

ESM 2. Supplementary Table 1b. Number of cases and patient-years of follow up for the different study arms, and endpoints evaluated. If DOACs were not differentiated the combined DOACs are indicated separated by a slash. The number after a letter indicates the dosage. Specific subgroups like treatment naïve or switching patients, age groups etc. are also indicated (Exp...experienced users).

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Amin 2013				23525				42667	Stroke, Major bleeding
Larsen 2013	D110 2739 D150 2239			8936	D110 2326 D150 1760			8100	Stroke, Major bleeding, IC bleeding, Deaths, MI
Sörensen 2013	D110 1612 D150 1114			49640	D110 556 D150 385			17136	Major bleeding
Southworth 2013	10599			43541	2740			12524	IC bleeding, GI bleeding
Bengtson Abstract 2014	32918	3301		185266	41147	1651		277900	Stroke, IC bleeding, GI bleeding
Beyer-Westendorf 2014		1200				1175			Major bleeding, NMCR
Fontaine 2014	1906	691			3812	1382			Major bleeding
Laliberte 2014		3654		14616		831		4525	Stroke/SE, Major bleeding, IC bleeding
Larsen 2014	D110Exp 2038 D110New 3045 D150Exp 2214 D150New 4018			45260	D110Exp 2118 D110New 2733 D150Exp 2714 D150New 3828			45948	Major bleeding, IC bleeding
Navgren 2014				4400				8394	Major bleeding, IC bleeding
Ogawa 2014		1034				517			Stroke, Major bleeding, MI, NMCR
Siu 2014				1912				6097	IC bleeding

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Tran 2014	172				144				GI bleeding
Yap 2014	D110 206 D150 304				D110 164 D150 242				Major bleeding
Abraham 2015	7749	5166		12915	6509	4339		10849	Stroke, GI bleeding
Avgil-Tsadok 2015	10657			49202	6217			28701	Stroke, Bleeding, Deaths, MI
Bouillon 2015	Switch 4370	Switch 2335		10705	Switch 3642	Switch 1946		8921	Stroke/SE, Major bleeding, MI
Chang 2015	4907	1649		39607	1354	117		9007	GI bleeding
Engelberger 2015		Switch 301 Naive 236				Switch 80 Naive 61			Stroke/SE, Major bleeding
Graham 2015	67494			273920	18205			19382	Stroke, IC bleeding, Deaths, Hospitalized bleeding, MI
Granziera 2015				Elderly 798				Elderly 1912	Major bleeding, IC bleeding, GI bleeding
Hernandez 2015	1302			8102	631			5061	Major bleeding, IC bleeding
Ho 2015	393			1438	1179			4314	Stroke/SE, IC bleeding, Deaths
Jacobs Abstract 2015	D/R/A 2627			2627	D/R/A 1314			1314	Stroke/TIA, Major bleeding, Deaths
Kamble Abstract 2015	3768	8066	2057	12713	1308	2601	509	3556	Major bleeding

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	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Lauffenburger 2015	21070			43865	20666			43024	Stroke, GI bleeding, MI
Leef 2015		D/R/A 554		554	D/R/A 1962			1962	Deaths
Lin Abstract 2015	2440	6407	2038	24872	1220	3204	1019	12436	Major bleeding
Maura 2015	8443	4651		25315	1684	328		5205	Stroke/SE, Bleeding
Sjögren 2015				68792				193524	Stroke/SE/TIA, IC bleeding, Bleeding, MI
Tamayo 2015		27467			17343				Major bleeding, IC bleeding
Verdecchia 2015	115				57				Stroke, Major bleeding
Adeboyeje Abstract 2016	8539	8398	3689	23431	8775	6003	1894	28740	Stroke/SE, Major bleeding
Arihiro 2016		D/R/A 475		662	D/R/A 119			166	Stroke/SE, Major bleeding, IC bleeding, Deaths
Avgil-Tsadok 2016	D110 (<75 y) 1277 D110 (>75 y) 5093 D150 (<75 y) 7649 D150 (>75 y) 1899			47192	D110 (<75 y) 2029 D110 (>75 y) 8093 D150 (<75 y) 12155 D150 (>75 y) 3018			74990	Stroke/TIA, Major bleeding, IC bleeding, GI bleeding
Blin 2016				3345				8083	Major bleeding, Deaths, MI
Camm (XANTUS) 2016		6784			6211				Stroke, Stroke/SE, Major bleeding, IC bleeding, Deaths, MI, NMCR

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Chan EW 2016				2276				3985	Stroke, IC bleeding, GI bleeding, Deaths
Chan YH 2016	16423	3916		16423	7178	1180		7178	Stroke/SE, Major bleeding, IC bleeding, GI bleeding, Deaths, MI
Chan Y-H 2016	9940			9913	6660			6642	Stroke, Major bleeding, IC bleeding, GI bleeding, Deaths, MI
Coleman (REVISIT-US) 2016		11411	4083	15494		7715	2125	8222	Stroke, IC bleeding
Coleman (RELIEF) 2016		1039		1039		1015		1005	Stroke/SE/CH/MI, IC bleeding
Ellis 2016	D110 4170 D150 1806	2709		9564	D110 3215 D150 1079	1086		9451	Major bleeding, IC bleeding, GI bleeding
Gorst-Rasmussen 2016	19953	R15 776 R20 1629		19953	24382	R15 623 R20 1464		24382	Stroke/SE/TIA, IC bleeding, GI bleeding, Deaths, MI
Graham 2016	52240	66651			15524	20199			Stroke, Major bleeding, IC bleeding, GI bleeding, Deaths, MI
Hecker 2016		1204				2626			Stroke/SE/TIA, Major bleeding, IC bleeding, Acute coronary syndrome, NMCR
Korenstra 2016	383			383	574			574	Stroke/SE, Major bleeding

