

Hip Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients		
			General	Regional							Screened	Enrolled	Analyzed
Ryan 2002 (12429761)	1998-2001	0%	0%	100%	Aspirin	325 mg 2x/d	?post-op	Stockings	nd	nd	nd	50	50
Colwell, 2006 (16446183)	2002-2003	0%	76%	26%	Fondaparinux	2.5 mg 1x/d	8 hr post-op	Stockings (68%) CPM (41%) IPC (54%) Foot pump etc (14%)	7-10 d	6 wk	2046 (H+K)	2008 (H+K)	384
			75%	27%	Fondaparinux	2.5 mg 1x/d	post-op d 2		7-10 d				383
Turpie, 2002 (12049860)	1998-2000	16%	74%	30%	Fondaparinux	2.5 mg 1x/d	6 hr post-op	Stockings	5-9 d	5-7 wk	~1505	1128	1128
Lassen 2002 (12049858)	1998-2000	11%	39%	66%	Fondaparinux	2.5 mg 1x/d	6 h post-op	Stockings	5-9 d	7 wk	~1505	1140	1140
Adolf 1999 (10424367)	1997	nd	nd	nd	Certoparin	3000 IU, 1x/d	2-4 h pre-op	nd	12-14 d	12-14 d	nd	172	172
					Certoparin	5000 IU, 1x/d	2-4 h pre-op		12-14 d	12-14 d			169
Kakkar 2000 (10780310)	1998-1999	nd	96%	27%	Bemiparin	3500 IU 1x/d	2 h preop	nd	≥ 8 d	≥4 wk	150	149	149
Lassen 2002 (12049858)	1998-2000	13%	43%	63%	Enoxaparin	40 mg 1x/d	12 h pre-op	Stockings	5-9 d	7 wk	~1505	1133	1133
Eriksson 2006 (16409461)	2004	0%	30%	70%	Enoxaparin	40 mg 1x/d	Night pre-op	Stockings (some)	8.4 ± 1.2 d	30-60 d	726	136	106
Eriksson 2005 (15634273)	2002-2003	0%	28%	72%	Enoxaparin	40 mg 1x/d	pre- or post-op	Stockings and aspirin allowed	7 d	4-6 wk	397	268	208
Silbersack, 2004 (15330019)	1999-2000	0%	27%	73%	Enoxaparin	40 mg 1x/d	pre-op		30 d	12 wk	nd	nd	35
Pitto 2004 (15274256)	2002	nd	100	0	Fraxaparin	1900 -5700 IU (per body wt)	12 h preop	Stockings, PT	nd (until discharge)	3 mo	326		100
Colwell 2003 (14521593)	2000-2001	0%	66%	28%	Enoxaparin	30 mg 2x/d	Post-op	None	7-12 d	6±2 wk	920	910	775
Turpie, 2002 (12049860)	1998-2000	16%	74%	30%	Enoxaparin	30 mg 2x/d	12 h preop	Stockings	5-9 d	5-7 wk	~1505	1129	1120
Heit 2000 (10836911)	1994-1997	20	60%	39%	Ardeparin	50 IU/Kg 2x/d (100 IU/Kg 1x/d post-D/C)	w/in 24 h post-op	Mechanical 51%; Stocking 85%; ASA 14%	6 wk post-op	≥12 wk	~520	241	241
			24	61%	39%	Ardeparin	50 IU/Kg 2x/d		w/in 24 h post-op				4-10 d (in hospital)

Hip Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients			
			General	Regional							Screened	Enrolled	Analyzed	
Planes 1998 (9819000)	1996-1997	0%	nd	nd	Enoxaparin	40 mg 1x/d	12 h preop	nd	10-14 d	10-14 d		251	230	
					Reviparin	4200 IU	12 h preop						247	230
Warwick 1998 (9730125)	1995-1997	0%	13	87	Enoxaparin	40 mg 1x/d	12 h pre-op	Stockings	8 d	up to 3 mo		143	138	
Samama, 2002 (12390061)	1997-99	0%	60%	40%	Reviparin	4200 IU 1x/d	pre-op		6 wk	6 wk	-661	644	676*	
Eriksson, 2003 (14675083)	2001-2002	nd	39%	62%	Enoxaparin	40 mg 1x/d	pre-op	None	8-11d	4-6 wk	nd	1425 (hip & knee)	942	
Hull 2000A (10904464)	1998	18%	77%	40%	Dalteparin	2500 IU then 5000 IU 1x/d	≤ pre-op or ≥4 hr post-op	Stocking 28%	nd	6 +/- 2 d	5114 (for 3 arms)	983 (496 pre-op, 487 post-op)	983	
Hull 2000B (10904465)	1998	16%	75%	48%	Dalteparin	2500 IU then 5000 IU 1x/d	≤ pre-op or ≥4 hr post-op	Stocking 7%	nd	35 +/- 2 d*	991 (for 3 arms)	389 (199 pre-op, 190 post-op)	389	
Lassen 2000 (10726050)	~1998-1999	0%	41%	59%	Tinzaparin	3500-6500 IU	12 hr pre-op		7 d	8 d / 3 mo	315	96	96	
			47%	53%	Tinzaparin	2500-4500 IU	2 hr pre-op						94	94
Wenzl 2004 (14979398)	1995-2000	nd	nd	nd	Dalteparin (majority) + UFH (high risk)	2500 (majority) / 5000 (high risk)	pre-op	nd	nd (until gain of pre-op mobility)	nd	nd	nd	160	
Eriksson, 2002 (12433510)	1998-1999	0%	33%	76%	Dalteparin	5000 IU 1x/d	pre-op	Stockings	7-10 d	4-6 wk	2084(H+K, all Tx)	256	204	
Pitto 2004 (15274256)	2002	nd	100	0	A-V impulse foot pump		Post-op	Stockings, PT	nd (until discharge)	3 mo	326		100	
Warwick 1998 (9730125)	1995-1997	0	16	84	Foot pump		When not weight bearing	Recovery room	Stockings	7 d post-op		147	136	
Lachiewicz 2006 (17006365)	~2004	33%	unclear		Thigh-calf pneumatic compression		When not bathing or in PT	Intra-op	Stockings; advised ASA post-D/C	nd (until discharge)	3 mo	945	936	936
Pellegrini 2005 (16330984)	1993-2001	>0%	-0%	~100%	Warfarin*	INR 2.0	night pre-op		If negative venogram, then -5 d - hospital d/c (implied, n=588) If no venogram, 6 wk (n=139); if +venogram, 3 mo (n=97) [if PE, 6 mo]	6 mo	nd	824	588	
	2002-2003	>0%	-0%	~100%	Warfarin	INR 2.0	?night pre-op			6 wk	6 mo	nd	69	69

