

Supplementary Information

Prevalence of incidental intracranial findings on magnetic resonance imaging: A systematic review and meta-analysis

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Supplementary Methods I

Ovid MEDLINE – Inception to 24/05/2021 – 2,108 results

#	Query	Results from 24 May 2021
1	incidental.ti,ab.	28,619
2	exp Incidental Findings/ ct.ti,ab.	10,892
3	exp Magnetic Resonance Imaging/ or exp Tomography, X-Ray Computed/ mri.ti,ab.	362,366
4	magnetic resonance*.ti,ab.	847,759
5	computed tomography.ti,ab.	258,115
6	exp Brain/ neuroradiology.ti,ab.	358,887
7	neuro*.ti,ab.	2,783
8	brain.ti,ab.	1,890,201
9	head.ti,ab.	1,019,915
10	cranial.ti,ab.	334,357
11	cerebral.ti,ab.	76,967
12	1 or 2	362,919
13	3 or 4 or 5 or 6 or 7	34,715
14	8 or 9 or 10 or 11 or 12 or 13 or 14	1,273,989
15	15 and 16 and 17	3,326,774
16	limit 18 to humans	2,486
17		2,108

EMBASE – Inception to 24/05/2021 – 380 results

Search Queries

No.	Query	Results	Date
#17	((('incidental finding'/exp OR 'incidental finding') AND ('computer assisted tomography'/exp OR 'ct':ab,ti OR 'computed tomography':ab,ti OR 'neuroradiology'/exp OR 'nuclear magnetic resonance imaging'/exp OR 'magnetic resonance imaging':ab,ti OR 'mri':ab,ti) AND ('brain'/exp OR neuro*:ab,ti OR head:ab,ti OR cranial:ab,ti)) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) NOT 'conference abstract'/it	380	24 May 2021
#16	((('incidental finding'/exp OR 'incidental finding') AND ('computer assisted tomography'/exp OR 'ct':ab,ti OR 'computed tomography':ab,ti OR 'neuroradiology'/exp OR 'nuclear magnetic resonance imaging'/exp OR 'magnetic resonance imaging':ab,ti OR 'mri':ab,ti) AND ('brain'/exp OR neuro*:ab,ti OR head:ab,ti OR cranial:ab,ti)) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)	1011	24 May 2021
#15	('incidental finding'/exp OR 'incidental finding') AND ('computer assisted tomography'/exp OR 'ct':ab,ti OR 'computed tomography':ab,ti OR 'neuroradiology'/exp OR 'nuclear magnetic resonance imaging'/exp OR 'magnetic resonance imaging':ab,ti OR 'mri':ab,ti) AND ('brain'/exp OR neuro*:ab,ti OR head:ab,ti OR cranial:ab,ti)	2249	24 May 2021
#14	'brain'/exp OR neuro*:ab,ti OR head:ab,ti OR cranial:ab,ti	3758698	24 May 2021
#13	'computer assisted tomography'/exp OR 'ct':ab,ti OR 'computed tomography':ab,ti OR 'neuroradiology'/exp OR 'nuclear magnetic resonance imaging'/exp OR 'magnetic resonance imaging':ab,ti OR 'mri':ab,ti	2203543	24 May 2021
#12	cranial:ab,ti	105073	24 May 2021
#11	head:ab,ti	449588	24 May 2021
#10	neuro*:ab,ti	2534691	24 May 2021
#9	'brain'/exp	1521819	24 May 2021
#8	'mri':ab,ti	443977	24 May 2021
#7	'magnetic resonance imaging':ab,ti	292875	24 May 2021
#6	'nuclear magnetic resonance imaging'/exp	1023815	24 May 2021
#5	'neuroradiology'/exp	90889	24 May 2021
#4	'computed tomography':ab,ti	329440	24 May 2021
#3	'ct':ab,ti	610775	24 May 2021
#2	'computer assisted tomography'/exp	1175732	24 May 2021
#1	'incidental finding'/exp OR 'incidental finding'	23805	24 May 2021

