

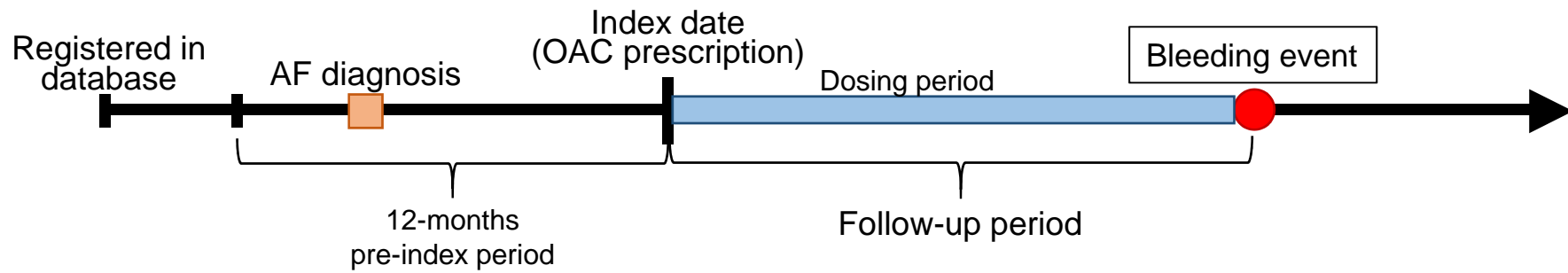
**Table S1.** List of ICD-10 codes for bleeding