Hip Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients		
			General	Regional							Screened	Enrolled	Analyzed
Hull 2000A (10904464)	1998	14%	79%	45%	Warfarin	INR 2.0-3.0	≥4 hr postop	Stocking 28%	nd	6 +/- 2 d	5114 (for 3 arms)	489	489
Hull 2000B (10904465)	1998	12%	74%	53%	Warfarin	INR 2.0-3.0	≥4 hr postop	Stocking 9%	nd	35 +/- 2 d *	991 (for 3 arms)	180	180
Prandoni 2002 (12230419)	1998-2000	0%	97%	3%	Warfarin	INR 2.0-3.0	pre-op		~ 9 d (not post-d/c) 4 wk post d/c	4 wk post d/c*	nd	176	176 184 184
Silbersack, 2004 (15330019)	1999-2000	0%	28%	72%	Enoxaparin	40 mg 1x/d	pre-op		30 d	12 wk	nd	nd	33
					Intermittent pneumatic compression		In recovery room		10 d (while in bed)*				
Leali, 2002 (12050997)	1997-2000	9%	9%	91%	Aspirin	325 mg 1x/d	nd		30 d p-D/C	3 mo		192	187 187
					Foot pump		Immed p-op		Until active ambulation				
Samama, 2002 (12390061)	1997-99	0%	60%	40%	Reviparin (initial)	4200 IU 1x/d	pre-op		~6-7 d (until INR target reached)	6 wk	~661	645	645
					Acenocoumarol	INR 2.0-3.0	post-op day 4		6 wk				
Caprini, 1999 (10550178)	<1998	8%	83%	17%	Warfarin (UFH initially)	INR 2.0-3.0	post-op		4 wk	4 wk (implied)	nd	157	125
					Intermittent pneumatic compression		nd		nd				
Ryan 2002 (12429761)	1998-2001	0%	0%	100%	Aspirin	325 mg 2x/d	?post-op		nd	nd	nd	50	50
					Venaflow		post-op		4-5 d				

Hip Table 2

Study, Year (PMID)	Total Deaths		PE Deaths			Pulmonary Embolism Outcomes			Rehospitalization & Other Clinical Events			Major Bleeding Outcomes		
	% died (n/N)	Timing p-op	Definition	% died (n/N)	Timing p-op	Definition	% w/PE (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op
Ryan 2002 (12429761)						Symptomatic*	0	50						
Colwell, 2006 (16446183)			Adjudicated	0 (0/384)		Adjudicated	0.7% (3/384)					Fatal	0% (0/384)	
				0 (0/383)			0.5% (2/383)					Fatal	0% (0/383)	
Turpie, 2002 (12049860)	0.5% (6/1126)		Confirmed	0.9% (1/1126)	nd	Confirmed	9.8% (11/1126)					Fatal (d 11)	0% (0/1128)	
												Major (d 11)	1.8% (20/1128)	
Lassen 2002 (12049858)	0.2% (2/1140)		Confirmed autopsy	0.1% (1/1129)	nd	Confirmed	0.2% (3/1129)	nd		nd		Fatal (d 11)	0% (0/1140)	up to day 11
												Major (d 11)	4% (47/1140)	
Adolf 1999 (10424367)	0.6% (1/172)	nd		0% (0/172)		Confirmed	1.2% (2/172)						0% (0/172)	
	0.6% (1/169)	nd		0% (0/169)			1.2% (2/169)						0.6% (1/169)	nd
Kakkar 2000 (10780310)	2.0% (3/149)	dd 3, 21, 54	Autopsy	0.7% (1/149)	d 21	Confirmed	0.7% (1/149)	d 21	Rehosp	4.0% (6/149)	nd	Major	3.4% (5/149)	nd
												Wound hematoma	5.4% (8/149)	
Lassen 2002 (12049858)	0.4% (4/1133)		Confirmed autopsy	0% (0/1123)	nd	Confirmed	0.2% (3/1123)	nd		nd		Fatal (d 11)	0% (0/1133)	up to day 11
												Major (d 11)	2.8% (32/1133)	
Eriksson 2006 (16409461)	0% (0/106)			0% (0/106)		Confirmed	Unclear: 0-2% (0-2/106)					Major	1.5% (2/132)	until 2 d post Tx
Eriksson 2005 (15634273)	0% (0/208)		Confirmed	0% (0/208)		Confirmed	0% (0/208)			nd		Major	2.2% (6/270)	≤10 d
Silbersack, 2004 (15330019)			Symptomatic	0% (0/35)		Symptomatic	0% (0/35)							
Pitto 2004 (15274256)						nd	0% (0/100)	3-45 d		nd		Major	0% (0/100)	
Colwell 2003 (14521593)	0.1% (1/775)	nd				Confirmed	0.3% (2/775)	dd 5 & 10 post-D/C Tx				Major	0.9% (8/910)	
												Wound hematoma	1.7% (15/906)	
												Intra-articular bleed	7.1% (61/860)	
Turpie, 2002 (12049860)	0.3% (3/1128)	nd	Confirmed	0.1% (1/1128)	nd	Confirmed	0.1% (1/1128)	nd				Fatal (11 d)	0% (0/1129)	up to 11 d
												Major (11 d)	1.0% (11/1129)	
Heit 2000 (10836911)	0.4% (1/241)	nd				Confirmed	0% (0/241)					Major	0% (0/239)	nd
	0.4% (1/231)	nd					0% (0/231)						0.4% (1/226)	nd

