calendar year (Deliveries in or after 2005)	Binary	Yes/No
Pre-existing comorbidities (before delivery)		
Varicose veins	Binary	Yes/No
Cardiac disease (Ischemic heart disease, congenital heart disease, cardiac failure, cardiac arrhythmias or cardiomyopathy)	Binary	Yes/No
Renal disease (Glomerular disease, renal tubulointerstitial disease or renal failure)	Binary	Yes/No
Inflammatory bowel disease (ulcerative colitis, Crohn's disease or non-specific IBD)	Binary	Yes/No
Pregnancy complications and characteristics (during current pregnancy)		
Antepartum haemorrhage	Binary	Yes/No
Pre-eclampsia/Eclampsia	Binary	Yes/No
Hypertension (gestational or pre-existing)	Binary	Yes/No
Diabetes (gestational or pre-existing)	Binary	Yes/No
Hyperemesis	Binary	Yes/No
Antenatal parity	Categorical	Nulliparous/one/two/3 or more
Delivery complications and characteristics		
Postpartum haemorrhage (before the occurrence of VTE)	Binary	Yes/No
Mode of delivery	Categorical	Normal/Assisted/Emergency caesarean/elective caesarean
Gestational length	Categorical	Normal (37-42 weeks)/pro-longed (>42 weeks) Preterm (<37 weeks)
Birth outcome	Binary	Stillbirth/live birth
Multiple gestation	Binary	Singleton or multiple birth (twins or more)
Acute systemic infection postpartum (respiratory tract infection or urinary tract infection)	Binary	Yes/No
Birthweight in grams (for multiple birth, infant with lowest birthweight considered)	Continuous	

Supplementary Table 2: ICD-9 and ICD-10 codes used to defined predictors and VTE

Disease area	ICD-10 (Used in the English and Swedish data)	ICD-9 (only first 3 digits)
Cardiac disease		
Ischemic heart disease	I20.0, I20.1, I20.8-9, I21.0-4, I21.9, I22.0-1, I22.8-9, I23.0-6, I23.8, I24.0-1, I24.8-9, I25.0-6, I25.8-9	410-414
Congenital heart defect	Q20.0-5, Q20.8-9, Q21.0-4, Q21.8-9, Q22.0-6, Q22.8-9, Q23.0-4, Q23.8-9, Q24.0-6, Q24.8-9, Q25.0-9, Q26.0-6, Q26.8-9	745, 746, 757
Cardiac failure	I50.0-1, I50.9	428
Cardiac arrhythmias	I48, I49.0-5, I49.8-9,	427
Cardiomyopathy	I42.0-9, I43.0-2, I43.8	425
Renal Disease		
Glomerular disease	N01-N08, N08.0-5, N08.8	580-583, 593
Renal tubule-interstitial disorder	N10, N11.8-9, N12, N13.0-9, N14.0-4, N15.0-1, N15.8-9, N16.0-5, N10.8	590, 591
Renal failure	N17.0-2, N17.8-9, N19	584, 585, 586
IBD (Ulcerative colitis, Crohn's disease and non-specific IBD)	K50.0-1, K50.8-9, K510-5, K50.8-9	555, 556
Varicose vein	I83.0-2, I83.9, O22.0	454, 671
Diabetes (gestational or pre-existing)	E10-E14, O24.0-3, O24.9, 024.4	250, 648
Hypertension (gestational or pre-existing)	I10, I11.0, I11.9, I12.0, I12.9, I13.0-2, I13.9, I15.0-2, I15.8-9, O10.1-4, O10.9, O11, O13	401-405, 642
Pre-eclampsia/eclampsia	O11, O14.0-1, O14.9, O15.0-2, O15.9	
Postpartum haemorrhage	O67.0, O67.8-9, O72.0-3	
Antepartum haemorrhage	O46.0, O46.8-9	
Hyperemesis	O21.0-1	
Acute systemic infection		
Acute respiratory tract infection (pneumonia, influenza or acute bronchitis)	J10-J22	
Urinary tract infection	N10, N11.8-9, N12, N30.0-4, N30.8-9, N34.0-2, N39.0, O230-5, O23.9, O86.2-3	
Venous thromboembolism	I26.0, I26.9, I80.1-3, I80.8-9, I81, I82.0-3, I82.8-9, O08.2, O22.3, O87.1, O88.2	415, 451-453, 671, 673