ICD-10 code	ICD label	Total bleeding	IH	GH	Number of claims	Number of patients
D62	Acute posthaemorrhagic anaemia	○			3,866	1,325
D683	Haemorrhagic disorder due to circulating anticoagulants	○			137	23
D698	Other specified haemorrhagic conditions	○			379	121
D699	Haemorrhagic condition, unspecified	○			56,635	21,170
H113	Conjunctival haemorrhage	○			61,186	39,197
H210	Hyphaema	○			2,700	1,096
H313	Choroidal haemorrhage and rupture	○			101	19
H356	Retinal haemorrhage	○			31,018	7,732
H431	Vitreous haemorrhage	○			30,120	3,893
H450	Vitreous haemorrhage in diseases classified elsewhere	○			0	0
H922	Otorrhagia	○			571	401
I230	Haemopericardium as current complication following acute myocardial infarction	○			19	1
I312	Haemopericardium, not elsewhere classified	○			33	5
I600	Subarachnoid haemorrhage from carotid siphon and bifurcation	○	○		1,248	191
I601	Subarachnoid haemorrhage from middle cerebral artery	○	○		750	135
I602	Subarachnoid haemorrhage from anterior communicating artery	○	○		1,034	181
I603	Subarachnoid haemorrhage from posterior communicating artery	○	○		79	16
I604	Subarachnoid haemorrhage from basilar artery	○	○		163	35
I605	Subarachnoid haemorrhage from vertebral artery	○	○		387	74
I606	Subarachnoid haemorrhage from other intracranial arteries	○	○		287	48
I607	Subarachnoid haemorrhage from intracranial artery, unspecified	○	○		20	8
I608	Other subarachnoid haemorrhage	○	○		835	174
I609	Subarachnoid haemorrhage, unspecified	○	○		39,159	12,995
I610	Intracerebral haemorrhage in hemisphere, subcortical	○	○		16,103	1,711
I611	Intracerebral haemorrhage in hemisphere, cortical	○	○		347	103
I612	Intracerebral haemorrhage in hemisphere, unspecified	○	○		0	0
I613	Intracerebral haemorrhage in brain stem	○	○		2,766	272
I614	Intracerebral haemorrhage in cerebellum	○	○		3,544	1,287
I615	Intracerebral haemorrhage, intraventricular	○	○		2,055	385
I616	Intracerebral haemorrhage, multiple localized	○	○		23	7
I618	Other intracerebral haemorrhage	○	○		1	1
I619	Intracerebral haemorrhage, unspecified	○	○		77,154	39,402
I620	Subdural haemorrhage (acute)(nontraumatic)	○	○		7,530	2,236
I621	Nontraumatic extradural haemorrhage	○	○		27	8
I629	Intracranial haemorrhage (nontraumatic), unspecified	○	○		719	532
I850	Oesophageal varices with bleeding	○		○	2,302	280
I983	Oesophageal varices with bleeding in diseases classified elsewhere	○		○	0	0
J942	Haemothorax	○			2,634	1,295
K226	Gastro-oesophageal laceration-haemorrhage syndrome	○		○	3,147	1,066
K250	Gastric ulcer: Acute with haemorrhage	○		○	20,777	7,508
K252	Gastric ulcer: Acute with both haemorrhage and perforation	○		○	18	10
K254	Gastric ulcer: Chronic or unspecified with haemorrhage	○		○	39,267	8,809
K256	Gastric ulcer: Chronic or unspecified with both haemorrhage and perforation	○		○	45	16
K260	Duodenal ulcer: Acute with haemorrhage	○		○	1,246	350
K262	Duodenal ulcer: Acute with both haemorrhage and perforation	○		○	37	14
K264	Duodenal ulcer: Chronic or unspecified with haemorrhage	○		○	3,972	902
K266	Duodenal ulcer: Chronic or unspecified with both haemorrhage and perforation	○		○	58	9
K270	Peptic ulcer, site unspecified: Acute with haemorrhage	○		○	2,026	732
K272	Peptic ulcer, site unspecified: Acute with both haemorrhage and perforation	○		○	0	0
K274	Peptic ulcer, site unspecified: Chronic or unspecified with haemorrhage	○		○	0	0
K276	Peptic ulcer, site unspecified: Chronic or unspecified with both haemorrhage and perforation	○		○	0	0
K280	Gastrojejunal ulcer: Acute with haemorrhage	○		○	0	0
K282	Gastrojejunal ulcer: Acute with both haemorrhage and perforation	○		○	0	0
K284	Gastrojejunal ulcer: Chronic or unspecified with haemorrhage	○		○	134	32
K286	Gastrojejunal ulcer: Chronic or unspecified with both haemorrhage and perforation	○		○	0	0
K290	Acute haemorrhagic gastritis	○		○	8,464	3,016
K625	Haemorrhage of anus and rectum	○		○	8,510	3,765
K661	Haemoperitoneum	○		○	3,986	2,153
K762	Central haemorrhagic necrosis of liver	○		○	0	0
K920	Haematemesis	○		○	2,214	1,055
K921	Melaena	○		○	95,180	39,396
K922	Gastrointestinal haemorrhage, unspecified	○		○	57,865	25,180
M250	Haemarthrosis	○			2,043	705
N020	Recurrent and persistent haematuria: Minor glomerular abnormality	○			0	0
N021	Recurrent and persistent haematuria: Focal and segmental glomerular lesions	○			0	0
N022	Recurrent and persistent haematuria: Diffuse membranous glomerulonephritis	○			0	0
N023	Recurrent and persistent haematuria: Diffuse mesangial proliferative glomerulonephritis	○			0	0
N024	Recurrent and persistent haematuria: Diffuse endocapillary proliferative glomerulonephritis	○			0	0
N025	Recurrent and persistent haematuria: Diffuse mesangiocapillary glomerulonephritis	○			0	0
N026	Recurrent and persistent haematuria: Dense deposit disease	○			0	0
N027	Recurrent and persistent haematuria: Diffuse crescentic glomerulonephritis	○			0	0
N028	Recurrent and persistent haematuria: Other	○			0	0
N029	Recurrent and persistent haematuria: Unspecified	○			0	0
N421	Congestion and haemorrhage of prostate	○			434	117
N920	Excessive and frequent menstruation with regular cycle	○			0	0
N921	Excessive and frequent menstruation with irregular cycle	○			0	0
N923	Ovulation bleeding	○			422	281
N924	Excessive bleeding in the premenopausal period	○			661	269
N930	Postcoital and contact bleeding	○			24	19
N938	Other specified abnormal uterine and vaginal bleeding	○			117	41
N939	Abnormal uterine and vaginal bleeding, unspecified	○			60,685	25,128
N950	Postmenopausal bleeding	○			340	157
R040	Epistaxis	○			79,045	36,062
R041	Haemorrhage from throat	○			1,672	950
R042	Haemoptysis	○			14,669	4,149
R048	Haemorrhage from other sites in respiratory passages	○			3,155	714
R049	Haemorrhage from respiratory passages, unspecified	○			681	137
R31	Unspecified haematuria	○			209,959	66,300
R58	Haemorrhage, not elsewhere classified	○			0	0
S064	Epidural haemorrhage	○	○		2,994	996
S065	Traumatic subdural haemorrhage	○	○		8,285	2,785
S066	Traumatic subarachnoid haemorrhage	○	○		5,326	1,904
S260	Injury of heart with haemopericardium	○			0	0
S271	Traumatic haemothorax	○			617	298
T792	Traumatic secondary and recurrent haemorrhage	○			0	0