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Kwon 2016	D/R 148			145	D/R 135			155	Stroke/SE, Major bleeding
Larsen 2016	12701	7192	6349	35436	11799	5291	4322	30579	Stroke/SE, Major bleeding, IC bleeding, Deaths
Lip 2016a	4173	10050	2402	12713	1449	3241	595	4443	Major bleeding
Lip 2016b	4515	12625	6964	24104	2253	5967	3415	10736	Major bleeding
Nishtala 2016	4385			6768	2754			3811	IC bleeding, GI bleeding, Bleeding
	D110 3396				D110 2037				
	D150 2153				D150 1434				
Noseworthy 2016	28894	15787	6542		14447	7894	3271		Stroke/SE, Major bleeding, IC bleeding
Seeger 2016	19189			19189	8059			6448	Stroke/SE, Major bleeding, IC bleeding, GI bleeding, MI
Tziomalos 2016	D110 (post stroke)			74	D110 (post stroke)			74	Stroke, Deaths, MI
	9				9				
Villines 2016	12793			12793	9789			7613	Stroke, Major bleeding, IC bleeding, Deaths, MI
Yao 2016	14307	16175	7695	38177	10015	9705	3847	23567	Stroke/SE, Major bleeding, IC bleeding
Yap 2016	500			500	432			486	Stroke, Major bleeding, GI bleeding

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Yavuz 2016	D110 280 D150 101			174	D110 257 D150 93			160	Stroke, Major bleeding, IC bleeding, GI bleeding, Deaths, MI
Yoshimura 2016		D/R/A 466		650	D/R/A 466			650	Stroke/TIA, Major bleeding, IC bleeding, Deaths
Abraham 2017	28894	28894	6542		8945	8945	1595		GI bleeding
Adeboyeje 2017	48907	8398	3689	48907	53303	6083	1906	53303	IC bleeding, GI bleeding
Amin 2017	16731	52476	20803	90010	5180	18690	6554	29981	Stroke/SE, Major bleeding
Bengtson 2017	18981 Switch 13937			101167	23713 Switch 17412			126389	Stroke, IC bleeding, GI bleeding, MI
Cha 2017	3741	5681	2189	23222	2058	2840	876	35065	Stroke, IC bleeding, Deaths
Coleman (REASSESS) 2017			723	723			638	649	Stroke, Major bleeding, IC bleeding, MI
Coleman 2017			835	835			809	814	Stroke, IC bleeding, MI
Coleman (REAFFIRM) 2017	981	2604	1257	4842	589	1562	628	2780	Stroke, Major bleeding, IC bleeding
Deitelzweig 2017			7107	7107			3909	3968	Stroke/SE, Major bleeding, IC bleeding, GI bleeding
Denas 2017		D/R/A 6923		33488	D/R/A 7645			47428	Stroke, IC bleeding, Deaths, MI

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Halvorsen 2017	7925	6817	6506	11427	4603	3903	2549	5007	Major bleeding, IC bleeding, GI bleeding, NMCR
Hohnloser 2017	3138	12063	3633	48534	2244	8527	2170	37233	Major bleeding, GI bleeding
Kohsaka 2017	5090	6726	5977	17793	5020	6634	5895	17549	Major bleeding
Lamberts 2017	15413	6715	7963	24230	21595	6411	5856	26421	Major bleeding
Leschke (XANTUS-DE) 2017		1445				1425			Stroke/SE, Major bleeding, IC bleeding, Deaths, MI
Li W-H 2017	D110 467	669		157	D110 741	749		661	Stroke, IC bleeding
Li X 2017			38470	38470			16674	17464	Stroke/SE, Major bleeding, IC bleeding, GI bleeding
Lin 2017	11593	11593	2684	11593	4581	4581	1162	4581	Major bleeding
Naganuma 2017	181			181	157			155	Stroke/SE/TIA, Major bleeding
Nielsen 2017	D110 8875	R15 3476	A2.5 4400	38893	D110 16996	R15 4389	A2.5 4370	73608	Stroke/SE, Major bleeding, Deaths
Norby 2017	106357	16957 Switch 11845		106357	107245	21633 Switch 11681		107245	Stroke, IC bleeding, GI bleeding, MI
Noseworthy 2017	9412	16208	12949	68804	28236	48624	38847	206412	Stroke/SE, Major bleeding

Study	Number of cases				Patient-years				Evaluated endpoints
	Dabigatran	Rivaroxaban	Apixaban	VKA	Dabigatran	Rivaroxaban	Apixaban	VKA	
Peacock 2017		32754				35895			Major bleeding, IC bleeding, GI bleeding
Russo-Alvarez 2017		472		472		354		786	Stroke/SE/TIA, Major bleeding
Staerk 2017	12613	5693	6899	18094	14479	4445	4347	17450	Stroke, Stroke/SE, IC bleeding
Weir 2017		1290		2468		696		1522	Stroke, Major bleeding
Yamashita 2017		D/R/A 270		1728		D/R/A 740		4734	Stroke/SE, Major bleeding
Yiginer 2017	95	88			135	125			Major bleeding, IC bleeding, GI bleeding, Deaths

SE...systemic embolism; TIA...transient ischemic attack; IC bleeding...intracranial bleeding; GI bleeding...gastrointestinal bleeding, NMCR...non-major clinical relevant