Supplementary table 3: Percentages of women with and without VTE during the postpartum period (English derivation cohort)

Variable	Without VTE N=433,041		VTE within 6 weeks of delivery (n=312)		Unadjusted OR*
	N	**%**	**N**	**%**	
Social factors					
Age at delivery in years					1.02 (1.00-1.04)
Body Mass Index (Kg/m^2)					1.06 (1.04-1.08)
Smoker (latest record before delivery)	93,183	21.52	81	25.96	1.18 (0.99-1.65)
Deliveries from 2004 and onwards	280,285	64.72	213	68.27	1.17 (0.92-1.49)
Comorbidities					
Varicose veins	10,910	2.52	25	8.01	3.37 (2.24-5.07)
Other comorbidities δ	10,567	2.44	20	6.41	2.74 (1.74-4.31)
Pregnancy complications					
Antepartum haemorrhage	15,841	3.66	8	2.56	0.69 (0.34-1.40)
Pre-eclampsia/eclampsia	9,943	2.30	23	7.37	3.39 (2.21-5.18)
Diabetes	14,580	3.37	24	7.69	2.39 (1.58-3.63)
Hypertension	41,259	9.53	41	13.14	1.44 (1.03-1.99)
Hyperemesis	15,557	3.59	20	6.41	1.84 (1.17-2.89)
Parity before delivery					
Nulliparous	244,079	56.36	154	49.36	Reference
Parity 1	130,029	30.03	92	29.49	1.12 (0.86-1.45)
Parity 2	38,559	8.90	40	12.82	1.64 (1.16-3.33)
Parity 3 or more	20,374	4.70	26	8.33	2.02 (1.33-3.07)
Delivery characteristic/complication					
Pre-term birth (<37 weeks)	31,488	7.27	38	12.18	1.77 (1.26-2.48)
Postpartum haemorrhage	42,925	9.91	53	16.99	1.85 (1.38-2.49)
Normal/ Assisted delivery	275,091	63.53	140	44.87	Reference
Elective caesarean section	97,242	22.46	86	27.56	1.74 (1.33-2.27)
Emergency caesarean section	60,708	14.02	86	27.56	2.78 (2.12-3.64)
Multiple delivery (Twins or more)	6,544	1.51	6	1.92	1.28 (0.57-2.87)
Stillbirth	1,966	0.45	6	1.92	4.30 (1.91-9.66)
Postpartum systemic infection	13,649	3.15	32	10.26	3.51 (2.43-5.06)
Infant birth weight in grams					0.99 (0.99-0.99)

*OR based on women without particular risk factor under study if reference group not specified.

δInflammatory bowel disease, cardiac disease or renal disease. Specific disease codes presented as Supplementary Table 1.