Hip Table 2

Study, Year (PMID)	Total Deaths		PE Deaths			Pulmonary Embolism Outcomes			Rehospitalization & Other Clinical Events			Major Bleeding Outcomes		
	% died (n/N)	Timing p-op	Definition	% died (n/N)	Timing p-op	Definition	% w/PE (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op
Planes 1998 (9819000)	0% (0/230)			0% (0/230)		Confirmed	0% (0/230)*					Major	1% (2/251)	within 12 d
	0% (0/230)			0% (0/230)			0.44% (1/230)*						0.4% (1/247)	within 12 d
Warwick 1998 (9730125)	0% (0/138)		Confirmed	0% (0/138)		Confirmed	0% (0/138)		Rehosp due to DVT	0.7% (1/138)	d 15			nd
Samama, 2002 (12390061)	0.1% (1/676)*	pre d 4	Symptomatic	0% (0/676)**		Symptomatic	0% (0/643)***					Major	1.9% (13/676)**	
												Clinically serious	0.8% (5/643)***	
												Death	0% (1/643)***	
Eriksson, 2003 (14675083)												Severe	1.1% (10/942)	
Hull 2000A (10904464)	0.2% (2/983)	nd	Confirmed	0% (0/983)		Confirmed	0% (0/983)					Major	7.7% (76/983)	up to day 8
												Major at surgical site	7.2% (71/983)	
												Complicated wound hematoma	0.4% (4/983)	
Hull 2000B (10904465)	0% (0/389)	nd	Confirmed	0% (0/389)		Confirmed	0% (0/389)					Major	0% (0/389)	
												Complicated wound hematoma	0.5% (2/389)	
Lassen 2000 (10726050)	0% (0/96)	8d	3 mo (nd)	0% (0/96)		nd	0% (0/96)							
	1% (1/94)	d 5 8d		0% (0/94)			0% (0/94)							
Wenzl 2004 (14979398)						Confirmed	0.6% (2/349)	nd						
Eriksson, 2002 (12433510)			Confirmed	0% (0/204)		Confirmed	0.5% (1/204)	nd				Major	2.3% (6/256)	
Pitto 2004 (15274256)						nd	0% (0/100)	3-45 d				Major	0% (0/100)	
Warwick 1998 (9730125)	0% (0/136)		Confirmed	0% (0/136)		Confirmed	0.7% (1/136)	5 d	Rehosp due to DVT	0.7% (1/136)	17 d			
Lachiewicz 2006 (17006365)	0.3% (3/936)	dd 14, 24, 24	Autopsy	0.1% (1/936)	d 24	Confirmed	0.1% (1/936)*							

Hip Table 2

Study, Year (PMID)	Total Deaths		PE Deaths			Pulmonary Embolism Outcomes			Rehospitalization & Other Clinical Events			Major Bleeding Outcomes		
	% died (n/N)	Timing p-op	Definition	% died (n/N)	Timing p-op	Definition	% w/PE (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op
Pellegrini 2005 (16330984)			Autopsy	0.2% (1/588)	nd	Confirmed	1.0% (6/588)	nd	Rehosp VTE	2.0% (12/588)	nd			
				0% (0/236)			0% (0/236)			0.5% (1/236)	nd			
				0% (0/69)			0% (0/69)			0% (0/69)				
Hull 2000A (10904464)	0.4% (2/489)	nd	Confirmed	0% (0/489)		Confirmed	0 (0/489)					Major	4.5% (22/489)	up to day 8
												Major at surgical site	3.9% (19/489)	
												Complicated wound hematoma	0.2% (1/489)	
Hull 2000B (10904465)	0.6% (1/180)	nd	Confirmed	0% (0/180)		Confirmed	0% (0/180)					Major	0% (0/180)	
												Complicated wound hematoma	1.1% (2/180)	
Prandoni 2002 (12230419)	0% (0/176)			0% (0/176)		Confirmed	0.6% (1/176)	3 wk post-d/c				Major	0% (0/176)	
	0% (0/184)			0% (0/184)			0% (0/184)						0.5% (1/184)	
Silbersack, 2004 (15330019)			Symptomatic	0 (0/33)		Symptomatic	0 (0/33)							
Leali, 2002 (12050997)						Symptomatic	0 (0/187)					Major	0 (0/187)	
Samama, 2002 (12390061)	0.3% (2/645)	days 4 & 18	Symptomatic	0 (0/645)		Symptomatic	0.6% (4/645)	nd				Major	5.4% (35/645)	
												Clinically serious	3.1% (20/645)	
												Death	0.15% (1/645)	
Caprini, 1999 (10550178)	0 (0/125)		Confirmed	0 (0/125)		Confirmed	0.8% (1/125)					Major	0 (0/125)	
Ryan 2002 (12429761)						Symptomatic*	0	50						

