SUPPLEMENTAL MATERIALS

Long-Term Risk of Dementia among Survivors of Ischemic or Hemorrhagic Stroke

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Supplemental Methods.

Variables used to ascertain or infer smoking and substance abuse in the study population

We ascertained or inferred smoking from smoking cessation intervention codes, administrative coding of current or former smoking, and ICD diagnoses of smoking-related conditions or chronic pulmonary disease.[1] Substance abuse was identified from diagnoses of alcoholic cirrhosis, alcohol-induced psychosis, alcohol abuse syndrome, and drug abuse.

Covariates included in the adjusted analyses

We created three adjusted models to separate traditional vascular factors for ischemic stroke[2] from other stroke risk factors, as well as to avoid collinearity among vascular conditions. The first model then included vascular risk factors most commonly associated with stroke; *viz*, the presence or absence of diabetes, atrial fibrillation, hypertension, and smoking. In the second model, we added the presence (yes/no) of hyperlipidemia alone, due to its suggestive protective effect for ICH,[3] and the presence (any/none) of at least one other vascular condition, *viz*. myocardial infarction, heart failure, or peripheral vascular disease. In the third model, we added the presence (yes/no) of traumatic brain injury, depression, and substance abuse.

References

1.   Sogaard M, Heide-Jorgensen U, Norgaard M, Johnsen SP, Thomsen RW. Evidence for the low recording of weight status and lifestyle risk factors in the Danish national registry of patients, 1999-2012. *BMC Public Health*. 2015;15:13

2.   Bang OY, Ovbiagele B, Kim JS. Nontraditional risk factors for ischemic stroke: An update. Stroke. 2015;46:3571-3578

3.   Ariesen MJ, Claus SP, Rinkel GJ, Algra A. Risk factors for intracerebral hemorrhage in the general population: A systematic review. Stroke. 2003;34:2060-2065

Supplemental Table I. ICD and procedure codes used in the study.

Stroke	ICD-8	ICD-10
Ischemic stroke	433-434	I63
ICH	431	I61
SAH	430	I60
Unspecified stroke	436	I64
Dementia		
Alzheimer's disease	290.10, 290.09	F00, G30
Vascular dementia	293.09, 293.19	F01
Other dementia	094.19, 290.11-290.19, 292.09	F02-F03, F1x.73 series (F10.73-F19.73), G23.1, G31.0, G31.0A, G31.0B, G31.1, G31.8B, G31.8E, G31.85
Underlying vascular conditions		
Myocardial infarction	410	I21-I23
Congestive heart failure	427.09-427.11, 427.19, 428.99, 782.49	I50, I11.0, I13.0, I13.2
Peripheral vascular disease	440-445	I70-I74, I77
Diabetes mellitus	249-250	E10-E11
Atrial fibrillation or flutter	427.93-94	I48.9
Hyperlipidemia / hypercholesterolemia	272.00-09, 279.00, 279.01	E78.0-E78.2, E78.4, E78.5
Hypertension	400, 401	I10-I11, I13.0, I13.2
Smoking-related diagnoses		
Chronic pulmonary disease	490-493, 515-518	J40-J47, J60-J67, J68.4, J70.1
Diagnosis of problems related to active smoking		Z720A, Z720E
Smoking prevention counselling or smoking cessation intervention		Treatment codes: BQFT01, BQFS01
Current or former smoking status		Administrative procedure codes: ZZP01A1A, ZZP01A1B2, ZZP0020
Depression	296.09, 296.29, 296.99, 298.09, 300.49, 300.19	F32, F33
Traumatic brain injury	850.99, 851.29-854.99, 800.99-801.09, 803.99	S06.0, S06.1-S06.9, S02.0-S02.1, S02.7, S02.9
Substance abuse diagnoses and related comorbidities		
Drug-related abuse		
Opioids	304.09, 304.19	F11.0-F11.9
Cannabis	304.59	F12.0-F12.9
Sedatives/hypnotics	304.29, 304.39	F13.0-F13.9
Cocaine	304.49	F14.0-F14.9
Other stimulants	304.69	F15.0-F15.9
Hallucinogens	304.79	F16.0-F16.9
Other and multiple drugs	304.89, 304.99	F18.0-F19.9
Alcohol-related abuse		
Alcohol psychosis, and alcohol abuse syndrome	291.09-291.99, 303.09-303.99	F10.0-F10.9
Alcoholic cirrhosis	571.09	K70.3
Exclusion criteria		
Ischemic stroke	433-434	I63
ICH	431	I61
SAH	430	I60
Unspecified stroke	436	I64
other cerebrovascular disease	432, 437, 438	I62,165-169, G46
Hemiplegia	344	G81, G82