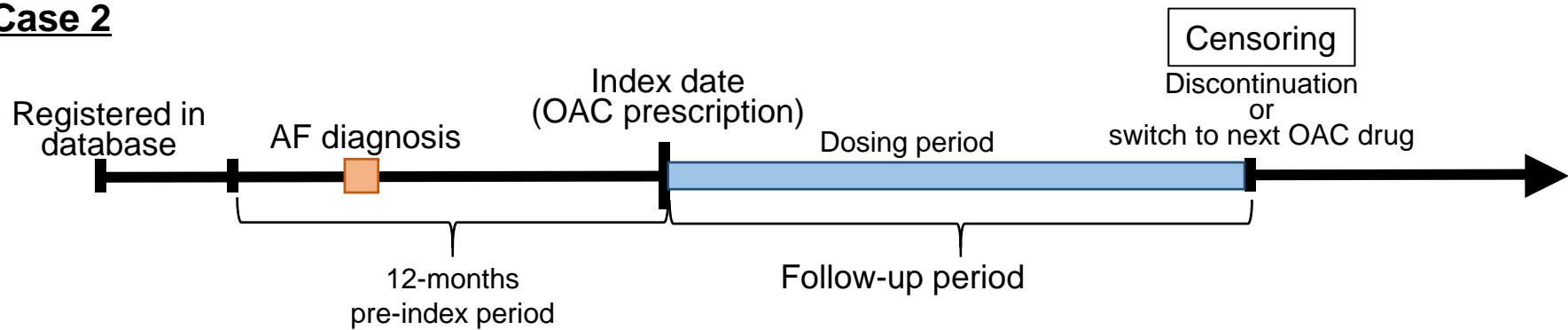
Open circle represents including criteria (Total bleeding, IH, or GH).

ICD-10: International Classification of Diseases 10th revision, IH: intracranial hemorrhage, GH: gastrointestinal hemorrhage

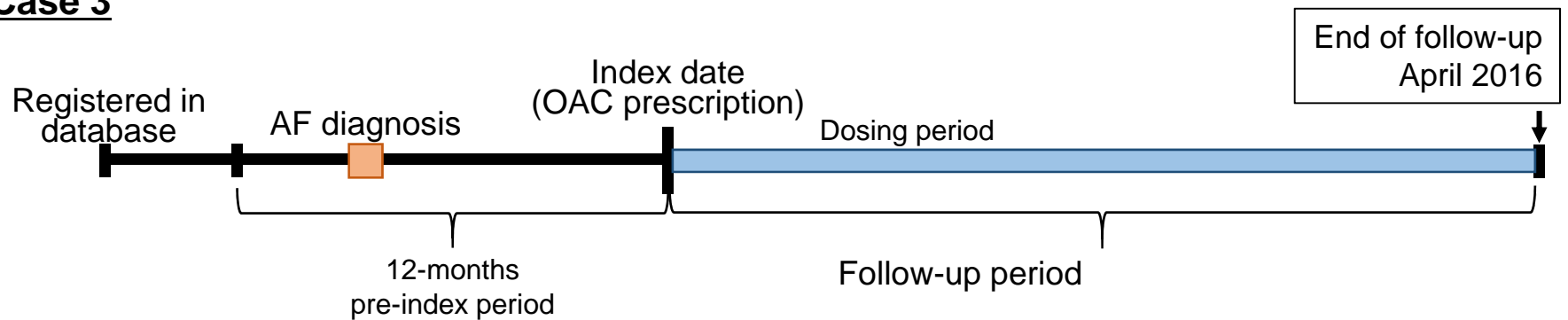
**Case 1**



**Case 2**



**Case 3**



**Fig. S1** Schematic representation of study design. Case 1: bleeding event, Case 2: censoring, Case 3: end of the study.  
Index date: Initiation of oral anticoagulant therapy (should be between April 2012 and March 2015)  
Discontinuation: When the prescription interval exceeded 3 months, it was judged that medication was discontinued.  
Registered in database: Start of observation  
AF: atrial fibrillation, OAC: oral anticoagulant