Hip Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Ryan 2002 (12429761)	Poor	Limited	Aircast Inc.	If +venogram, Txd with enoxaparin and warfarin * Included since no PEs.	Revision; h/o VTE, implanted metal
Colwell, 2006 (16446183)	Fair	Narrow	Sanofi-Synthelabo	Majority used mechanical device also	h/o bleeding disorder; recent stroke, neurological surgery, trauma; GI, kidney disease; pregnant; body weight extremes; planned bilateral joint surgery; bacterial endocarditis; preexisting anticoagulant requirement
Turpie, 2002 (12049860)	Fair	Moderate	Sanofi-Synthelabo and NV Organon	RCT vs LMWH (see table)	Bilateral surgery; bleeding disorder; endocarditis; PUD; recent hemorrhagic stroke, major bleed, neurological surgery; addictive disorders, kidney disease; anticoagulant treatment
Lassen 2002 (12049858)	Fair	Moderate	Sanofi-Synthelabo and NV Organon	RCT vs LMWH (see table)	bleeding diathesis, kidney dysfunction, anticoagulant therapy within 2 days of study
Adolf 1999 (10424367)	Fair	Moderate	nd	RCT	severe kidney/liver dysfunction, severe HTN, known bleeding disorders, premenopausal women not actively avoiding pregnancy, meds that might influence coagulation with 7 days preop
Kakkar 2000 (10780310)	Poor	Moderate	Rovi		Bleeding diathesis, renal dysfunction, malignancy, receiving anticoagulants, pregnancy, breastfeeding <6 mo or of childbearing potential, and others
Lassen 2002 (12049858)	Fair	Moderate	Sanofi-Synthelabo and NV Organon	RCT vs Fondaparinux (see table)	bleeding diathesis, kidney dysfunction, anticoagulant therapy within 2 days of study
Eriksson 2006 (16409461)	Poor	Moderate	Bayer	RCT, only data from enoxaparin arm extracted 2 PEs reported post-Tx. ND which arm. Author contacted	Bleeding disorder or taking drugs that may affect the study outcome; patients with DVT, PE, MI, TIA, or ischemic stroke during the 6 mo before the study; severe HTN, liver or renal impairment
Eriksson 2005 (15634273)	Poor	Moderate	Boehringer		Bleeding disorder; stroke; MI or uncontrolled HTN within last 6 mo; liver or renal impairment; long-term anticoagulants within 7 d prior to surgery; women of child bearing potential and others
Silbersack, 2004 (15330019)	Fair	Narrow	Aircast Europa GmbH	RCT compared to enoxaparin + IPC (see Combination table). No difference in PE rate (0 in both). Also TKR data	Cardiac insufficiency, CKD, severe PAD, acute thrombophlebitis, recent anticoagulation
Pitto 2004 (15274256)	Fair	Narrow	Private (nd)		long-term anticoagulant therapy for cardiac or cerebral disease; malignant tumor; bleeding tendency; conditions precluding use of foot pump; GI ulceration
Colwell 2003 (14521593)	Fair	Moderate	nd		Pneumatic compression prophylaxis; immobilization more than 3d within 30d preop; prior major surgery; ischemic stroke; AMI; bleeding disorders; uncontrolled HTN; malignancy; Liver disorders; CKD
Turpie, 2002 (12049860)	Fair	Moderate	Sanofi-Synthelabo and NV Organon	RCT vs Fondaparinux (see table)	Bilateral surgery; bleeding disorder; endocarditis; PUD; recent hemorrhagic stroke, major bleed, neurological surgery; addictive disorders, kidney disease; anticoagulant treatment
Heit 2000 (10836911)	Poor	Narrow	Wyeth-Ayerst	Only patients who completed 4-10 d of postop ardeparin were randomized; the ones with adverse events were excluded (4 nonfatal PE, 2 deaths in this pre-RCT phase; TKR & THR combined). Study ended early due to additional bleeding w/o benefit.	Adverse events during pre-randomization phase: bleeding disorders, uncontrolled HTN, women of child bearing potential; severe renal or hepatic dysfunction, MI, stroke, and others (see paper)
Planes 1998 (9819000)	Fair	Moderate	Industry (per author)	*2 enoxaparin patients, and 3 rivarparin patients had signs/symptoms of PE, but only 1 case confirmed by angiography; RCT	Bleeding disorder; severe hepatic or renal failure; h/o DVT or PE in 6 mo prior; MI or stroke; psychiatric disorders; an ASA score of 3 or more; use of antiplatelet therapy the week before hospitalization; long term oral anticoagulant therapy; NSAID use
Warwick 1998 (9730125)	Good	Moderate	South and West R&D; Novamedix	RCT with foot-pump	bleeding disorder; GI ulceration; active malignancy; long-term anticoagulant Rx for cardiac or cerebral disease;

Hip Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Samama, 2002 (12390061)	Poor	Narrow	Knoll-France	* Including 33 treated but not randomized at d 4 ** Assuming described event pre-randomization is outcome of interest *** Reporting unclear regarding 33 pre-randomization, so omitted	Previous VTE, bleeding disorder, stroke, EtOH, kidney or liver disease, pregnancy, ulcer
Eriksson, 2003 (14675083)	Fair	Moderate	AstraZeneca		Recent stroke, trauma or major surgery; h/o systemic bleeding; uncontrolled HTN; kidney or liver disease; pregnant, nursing or possibility of pregnancy
Hull 2000A (10904464)	Fair	Moderate	Pharmacia & Upjohn	RCT vs warfarin See Hull 2000B	Documented bleeding within 3 months, defective hemostasis, ongoing anticoagulants, pregnancy/breastfeeding, comorbidities (kidney, liver, DBP>120, septic endocarditis), previous use of pneumatic stockings, others
Hull 2000B (10904465)	Poor	Narrow	Pharmacia & Upjohn	* Excludes early (in-hospital) events RCT vs warfarin See Hull 2000A. This is a substudy of short-term study.	Positive venogram during short term study use of pneumatic compression stockings; defective hemostasis, anticoagulant Rx, diseases with unfavorable prognosis, kidney/liver dysfunction, severe HTN
Lassen 2000 (10726050)	Poor	Narrow	nd		Revision; recent VTE, bleeding disorder, stroke, intracranial surgery; kidney or liver disease; severe CHF
Wenzl 2004 (14979398)	Poor	Narrow	nd		nd
Eriksson, 2002 (12433510)	Fair	Moderate	AstraZeneca		Prior VTE; recent immobility or major surgery; increased systemic bleeding risk; malignancy; uncontrolled HTN; CKD; liver disease; anemia; thrombocytopenia; drug addiction; allergy to contrast or LMWH; child bearing age women
Pitto 2004 (15274256)	Fair	Narrow	Private (nd)		long-term anticoagulant therapy for cardiac or cerebral disease; malignant tumor; bleeding tendency; conditions precluding use of foot pump; GI ulceration
Warwick 1998 (9730125)	Good	Moderate	South and West R&D; Novamedix	RCT with enoxaparin	bleeding disorder; GI ulceration; active malignancy; long-term anticoagulant Rx for cardiac or cerebral disease;
Lachiewicz 2006 (17006365)	Fair	Wide	nd	* 6 other non-confirmed *symptomatic PEs)	Coagulopathy; post-op warfarin; pre-op IVC
Pellegrini 2005 (16330984)	Poor	Moderate	nd	* Some (potentially up to 550/824) initially treated with either dalteparin or pneumatic foot pump	nd
Hull 2000A (10904464)	Fair	Moderate	Pharmacia & Upjohn	RCT vs LMWH See Hull 2000B	Documented bleeding within 3 months, defective hemostasis, ongoing anticoagulants, pregnancy/breastfeeding, comorbidities (kidney, liver, DBP>120, septic endocarditis), previous use of pneumatic stockings, others
Hull 2000B (10904465)	Poor	Limited	Pharmacia & Upjohn	* Excludes early (in-hospital) events RCT vs LMWH See Hull 2000A. This is a substudy of short-term study.	Positive venogram during short term study use of pneumatic compression stockings; defective hemostasis, anticoagulant Rx, diseases with unfavorable prognosis, kidney/liver dysfunction, severe HTN