PubMed – Inception to 24/05/2021 – 1,902 results

Search: (((incidental[Title/Abstract]) OR ("incidental findings"[MeSH Major Topic])) AND (((Brain[MeSH Terms]) OR (brain[Title/Abstract])) OR (head[Title/Abstract])) OR (cranial[Title/Abstract])) OR (neuro*[Title/Abstract])) AND (((MRI[Title/Abstract]) OR (magnetic resonance[Title/Abstract])) OR ("magnetic resonance imaging"[MeSH Major Topic])) OR (((computed tomography[Title/Abstract]) OR (ct[Title/Abstract])) OR (computed tomography, x ray[MeSH Terms])) Sort by: **Most Recent**
("incidental"[Title/Abstract] OR "incidental findings"[MeSH Major Topic]) AND ("brain"[MeSH Terms] OR "brain"[Title/Abstract] OR "head"[Title/Abstract] OR "cranial"[Title/Abstract] OR "neuro*" [Title/Abstract]) AND ("MRI"[Title/Abstract] OR "magnetic resonance"[Title/Abstract] OR "magnetic resonance imaging"[MeSH Major Topic] OR ("computed tomography"[Title/Abstract] OR "ct"[Title/Abstract] OR "tomography, x ray computed"[MeSH Terms]))

Translations

Brain[MeSH Terms]: "brain"[MeSH Terms]

computed tomography, x ray[MeSH Terms]: "tomography, x-ray computed"[MeSH Terms]

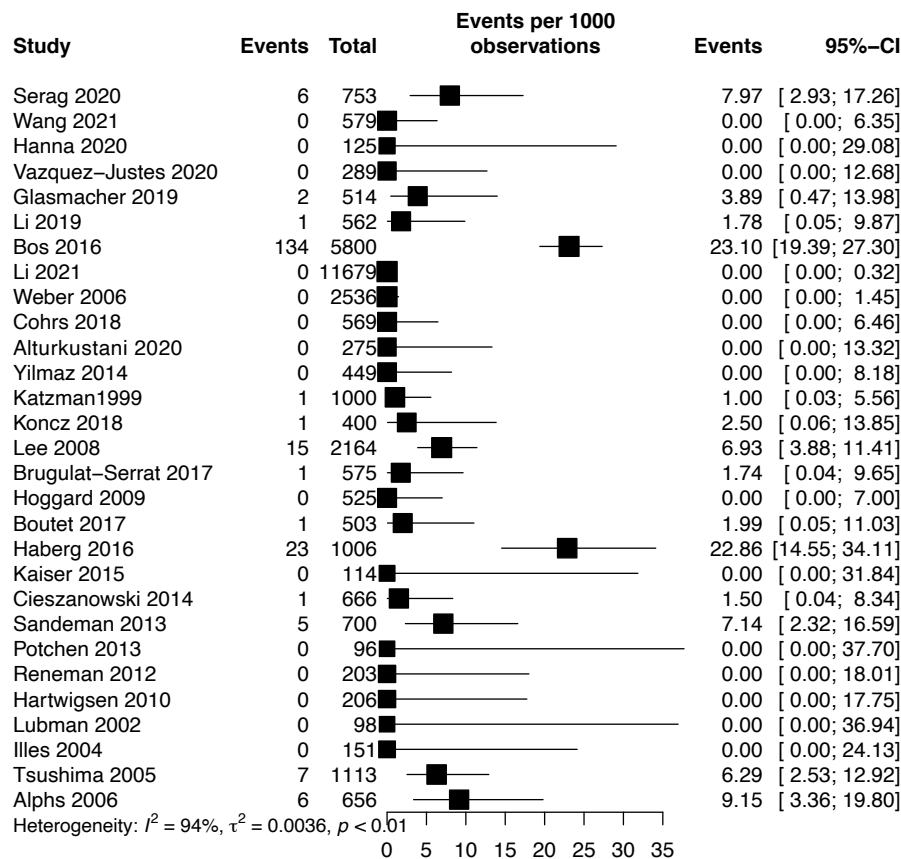
SCOPUS – Inception to 24/05/2021 – 1,966 results