Dementia	094.19, 290.09-290.19, 292.09, 293.09, 293.19	F00-F03, G30, F1x.73 series (F10.73-F19.73), G23.1, G31.0, G31.0A, G31.0B, G31.1, G31.8B, G31.8E, G31.85
Mild cognitive impairment	-	F06.7
Amnestic syndromes	291.19	F04, F04.9, F05.1, F10.6, F18.6, F19.6
Sensitivity analysis criteria		
CT scan of the brain, 1st stroke hospital admission		NOMESCO: UXCA
MRI of the brain, 1st stroke hospital admission		NOMESCO: UXMA

ICH = Intracerebral hemorrhage, SAH = subarachnoid hemorrhage, CT scan = computed tomography, MRI = magnetic resonance imaging.

Supplemental Table II. Characteristics of the stroke and comparison cohorts at study entry.

| | Stroke Cohort | | | | | | | | | | Comparison Cohort | |
| | All Strokes (N = 215,118) | | Ischemic Stroke (N = 84,220) | | Intracerebral Hemorrhage (N = 16,723) | | Subarachnoid Hemorrhage (N = 9,872) | | Unspecified Stroke (N = 104,303) | | (N = 1,075,588) | |
Covariate	N	%	N	%	N	%	N	%	N	%	N	%
Age (years)												
18-44	11,055	5.1	3,878	4.6	1,483	8.9	2,744	27.8	2,950	2.8	55,365	5.1
45-64	58,262	27.1	25,076	29.8	5,509	32.9	4,987	50.5	22,690	21.8	291,407	27.1
65-74	58,421	27.2	23,786	28.3	4,423	26.4	1,406	14.3	28,806	27.7	292,456	27.2
75-84	63,685	29.6	22,952	27.3	4,032	24.1	600	6.1	36,101	34.6	317,987	29.6
85+	23,695	11.0	8,528	10.1	1,276	7.6	135	1.4	13,756	13.2	118,373	11.0
Sex, female	102,366	47.6	37,946	45.1	7,598	45.4	5,872	59.5	50,950	48.8	511,828	47.6
Index year												
1982-1994	71,785	33.3	19,930	23.7	5,227	31.3	3,377	34.2	43,251	41.5	358,925	33.4
1995-2003	72,830	33.9	23,675	28.1	5,512	33.0	3,055	30.9	40,588	38.9	364,150	33.9
2004-2013	70,503	32.8	40,615	48.2	5,984	35.8	3,440	34.8	20,464	19.6	352,513	32.8
Any vascular condition*	108,708	50.5	48,687	57.8	7,419	44.4	2,245	22.7	50,357	48.3	201,273	18.7
Myocardial infarction	16,132	7.5	6,741	8.0	779	4.7	200	2.0	8,412	8.1	49,328	4.6
Heart failure	13,818	6.4	5,400	6.4	661	4.0	120	1.2	7,637	7.3	37,898	3.5
Peripheral vascular disease	15,172	7.1	6,557	7.8	705	4.2	635	6.4	7,275	7.0	31,705	2.9
Atrial fibrillation or flutter	25,091	11.7	11,568	13.7	1,357	8.1	233	2.4	11,933	11.4	44,269	4.1
Diabetes	24,059	11.2	10,059	11.9	1,282	7.7	288	2.9	12,430	11.9	40,186	3.7
Hypertension	59,314	27.6	28,182	33.5	5,206	31.1	1,262	12.8	24,664	23.6	80,007	7.4
Hyperlipidemia	24,190	11.2	15,257	18.1	1,099	6.6	247	2.5	7,587	7.3	20,168	1.9
Smoking[†]	16,463	7.7	7,084	8.4	1,100	6.6	451	4.6	7,828	7.5	57,025	5.3
Traumatic brain injury	11,042	5.1	3,858	4.6	1,981	11.8	1,064	10.8	4,139	4.0	29,446	2.7
Depression	11,149	5.2	5,033	6.0	894	5.3	356	3.6	4,866	4.7	29,911	2.8
Substance abuse-related diagnoses	11,565	5.4	4,782	5.7	1,353	8.1	520	5.3	4,910	4.7	24,246	2.3
Alcohol abuse or Alcohol cirrhosis	10,549	4.9	4,393	5.2	1,259	7.5	460	4.7	4,437	4.3	21,197	2.0
Other substance abuse	2,102	1.0	834	1.0	223	1.3	131	1.3	914	0.9	5,334	0.5
Brain imaging[‡]	81,107	76.9	44,672	83.5	6,923	79.9	3,996	83.2	25,516	66.2	N/A	