Hip Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Prandoni 2002 (12230419)	Poor	Limited	nd	* Excludes in-hospital events Prematurely ended due to benefit of long term warfarin for DVT	In hospital VTE or bleeding; revision
Silbersack, 2004 (15330019)	Fair	Narrow	Aircast Europa GmbH	RCT compared to enoxaparin + stockings alone (see LMWH table). No difference in PE rate (0 in both). Also TKR data * Fitted with stocking post-IPC use	Cardiac insufficiency, CKD, severe PAD, acute thrombophlebitis, recent anticoagulation
Leali, 2002 (12050997)	Fair	Moderate	nd		Previous PE or on warfarin
Samama, 2002 (12390061)	Poor	Narrow	Knoll-France		Previous VTE, bleeding disorder, stroke, EtOH, kidney or liver disease, pregnancy, ulcer
Caprini, 1999 (10550178)	Poor	Narrow	nd		nd
Ryan 2002 (12429761)	Poor	Limited	Aircast Inc.	If +venogram, Txd with enoxaparin and warfarin * Included since no PEs.	Revision; h/o VTE, implanted metal

Knee Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients		
			General	Regional							Screened	Enrolled	Analyzed
Colwell, 2006 (16446183)	2002-2003	0%	76%	26%	Fondaparinux	2.5 mg 1x/d	8 hr post-op	Stockings (68%) CPM (41%) IPC (54%) Foot pump etc (14%)	7-10 d	6 wk	2046 (H+K)	2008 (H+K)	619
			75%	27%	Fondaparinux	2.5 mg 1x/d	post-op d 2		7-10 d				614
Colwell, 2003 (14521593)	2000-2001	0	66%	28%	Enoxaparin	30 mg 2x/d	p-op	None	7-12 d	6wk	920	910	775
Eriksson, 2002 (12433510)	1998-1999	0%	33%	76%	Dalteparin	5000 IU 1x/d	pre-op	Stockings	7-10 d	4-6 wk	2084(H+K, all Tx)	125	104
Navarro-Quilis, 2003 (12871445)	2000-2001	0	6%	94%	Bemiparin	3500 IU 1x/d		None	10 ± 2 d	6 wk	190	189	165
					Enoxaparin	40 mg 1x/d		None					191
Warwick 2002 (12002490)	1996-1999	0%	17%	83%	Enoxaparin	40 mg 1x/d	pre-op	stockings	nd (until discharge)	12-13 wk	nd	112	112
Heit 2001 (11575978)	1998-2000	0%	71%	29%	Enoxaparin	30 mg 2x/d	post-op	Stocking 74%	6-12 d	4 wk	nd	125	125
Eriksson 2005 (15634273)	2002-2003	0%	28%	72%	Enoxaparin	40 mg 1x/d	pre- or post-op	Stockings and aspirin allowed	7 d	4-6 wk	397	122	92
Silbersack, 2004 (15330019)	1999-2000	0%	27%	73%	Enoxaparin	40 mg 1x/d	pre-op		30 d	12 wk	nd	nd	28
Heit 2000 (10836911)	1994-1997	11%	60%	40%	Ardeparin	50 IU/Kg 2x/d (100 IU/Kg 1x/d post-D/C)	w/in 24 h post-op	Mechanical 51%; Stocking 85%; ASA 14%	6 wk post-op	≥12 wk	~800	366	366
			8%	61%	39%	Ardeparin	50 IU/Kg 2x/d	w/in 24 h post-op	Mechanical 50%; Stocking 85%; ASA 15%				4-10 d (in hospital)
Wenzl 2004 (14979398)	1995-2000	nd	nd	nd	Dalteparin (majority) + UFH (high risk)	2500 (majority) / 5000 (high risk)	pre-op	nd	nd (until gain of pre-op mobility)	nd	nd	nd	160
Amin 2006 (16498007)	1995-1997	nd	nd	nd	LMWH (nd which)	nd	nd	nd	nd	3 & 60 mo	320	320	320
Fitzgerald 2001 (11407799)	~1999	0%	65%	35%	Enoxaparin	30 mg 2x/d	post-op	Stockings; CPM (some)	4-14 d	~5 wk	nd	173	173
Norgren 1997 (9754896)	~1996	nd	99%	~1%	Enoxaparin	40 mg 1x/d	nd	Stockings	nd (until mobilization)	nd	60 (all Tx)	19	14
Eriksson, 2003 (14675083)	2001-2002	nd	39%	62%	Enoxaparin	40 mg 1x/d	pre-op	None	8-11d	4-6 wk	nd	1425 (hip & knee)	445
Blanchard 1999 (10463739)	1995-1997	0%	51%	49%	Nadroparin (inpatient)	2850-5700 IU 1x/d	pre-op		10-12 d	10-12 d		67	67
Wang, 2004 (14711956)	2001-2002	nd	nd	nd	Continuous passive motion		nd		nd	3 mo	nd	51	51
Norgren 1997 (9754896)	~1996	nd	99%	~1%	Foot pump		pre-op	Stocking	nd (until mobilization)	nd	60 (all Tx)	21	15
Fong 2000 (11056771)	1996-1997	nd	nd	nd	Continuous passive motion		post-op d 2		nd	7d	nd	100	100
Warwick 2002 (12002490)	1996-1999	0%	14%	86%	Foot pump		After surgery	Stocking	nd (until discharge)	12-13 wk	nd	117	117
Blanchard 1999 (10463739)	1995-1997	0%	51%	49%	Foot pump (inpatient)		pre-op		10-12 d	10-12 d		63	63