1. TITLE-ABS-KEY("incidental") (**52,804 results**)
2. TITLE-ABS-KEY("MRI") OR TITLE-ABS-KEY("magnetic resonance") OR TITLE-ABS-KEY(mr*) (**2,453,606 results**)
3. TITLE-ABS-KEY("CT") OR TITLE-ABS-KEY("computed tomography") OR TITLE-ABS-KEY("computed tomographic") (**827,684 results**)
4. TITLE-ABS-KEY("head") OR TITLE-ABS-KEY("brain") OR TITLE-ABS-KEY("neuro*") OR TITLE-ABS-KEY("cranial*") (**5,055,724 results**)
5. #2 OR #3 (**3,104,347 results**)
6. #1 AND #4 AND #5 (**4,236 results**)
7. #6 AND (EXCLUDE(DOCTYPE, "cp")) (**4,169 results**)
8. #7 AND LIMIT-TO(EXACTKEYWORD, "Incidental Finding") (**1,966 results**)

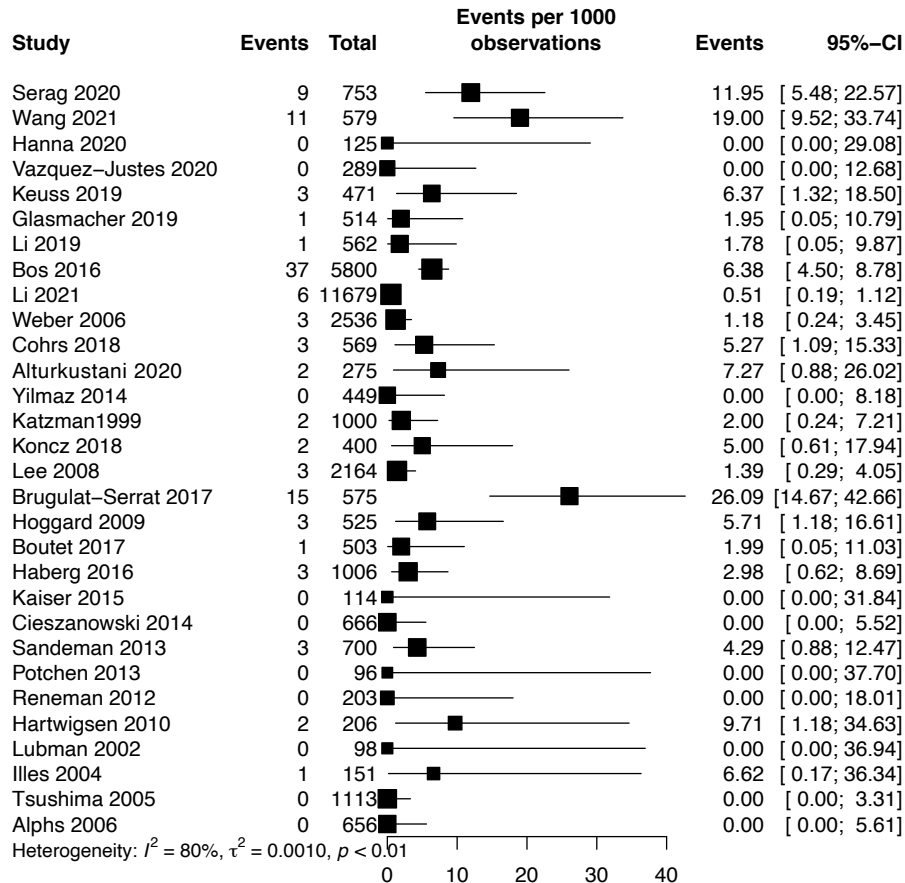
Supplementary Figure I

Forest plots depicting the findings of each study for each category.