*Myocardial infarction, heart failure, atrial fibrillation or flutter, diabetes, hypertension, hyperlipidemia (including hypercholesterolemia), and smoking.
[†]Smoking-related diagnoses, individual smoking cessation interventions, and administrative coding for smoking.
[‡]Computed tomography or magnetic resonance during first stroke admission, starting from the index year 2000.
N/A=non-applicable

Supplemental Table III. Hazard ratios (HRs) for dementia in patients with first-time stroke of any type or ischemic stroke, in the context of previous cohort studies not restricted to patients age 65 years or older.

Study	Index Period	Stroke Type	Age at Cohort Entry	Index Date	Follow-up Period	Type of Measure	Relative Risks For Dementia (95% Confidence Interval)	
							Study Measure	Standardized Measure, Denmark (Present Study)
Ivan et al. 2004	1982-2001	Any-type	< 95 years	6 months after stroke	up to 10 years	Age and sex adjusted HR	2.2 (1.5-3.1)	1.80 (1.76-1.83)
Reitz et al. 2008	1990-1993	Ischemic ICH unspecified	≥ 55 years	Stroke date	up to 10 years	Age and sex adjusted HR	2.1 (1.6-2.8)	1.78 (1.74-1.82)
Kokmen et al. 1996	1960-1984	Ischemic	≥ 50 years	year of onset + 3 months	up to 25 years	Standardized incidence ratio*	3.2 (2.8-3.7)	1.58 (1.54-1.62)

*Excess risk in the stroke cohort compared with the risk in the population with the same age and sex distribution as in the stroke cohort.

The index date of the present study was 3 months after stroke diagnosis when we compared our findings with the Reitz et al. 2008 study.

ICH = intracerebral hemorrhage.

Supplemental Table IV. Hazard ratios for dementia by age at index date, according to type of incident stroke.