Knee Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients		
			General	Regional							Screened	Enrolled	Analyzed
Pellegrini 2006 (16906107)	1993-2001	>0%	~0%	~100%	Warfarin*	INR 2.0	night pre-op		If negative venogram, then -5 d - hospital d/c (implied, n=354) If no venogram, 6 wk (n=96); if +venogram, 3 mo (n=257) [if PE, 6 mo]	6 mo	nd	707	354
	2002-2003	>0%	~0%	~100%	Warfarin	INR 2.0	?night pre-op		6 wk	6 mo	nd	55	55
Colwell 2005 (16203879)	2002-2003	nd	45%	65%	Warfarin	INR 2.5 (Range 1.8-3.0)	post-op	nd	7-12 d	6 wk	nd	1148	1148
Francis 2003 (14585938)	2001-2002	nd	56%	52%	Warfarin	INR 2.5 (Range 1.8-3.0)	post-op	nd	7-12 d	6 wk	nd	764	759
Fitzgerald 2001 (11407799)	~1999	0%	65%	35%	Warfarin	INR 2.0-3.0	post-op	Stockings; CPM (some)	4-14 d	~5 wk	nd	176	176
Francis 2002 (12379064)	2000	0%	71%	35%	Warfarin	INR 2.5 (Range 1.8-3.0)	post-op	nd	7-12 d	8 wk	nd	332	330
Lotke, 2006 (16957642)	1995-2005	>0%	<5%	>95%	Aspirin*	325 mg 2x/d	post-op		6 wk	6 wk	nd	3473	3473
							Continuous passive motion	In recovery room	In-hospital				
							Intermittent pneumatic foot pumps	post-op	In-hospital, While in bed				
Silbersack, 2004 (15330019)	1999-2000	0%	28%	72%	Enoxaparin	40 mg 1x/d	pre-op		30 d	12 wk	nd	nd	35
							Intermittent pneumatic compression	In recovery room	10 d (while in bed)*				
Wang, 2004 (14711956)	2001-2002	nd	nd	nd	Fraxiparine	1900-3800 IU	pre-op		nd	3 mo	nd	50	50
							Continuous passive motion	nd	nd				
Fong 2000 (11056771)	1996-1997	nd	nd	nd	Fraxiparine	nd 1x/d	pre-op		7d	7d	nd	100	100
							Continuous passive motion	post-op d 2	nd				

Knee Table 1

Study, Year (PMID)	Years of Surgery	% Revision	Anesthesia, %		Prophylaxis Agent	Dose, Timing	When Started	Co-Treatments	Intervention Duration	Outcome Assessment Time	No. Patients									
			General	Regional							Screened	Enrolled	Analyzed							
Lachiewicz, 2004 (15568526)	1999-2004	13%	15%	85%	Aspirin	650 mg 2x/d	pre-op	Stocking	nd	6 mo	nd	206	206							
					Rapid inflation asymmetrical compression device		pre-op													
		17%	12%	88%	Aspirin	650 mg 2x/d	pre-op													
					Sequential compression device		pre-op													
Blanchard 1999 (10463739)	1995-1997	0%	51%	49%	Foot pump (inpatient)		pre-op		10-12d	3 mo	308	63	63							
					Acenocoumarol (outpatient)	nd	after phlebography		6-8 wk											
		39%	61%	Nadroparin (inpatient)	2850-5700 IU 1x/d	pre-op		10-12d												
				Acenocoumarol (outpatient)	nd	after phlebography		6-8 wk												