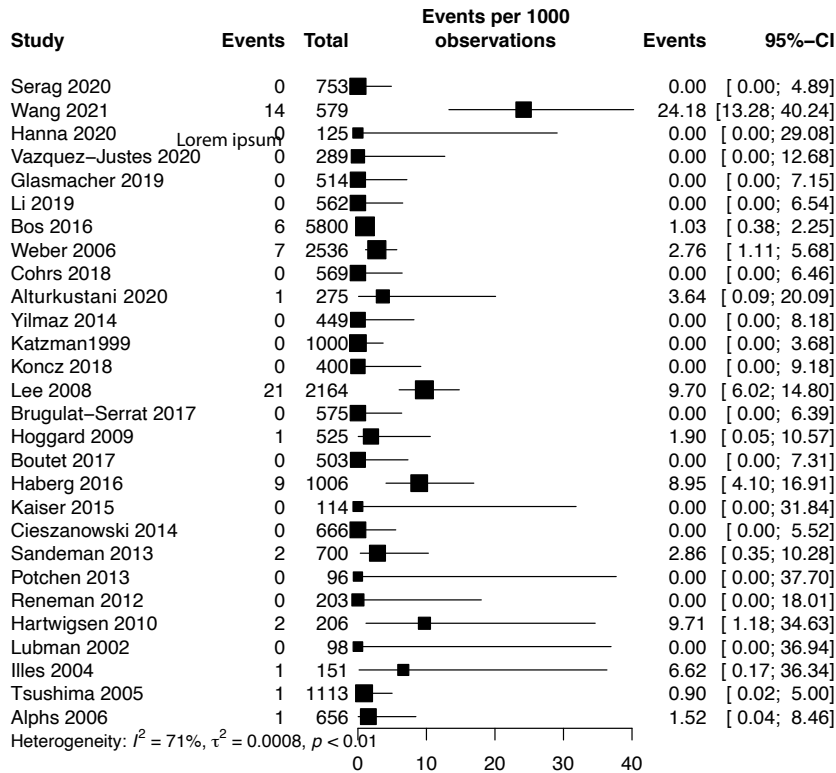
Aneurysm



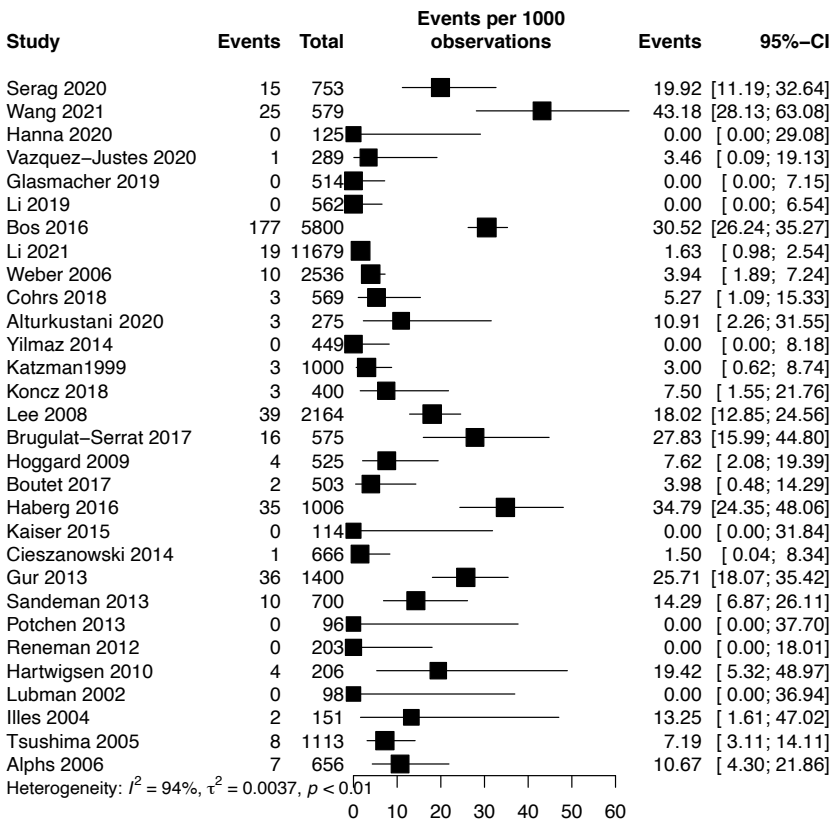
Cavernoma