Type of Incident Stroke	Age at Index Date (Years)				
	18-44	45-64	65-74	75-84	85+
	Dementia Hazard Ratios (95% Confidence Interval)				
Overall follow-up					
All	6.69 (5.36–8.35)	3.11 (2.95–3.27)	2.12 (2.05–2.19)	1.54 (1.50–1.59)	1.19 (1.12–1.25)
Ischemic	6.92 (4.51–10.6)	3.06 (2.81–3.34)	2.05 (1.93–2.17)	1.45 (1.38–1.53)	1.17 (1.07–1.28)
ICH	7.01 (3.92–12.5)	4.58 (3.92–5.34)	3.52 (3.11–3.98)	2.02 (1.80–2.26)	1.36 (1.11–1.67)
SAH	7.39 (4.97–11.0)	3.00 (2.53–3.56)	1.99 (1.60–2.47)	2.30 (1.76–3.01)	2.23 (1.21–4.09)
3-12 months following stroke diagnosis					
All	141 (19.2–1,036)	13.7 (10.8–17.4)	4.86 (4.29–5.49)	2.30 (2.14–2.48)	1.53 (1.38–1.68)
Ischemic	-[*]	15.0 (10.1–22.2)	3.86 (3.16–4.71)	1.94 (1.72–2.20)	1.56 (1.33–1.82)
ICH	-[*]	27.9 (13.2–59.2)	8.46 (5.41–13.3)	3.44 (2.63–4.50)	2.29 (1.62–3.24)
SAH	-[*]	16.3 (7.72–34.3)	4.87 (2.26–10.5)	3.53 (1.80–6.91)	3.04 (1.26–7.35)
> 1-10 years following stroke diagnosis					
All	14.1 (9.21-21.5)	4.21 (3.91–4.54)	2.24 (2.15–2.34)	1.46 (1.42–1.51)	1.07 (1.01–1.14)
Ischemic	14.9 (6.68–33.0)	4.12 (3.64–4.68)	2.10 (1.96–2.25)	1.39 (1.32–1.47)	1.04 (0.94–1.16)
ICH	42.0 (9.71-182)	6.42 (5.13–8.03)	3.98 (3.43–4.62)	1.80 (1.59–2.05)	1.06 (0.82–1.38)
SAH	12.0 (5.54-26.2)	3.40 (2.48–4.65)	2.17 (1.62–2.91)	2.16 (1.59–2.93)	1.72 (0.74–3.97)
> 10-30 years following stroke diagnosis					
All	3.43 (2.56–4.60)	1.97 (1.83–2.12)	1.35 (1.25–1.46)	1.14 (1.00–1.30)	1.86 (0.63–5.48)
Ischemic	3.43 (1.95–6.06)	1.86 (1.64–2.12)	1.43 (1.25–1.64)	1.16 (0.89–1.50)	-[†]
ICH	2.53 (1.16–5.54)	2.40 (1.89–3.03)	1.77 (1.36–2.30)	2.30 (1.19–4.44)	-[‡]
SAH	4.36 (2.63–7.22)	2.36 (1.90–2.93)	1.46 (1.01–2.09)	1.76 (0.60–5.14)	-[‡]

[*]No outcomes in the comparison cohort.
[†]Few outcomes, with imprecise estimates (0-∞).
[‡]No outcomes in the stroke cohort.
ICH = intracerebral hemorrhage, SAH = subarachnoid hemorrhage.

Supplemental Table V. Dementia rates and hazard ratios among stroke survivors, according to sex and type of incident stroke.

Stroke Type	Cohort	Male				Female			
		Person-years	N Events	Rate* (95% CI)	Unadjusted HR (95% CI)	Person-years	N Events	Rate* (95% CI)	Unadjusted HR (95% CI)
All	Stroke	727,681	8,321	11.4 (11.2-11.7)	2.06 (2.00–2.12)	647,527	8,823	13.6 (13.3-13.9)	1.61 (1.57–1.66)
	Comparison	4,929,288	36,469	7.40 (7.32-7.47)	*reference*	4,449,352	48,757	11.0 (10.9-11.1)	*reference*
Ischemic	Stroke	279,661	2,971	10.6 (10.2-11.0)	1.91 (1.82–2.00)	220,893	2,981	13.5 (13.0-14.0)	1.56 (1.50–1.63)
	Comparison	1,814,848	12,704	7.00 (6.88-7.12)	*reference*	1,457,314	15,594	10.7 (10.5-10.9)	*reference*
ICH	Stroke	62,732	820	13.1 (12.2-14.0)	3.59 (3.26–3.96)	49,996	720	14.4 (13.4-15.5)	2.10 (1.91–2.31)
	Comparison	431,721	2,448	5.67 (5.45-5.89)	*reference*	352,116	3,290	9.34 (9.02-9.66)	*reference*
SAH	Stroke	43,225	219	5.07 (4.40-5.74)	3.28 (2.72–3.96)	64,928	346	5.33 (4.77-5.89)	2.48 (2.16–2.85)
	Comparison	242,792	531	2.19 (2.00-2.37)	*reference*	370,075	1,074	2.90 (2.73-3.08)	*reference*

*Per 1,000 person-years
HR = Hazard ratio

Supplemental Table VI. Rates of Alzheimer's disease, vascular dementia, and other dementia, and hazard ratios (HRs) for specific dementias, according to stroke type.