Knee Table 2

Study, Year (PMID)	Total Deaths		PE Deaths			Pulmonary Embolism Outcomes			Rehospitalization & Other Clinical Events			Major Bleeding Outcomes		
	% died (n/N)	Timing p-op	Definition	% died (n/N)	Timing p-op	Definition	% w/PE (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op	Definition	% w/Event (n/N)	Timing p-op
Colwell, 2006 (16446183)			Adjudicated	0 (0/384)		Adjudicated	0.9% (6/619)					Fatal	0 (0/384)	
				0 (0/383)			1.1% (7/614)					Fatal	0 (0/383)	
Colwell, 2003 (14521593)	0.1 (1/775)		Confirmed	0 (0/775)		Confirmed	2 (2/775)	>7-12d	nd			Critically overt	0.9 (8/910)	
Eriksson, 2002 (12433510)			Confirmed	0% (0/104)		Confirmed	1% (1/104)					Major	2.4% (3/111)	
Navarro-Quilis, 2003 (12871445)	0% (0/189)		Confirmed	0% (0/189)		Confirmed (10 d)	0% (0/165)					Major	1.6% (3/189)	
	0% (0/191)			0% (0/191)			1.2% (2/168)						1.6% (3/191)	
Warwick 2002 (12002490)	1% (1/112)	d 1	Autopsy	0% (0/112)					Rehosp for VTE	3% (3/89)	nd (~ within 13 wk)	Major	4% (4/108)	
Heit 2001 (11575978)	0% (0/125)		Confirmed	0% (0/125)		Confirmed	0% (0/125)					Major	0.8% (1/125)	nd
Eriksson 2005 (15634273)	0% (0/92)		Confirmed	0% (0/92)		Confirmed	0% (0/92)					Major	1.6% (2/122)	≤10 d
Silbersack, 2004 (15330019)			Symptomatic	0% (0/28)		Symptomatic	0% (0/28)							
Heit 2000 (10836911)	0.2% (1/366)					Confirmed	0.8% (3/366)					Major	0.6% (2/350)	nd
	0.3% (1/357)						0.6% (2/357)						0.6% (2/346)	nd
Wenzl 2004 (14979398)						Confirmed	1.3% (2/160)							
Amin 2006 (16498007)	0.3% (1/320) at 3 mo	6 wk	Confirmed	0% (0/320)	at 3 mo	Confirmed	0% (0/320)	at 3 mo						
	12% (37/320) at 5 yr	nd												
Fitzgerald 2001 (11407799)	0.5% (1/173)		Confirmed	0% (0/173)		Confirmed	0% (0/173)					Major	5.2% (9/173)	
Norgren 1997 (9754896)	0% (0/14)		Autopsy	0% (0/14)		Confirmed	0% (0/14)							
Eriksson, 2003 (14675083)												Severe	1.4% (6/445)	
Blanchard 1999 (10463739)	(See combination table)		(See combination table)			(See combination table)						Major	1.5% (1/67)	
Wang, 2004 (14711956)			Confirmed	0 (0/51)		Confirmed	0 (0/51)							
Norgren 1997 (9754896)	6.7% (1/15)	nd	Autopsy	6.7% (1/15)	nd	Confirmed	6.7% (1/15)							
Fong 2000 (11056771)	0% (0/100)			0% (0/100)		Confirmed (categorized as suspected on /Q)	1% (1/100)					Major	0% (0/100)	
Warwick 2002 (12002490)	3% (3/117)	dd 4, 26, 81	Autopsy	2% (2/117)	dd 4, 26				Rehosp for VTE	4% (4/117)	nd (~ within 13 wk)	Major	0% (0/111)	
Blanchard 1999 (10463739)	(See combination table)		(See combination table)			(See combination table)						Major	0% (0/63)	

Knee Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Colwell, 2006 (16446183)	Fair	Narrow	Sanofi-Sythehelabo	Majority used mechanical device also	h/o bleeding disorder; recent stroke, neurological surgery, trauma; GI, kidney disease; pregnant; body weight extremes; planned bilateral joint surgery; bacterial endocarditis; preexisting anticoagulant requirement
Colwell, 2003 (14521593)	Fair	Moderate	nd		Prior major surgery; ischemic stroke; AMI; systemic bleeding or disorders; uncontrolled HTN; malignancy; liver disorders; thrombocytopenia; recent drug or alcohol abuse; CKD
Eriksson, 2002 (12433510)	Fair	Moderate	AstraZeneca		Prior VTE; recent immobility or major surgery; increased systemic bleeding risk; malignancy; uncontrolled HTN; CKD; liver disease; anemia; thrombocytopenia; drug addiction; allergy to contrast or LMWH; child bearing age women
Navarro-Quilis, 2003 (12871445)	Fair	Moderate	Laboratories Fcos. ROVI		Bleeding disorders; thrombocytopenia; uncontrolled HTN; CKD; malignancy; NSAID use; pregnant, nursing possibility of pregnancy; septic endocarditis; revision knee replacement
Warwick 2002 (12002490)	Poor	Narrow	Commercial party	RCT vs Mechanical (see Mechanical table)	long-term warfarin therapy for preexisting cardiac or cerebral disease, condition that preclude use of foot pump, participation in an another ongoing study st the same institution
Heit 2001 (11575978)	Fair	Narrow	AstraZeneca		Prior VTE; recent immobility or major surgery; increased systemic bleeding risk; traumatic epidural or spinal puncture; malignancy; uncontrolled HTN; CKD; ischemic stroke; liver disease; anemia; thrombocytopenia; drug addiction; allergy to contrast or LMWH; child bearing age women
Eriksson 2005 (15634273)	Poor	Moderate	Boehringer		Bleeding disorder; stroke; MI or uncontrolled HTN within last 6 mo; liver or renal impairment; long-term anticoagulants within 7 d prior to surgery; women of child bearing potential and others
Silbersack, 2004 (15330019)	Fair	Narrow	Aircast Europa GmbH	RCT compared to enoxaparin + IPC (see Combination table). No difference in PE rate (0 in both). Also THR data	Cardiac insufficiency, CKD, severe PAD, acute thrombophlebitis, recent anticoagulation
Heit 2000 (10836911)	Poor	Narrow	Wyeth-Ayerst	Only patients who completed 4-10 d of postop ardeparin were randomized; the ones with adverse events were excluded (4 nonfatal PE, 2 deaths in this pre-RCT phase; TKR & THR combined). Study ended early due to additional bleeding w/o benefit.	Adverse events during pre-randomization phase; bleeding disorders, uncontrolled HTN, women of child bearing potential; severe renal or hepatic dysfunction, MI, stroke, and others (see paper)
Wenzl 2004 (14979398)	Poor	Narrow	nd		nd
Amin 2006 (16498007)	Poor	Moderate	No commercial funding		nd
Fitzgerald 2001 (11407799)	Fair	Moderate	Aventis	RCT vs warfarin	Acute or chronic DVT; surgery within previous 6 months; CKD ≥ 2 mg/dL; illicit drug or alcohol abusers; uncontrolled HTN; stroke, MI.
Norgren 1997 (9754896)	Poor	Narrow	nd	RCT vs Mechanical; Patients who did not complete the trial were excluded from analysis	Did not complete trial; Previous DVT, major knee surgery; on oral anticoagulants, and patients not expected to be appropriately mobilized