Supplementary Table 4: Sensitivity, specificity and positive predicted value (PPV) for postnatal women with top 35% and 6% risk score based on our prediction model in the English and Swedish data respectively after excluding those potentially on pharmacological thromboprophylaxis.
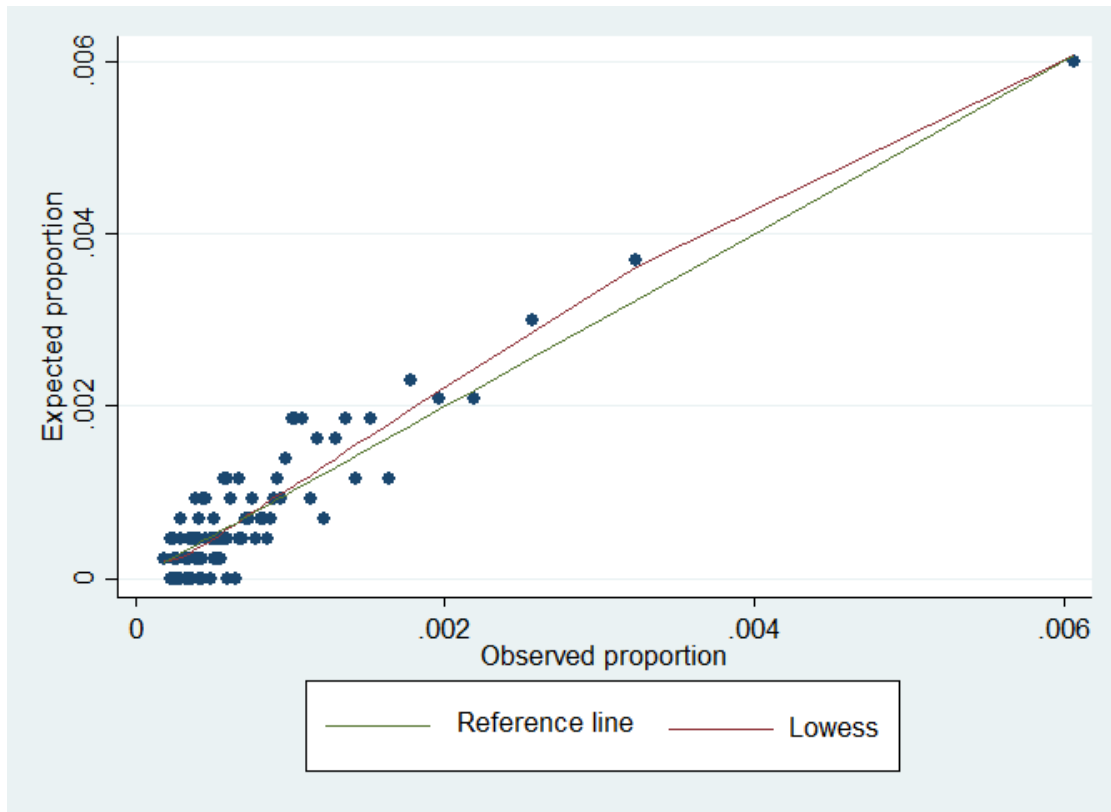
	English data Total number of postpartum women = 430,196 Total number of VTE events = 291 (Imputed dataset)	Swedish data Total number of pregnancies = 640,542 Total number of VTE events = 466
Statistics	**Risk prediction model (England)** **Top 35% cut-off** **(Threshold =6.4 per 10,000 deliveries)**	**Risk prediction model (Sweden)** **Top 6% cut-off** **(Threshold=17.7 per 10,000 deliveries)**
Total number of women warranting thromboprophylaxis (%)	149,481 (34.3)	35,631 (5.6)
Observed VTE events*	201	137
Mean Predicted risk range per 10,000 pregnancies (min-max)	12.9	31
Sensitivity	69.1 (63.4-74.3)	39.4 (25.3-33.8)
Positive predictive value	0.13 (0.11-0.15)	0.39 (0.32-0.45)
Specificity	65.8 (65.6-65.9)	94.6 (94.6-94.5)