Stroke Type	Cohort	Person-years	Alzheimer's Disease			Vascular Dementia			Other Dementia		
			N Events	Rate* (95% CI)	Unadjusted HR (95% CI)	N Events	Rate* (95% CI)	Unadjusted HR (95% CI)	N Events	Rate* (95% CI)	Unadjusted HR (95% CI)
All	Comparison (N=1,075,588)	9,378,640	29,179	3.11 (3.08-3.15)	*reference*	10,464	1.12 (1.09-1.14)	*reference*	45,583	4.86 (4.82-4.90)	*reference*
	Stroke (N=215,118)	1,375,208	3,303	2.40 (2.32-2.48)	0.94 (0·91–0·98)	5,830	4.24 (4.13-4.35)	5.24 (5.03–5.46)	8,011	5.83 (5.70-5.95)	1.61 (1.57–1.66)
Ischemic	Comparison (N=421,098)	3,272,150	10,075	3.08 (3.02-3.14)	*reference*	3,499	1.07 (1.03-1.10)	*reference*	14,724	4.50 (4.43-4.57)	*reference*
	Stroke (N=84,220)	500,554	1,126	2.25 (2.12-2.38)	0.85 (0·79–0·90)	2,146	4.29 (4.11-4.47)	5.38 (5.03–5.75)	2,680	5.35 (5.15-5.56)	1.52 (1.45–1.59)
ICH	Comparison (N=83,615)	783,850	1,995	2.55 (2.43-2.66)	*reference*	704	0.90 (0.83-0.96)	*reference*	3,039	3.88 (3.74-4.01)	*reference*
	Stroke (N=16,723)	112,740	245	2.17 (1.90-2.45)	1.12 (0·97–1.29)	561	4.98 (4.56-5.39)	8.60 (7.42–9.96)	734	6.51 (6.04-6.98)	2.50 (2.27–2.76)
SAH	Comparison (N=49,360)	612,867	578	0.94 (0.87-1.02)	*reference*	202	0.33 (0.28-0.38)	*reference*	825	1.35 (1.25-1.44)	*reference*
	Stroke (N=9,872)	108,153	88	0.81 (0.64-0.98)	1.12 (0.87–1.43)	210	1.94 (1.68-2.20)	8.61 (6.76–11.0)	267	2.47 (2.17-2.76)	2.49 (2.12–2.92)

*Per 1,000 person years.
ICH = intracerebral hemorrhage, SAH = subarachnoid hemorrhage.

Supplemental Table VII. Hazard ratios for dementia according to type of stroke, restricting the study population to stroke patients who underwent MRI or CT during hospitalization for stroke, as from the year 2000.

Stroke Type	Cohort	Person-Years	Dementia N Events	Rate* (95% CI)	Hazard Ratios (95% Confidence Interval)			
					Unadjusted	Model 1[†]	Model 2[‡]	Model 3[§]
All + CT/MRI	Comparison (N=405,533)	2,109,917	19,362	9.18 (9.05-9.31)	reference	reference	reference	reference
	Stroke (N=81,107)	367,427	5,123	13.9 (13.6-14.3)	1.75 (1.69–1.81)	1.71 (1.65–1.78)	1.72 (1.66–1.79)	1.67 (1.61-1.73)
Ischemic + CT/MRI	Comparison (N=223,358)	1,045,894	9,760	9.33 (9.15-9.52)	reference	reference	reference	reference
	Stroke (N=44,672)	185,245	2,471	13.3 (12.8-13.9)	1.62 (1.54–1.70)	1.57 (1.50–1.65)	1.57 (1.49–1.66)	1.53 (1.45-1.61)
ICH + CT/MRI	Comparison (N=34,615)	182,317	1,418	7.78 (7.37-8.18)	reference	reference	reference	reference
	Stroke (N=6,923)	30,073	525	17.5 (16.0-19.0)	2.84 (2.54–3.18)	2.88 (2.55–3.25)	2.92 (2.59–3.30)	2.71 (2.40-3.07)
SAH + CT/MRI	Comparison (N=19,980)	116,608	285	2.44 (2.16-2.73)	reference	reference	reference	reference
	Stroke (N=3,996)	21,936	146	6.65 (5.58-7.73)	3.48 (2.79–4.35)	3.36 (2.68–4.22)	3.36 (2.68–4.22)	3.05 (2.40-3.88)