Knee Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Eriksson, 2003 (14675083)	Fair	Moderate	AstraZeneca		Recent stroke, trauma or major surgery; h/o systemic bleeding; uncontrolled HTN; kidney or liver disease; pregnant, nursing or possibility of pregnancy
Blanchard 1999 (10463739)	Fair	Moderate	Swiss National Science fundatio; Sanofi-Winthrop Pharma; Novamedix	RCT;Patients who discontinued mechanical prophylaxis was given the LMWH regimen in use in each institution	DVT/PE prior 6 mo, weight >100 or <40 Kg, revision of TKR, severe HTN. Bilateral TKR
Wang, 2004 (14711956)	Poor	Moderate	Not commercial entity	RCT compared to mechanical alone	Recent VTE, history of coagulopathy
Norgren 1997 (9754896)	Poor	Narrow	nd	RCT vs LMWH; Patients who did not complete the trial were excluded from analysis	Did not complete trial; Previous DVT, major knee surgery; on oral anticoagulants, and patients not expected to be appropriately mobilized
Fong 2000 (11056771)	Poor	Wide	nd	Comparative vs Comparative	Thromboembolus disease, recent CVA and non-ambulation
Warwick 2002 (12002490)	Poor	Narrow	Commercial party	RCT vs LMWH (see LMWH table)	Long-term warfarin therapy for preexisting cardiac or cerebral disease, condition that preclude use of foot pump, participation in an another ongoing study st the same institution
Blanchard 1999 (10463739)	Fair	Moderate	Swiss National Science fundatio; Sanofi-Winthrop Pharma; Novamedix	RCT;Patients who discontinued mechanical prophylaxis was given the LMWH regimen in use in each institution	DVT/PE prior 6 mo, weight >100 or <40 Kg, revision of TKR, severe HTN. Bilateral TKR
Pellegrini 2006 (16906107)	Poor	Moderate	nd	* Some (nd how many) initially treated with either dalteparin or pneumatic foot pump	nd
Colwell 2005 (16203879)	Fair	Moderate	AstraZeneca		Major surgery, stroke, MI, investigational drug <30 days; immobilization ≥3 d prior surgery; traumatic epidural and/or spinal puncture; pneumatic leg compression; hx of intracranial, retroperitoneal, or intraocular bleeding; hx of GI bleeding or disorder with bleeding risk <90 day; peptic ulcer disease < 30 days; uncontrolled hypertension; cancer with cytostatic tx or being reason for knee arthroplasty; an alanine or aspartate aminotransferase level >twice upper limit of nl; renal impairment; thrombocytopenia;drug or alcohol abuse <6 mo; allergy to venographic contrast media or iodine; and contraindication to warfarin.
Francis 2003 (14585938)	Fair	Moderate	AstraZeneca		Major surgery, stroke, MI, investigational drug <30 days; immobilization ≥3 d prior surgery; traumatic epidural or spinal puncture; pneumatic leg compression; hx of intracranial, retroperitoneal, or intraocular bleeding; hx of GI bleeding or disorder with bleeding risk <90 day; peptic ulcer disease < 30 days; uncontrolled hypertension; cancer with cytostatic tx or being reason for knee arthroplasty; an alanine or aspartate aminotransferase level >twice upper limit of nl; renal impairment; thrombocytopenia;drug or alcohol abuse <6 mo; allergy to venographic contrast media or iodine; and contraindication to warfarin.

Knee Table 3

Study, Year (PMID)	Quality	Applicability	Funding Source	Comments	Major Exclusions
Fitzgerald 2001 (11407799)	Fair	Moderate	Aventis	RCT vs LMWH	Acute or chronic DVT; surgery within previous 6 months; CKD >=2 mg/dL; illicit drug or alcohol abusers; uncontrolled HTN; stroke,MI.
Francis 2002 (12379064)	Fair	Moderate	AstraZeneca		Hemiarthroplasty, surface repair, revisionary surgery, pneumatic compression prophylaxis, immobile 3 days prior surgery, major surgery, ischemic stroke, MI, investigational drug prior 30 days, hx intracranial, retroperitoneal, intraocular bleeding, bleeding risk disorder, GI bleeding past 90 days,ulcer disease prior 30 days, hypertension, cytotoxic tx for cancer, liver disease,thrombocytopenia, drug/alcohol abuse past 6 months, allergy to contrast media or iodine, contraindication to warfarin,renal impairment,traumatic epidural or spinal puncture
Lotke, 2006 (16957642)	Fair	Moderate	no commercial associations	* 71 / 3473 received other treatment (67 warfarin, 4 IVC/warfarin/LMWH) ** An additional 4 patients on either warfarin or enoxaparin had deep wound hematomas	None (implied)
Silbersack, 2004 (15330019)	Fair	Narrow	Aircast Europa GmbH	RCT compared to enoxaparin + stockings alone (see LMWH table). No difference in PE rate (0 in both). Also THR data * Fitted with stocking post-IPC use	Cardiac insufficiency, CKD, severe PAD, acute thrombophlebitis, recent anticoagulation
Wang, 2004 (14711956)	Poor	Moderate	Not commercial entity	RCT compared to mechanical alone	Recent VTE, history of coagulopathy
Fong 2000 (11056771)	Poor	Wide	nd	Comparative vs mechanical	Thromboembolus disease, recent CVA and non-ambulation
Lachiewicz, 2004 (15568526)	Poor	Wide	Aircast Summit		Hemophilia, true allergy to ASA, removal of an infected knee arthroplasty
				* 1/217 had symptomatic PE, but nd on whether it was confirmed, so outcome not included.	
Blanchard 1999 (10463739)	Fair	Moderate	Swiss National Science foundation; Sanofi-Winthrop Pharma; Novamedix	RCT;Patients who discontinued mechanical prophylaxis was given the LMWH regimen in use in each institution	DVT/PE prior 6 mo, weight >100 or <40 Kg, revision of TKR, severe HTN. Bilateral TKR