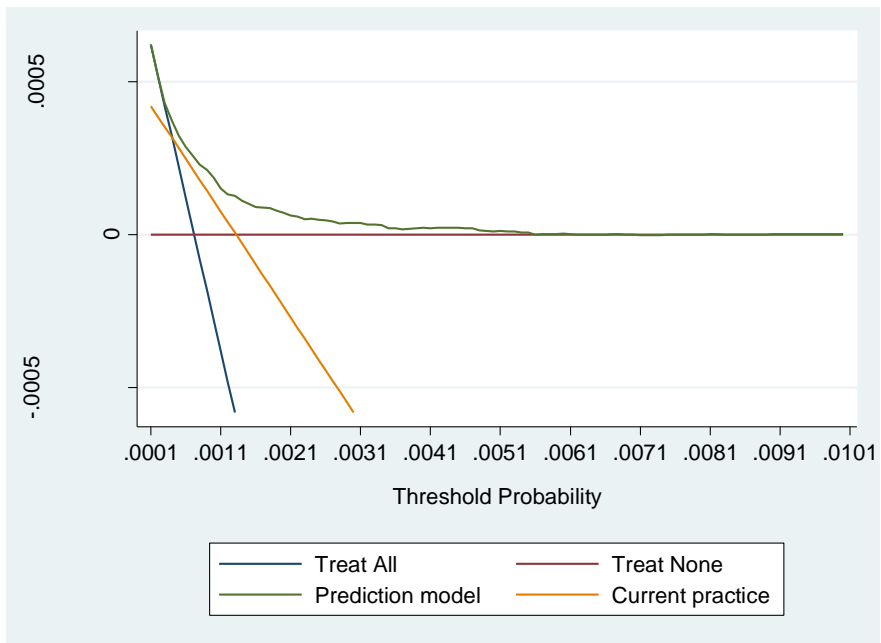*In women warranting thromboprophylaxis

Supplementary table 5: Predicted risk of VTE with first 6 week of postpartum in the validation cohort based on various cut-offs.

Risk score cut-offs (Threshold per 10,000 deliveries)	Mean predicted risk per 10,000 pregnancies	No. of patients in risk group N=662,387	No. of patients in risk group with new VTE diagnosis N=521	Sensitivity %	Specificity %	Positive predictive value %
Top 25% risk score (Threshold=8.7)	16.7	165,286	310	59.5 (55.1-63.7)	75 (74.9-75.2)	0.19 (0.16-0.21)
Top 20% risk score (Threshold=9.8)	18.6	132,199	278	53.4 50.0-57.7)	80.0 (79.9-80.1)	0.21 (0.18-0.23)
Top 10% risk score (Threshold=14.0)	25.6	66,238	185	35.5 (31.4-40.0)	90.0 (90.0-90.1)	0.27 (0.24-0.32)
Top 5% risk score (Threshold= 19.7)	34.8	33,119	139	26.7 (22.9-30.7)	95.0 (95.0-95.1)	0.41 (0.35-0.50)
Top 1% risk score (Threshold=41.2)	67.3	6,623	47	9.0 (6.7-11.8)	99.0 (98.9-99.0)	0.71 (0.52-0.94)

Supplementary Figure 1: Assessing calibration in the validation cohort within each centile of the risk score.
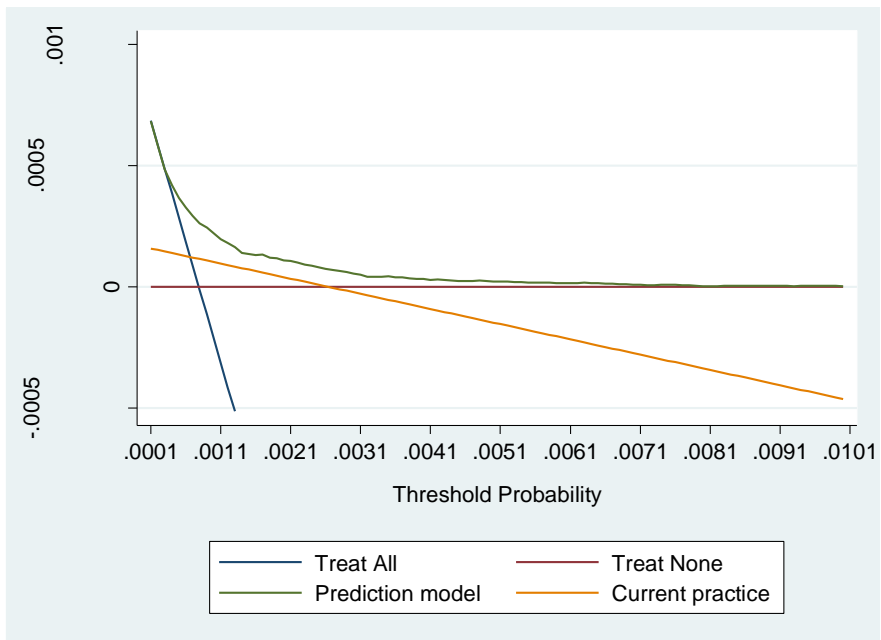
Supplementary Figure 2: Decision curve for models to predict postnatal VTE in the English data

Note: Current practice refers to the existing RCOG thromboprophylaxis guideline

Supplementary Figure 3: Decision curve to predict postnatal VTE in the Swedish data

Note: Current practice refers to the existing Swedish thromboprophylaxis guideline