*Per 1,000 person-years
[†]Adjusted for diabetes, atrial fibrillation, hypertension, and smoking.
[‡]Adjusted for Model 1 covariates + hyperlipidemia/hypercholesterolemia, myocardial infarction/or heart failure/or peripheral vascular disease.
[§]Adjusted for Model 1 and 2 covariates + traumatic brain injury, depression and substance abuse.
ICH = Intracerebral hemorrhage, SAH = subarachnoid hemorrhage, CT = computed tomography, MRI = magnetic resonance imaging.

Supplemental Table VIII. Hazard ratios for dementia within the first year after stroke among ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage patients, with the index date set as 6 months post-stroke.

Stroke Type	Cohort	Person-Years	Dementia N Events	Rate* (95% CI)	Hazard ratios (95% Confidence Interval) Unadjusted	Model 1[†]	Model 2[‡]	Model 3[§]
All	Comparison (N = 1,009,606)	501,810	3,087	6.15 (5.93-6.37)	*reference*	*reference*	*reference*	*reference*
	Stroke (N = 204,252)	99,552	1,439	14.5 (13.7-15.2)	2.37 (2.22–2.52)	2.32 (2.17–2.48)	2.32 (2.17–2.48)	2.24 (2.09-2.40)
Ischemic	Comparison (N = 396,232)	195,749	1,218	6.22 (5.87-6.57)	*reference*	*reference*	*reference*	*reference*
	Stroke (N = 80,073)	38,955	513	13.2 (12.0-14.3)	2.12 (1.91–2.35)	2.04 (1.83–2.28)	2.03 (1.81–2.27)	1.97 (1.76-2.20)
ICH	Comparison (N = 78,299)	38,906	196	5.04 (4.33-5.74)	*reference*	*reference*	*reference*	*reference*
	Stroke (N = 15,790)	7,674	148	19.3 (16.2-22.4)	3.85 (3.11–4.78)	4.06 (3.21–5.13)	4.08 (3.22–5.17)	3.74 (2.92-4.78)
SAH	Comparison (N = 47,776)	23,936	38	1.59 (1.08-2.09)	*reference*	*reference*	*reference*	*reference*
	Stroke (N = 9,588)	4,770	47	9.85 (7.03-12.7)	6.09 (3.97–9.34)	6.18 (3.94–9.69)	6.22 (3.96–9.78)	7.25 (4.32-12.2)

*Per 1,000 person-years.

[†]Adjusted for diabetes, atrial fibrillation, hypertension, and smoking.

[‡]Adjusted for Model 1 covariates + hyperlipidemia/hypercholesterolemia, myocardial infarction/or heart failure/or peripheral vascular disease.

[§]Adjusted for Model 1 and 2 covariates + traumatic brain injury, depression, and substance abuse.

ICH = intracerebral hemorrhage, SAH = subarachnoid hemorrhage.

Supplemental Table IX. Dementia incidence rates and unadjusted hazard ratios (HRs), according to stroke type in the index periods of 1982-1994, 1995-2003 and 2004-2013.

Stroke Type	Cohort	Index Period 1982-1994				Index Period 1995-2003				Index Period 2004-2013			
		Person-Years	N Events	Rate* (95% CI)	HR (95% CI)	Person-Years	N Events	Rate* (95% CI)	HR (95% CI)	Person-Years	N Events	Rate* (95% CI)	HR (95% CI)
3-12 months after stroke diagnosis													
All	Comparison	265,326	1,037	3.91 (3.67-4.15)	reference	269,205	1,946	7.23 (6.91-7.55)	reference	252,235	2,013	7.98 (7.63-8.33)	reference
	Stroke	50,349	570	11.3 (10.4-12.3)	3.06 (2.75–3.40)	51,826	906	17.5 (16.3-18.6)	2.47 (2.28–2.68)	48,922	915	18.7 (17.5-19.9)	2.42 (2.23–2.62)
Ischemic	Comparison	73,920	244	3.30 (2.89-3.72)	reference	87,608	617	7.04 (6.49-7.60)	reference	144,033	1,112	7.72 (7.27-8.17)	reference
	Stroke	14,140	134	9.48 (7.87-11.1)	3.07 (2.47–3.81)	16,958	265	15.6 (13.8-17.5)	2.23 (1.93–2.58)	28,060	455	16.2 (14.7-17.7)	2.16 (1.93–2.41)
ICH	Comparison	19,422	42	2.16 (1.51-2.82)	reference	20,484	106	5.18 (4.19-6.16)	reference	21,362	152	7.12 (5.98-8.25)	reference
	Stroke	3,672	43	11.7 (8.21-15.2)	5.67 (3.65–8.80)	3,904	85	21.8 (17.2-26.4)	4.11 (3.08–5.49)	4,087	113	27.6 (22.5-32.7)	4.13 (3.22–5.31)
SAH	Comparison	12,664	10	0.79 (0.30-1.28)	reference	11,456	18	1.57 (0.84-2.30)	reference	12,346	34	2.75 (1.83-3.68)	reference
	Stroke	2,489	12	4.82 (2.09-7.55)	6.67 (2.81–15.8)	2,245	31	13.8 (8.93-18.6)	9.55 (5.23–17.5)	2,428	35	14.4 (9.65-19.2)	5.41 (3.35–8.75)
> 1-10 years after stroke diagnosis													
All	Comparison	2,146,444	12,355	5.76 (5.65-5.86)	reference	2,255,353	21,709	9.63 (9.50-9.75)	reference	1,214,595	10,258	8.45 (8.28-8.61)	reference
	Stroke	345,321	3,063	8.87 (8.56-9.18)	1.84 (1.76–1.93)	392,254	5,758	14.7 (14.3-15.1)	1.73 (1.67–1.78)	227,823	2,976	13.1 (12.6-13.5)	1.65 (1.58–1.72)
Ischemic	Comparison	631,655	3,007	4.76 (4.59-4.93)	reference	751,618	6,934	9.23 (9.01-9.44)	reference	636,230	5,499	8.64 (8.41-8.87)	reference
	Stroke	103,895	759	7.31 (6.79-7.82)	1.81 (1.65–1.97)	131,955	1,886	14.3 (13.7-14.9)	1.69 (1.60–1.79)	120,926	1,506	12.5 (11.8-13.1)	1.53 (1.44–1.62)
ICH	Comparison	169,617	709	4.18 (3.87-4.49)	reference	178,779	1,332	7.45 (7.05-7.85)	reference	100,491	761	7.57 (7.03-8.11)	reference
	Stroke	28,011	247	8.82 (7.72-9.92)	2.49 (2.12–2.94)	29,951	501	16.7 (15.3-18.2)	2.78 (2.47–3.13)	18,166	284	15.6 (13.8-17.5)	2.44 (2.10–2.82)
SAH	Comparison	136,518	175	1.28 (1.09-1.47)	reference	122,976	254	2.07 (1.81-2.32)	reference	68,149	136	2.00 (1.66-2.33)	reference
	Stroke	25,742	67	2.60 (1.98-3.23)	2.41 (1.78–3.26)	23,692	97	4.09 (3.28-4.91)	2.35 (1.82–3.03)	13,249	77	5.81 (4.51-7.11)	3.40 (2.52–4.60)

*Per 1,000 person-years;

ICH = intracerebral hemorrhage, SAH = subarachnoid hemorrhage.