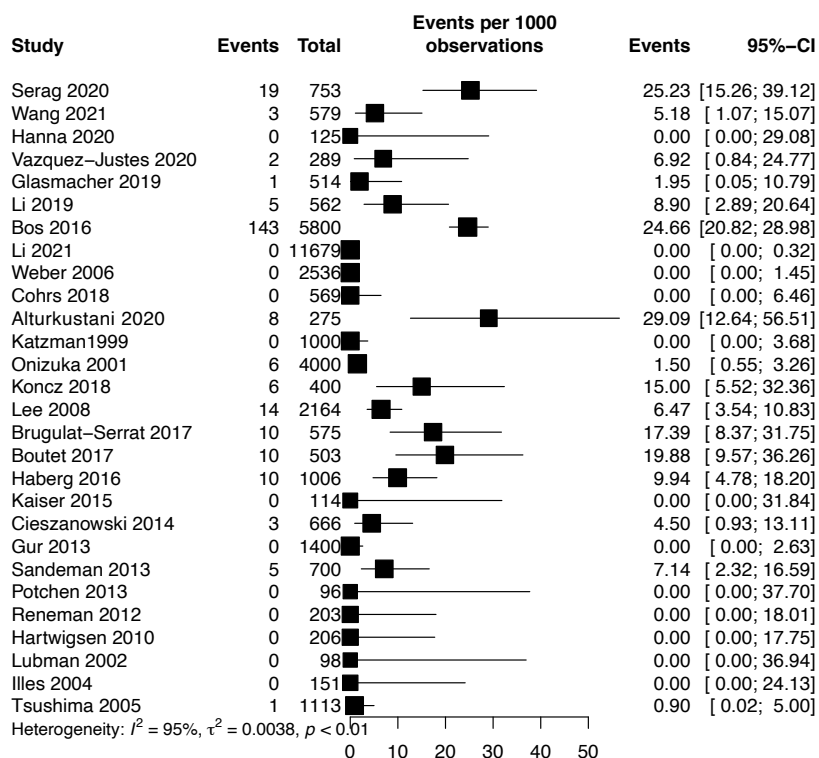
Other vascular



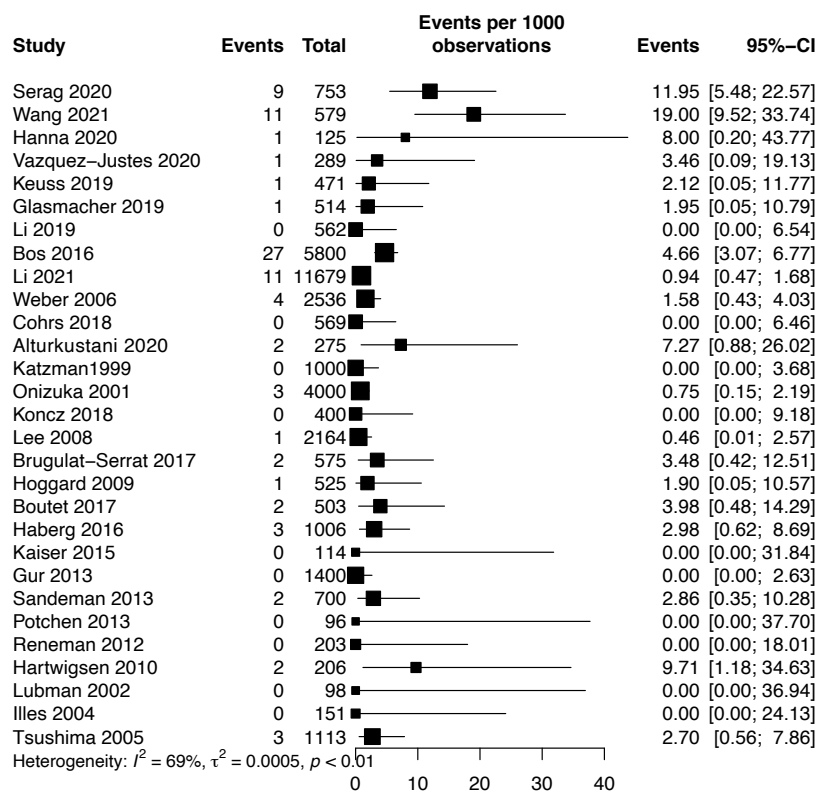
Any vascular



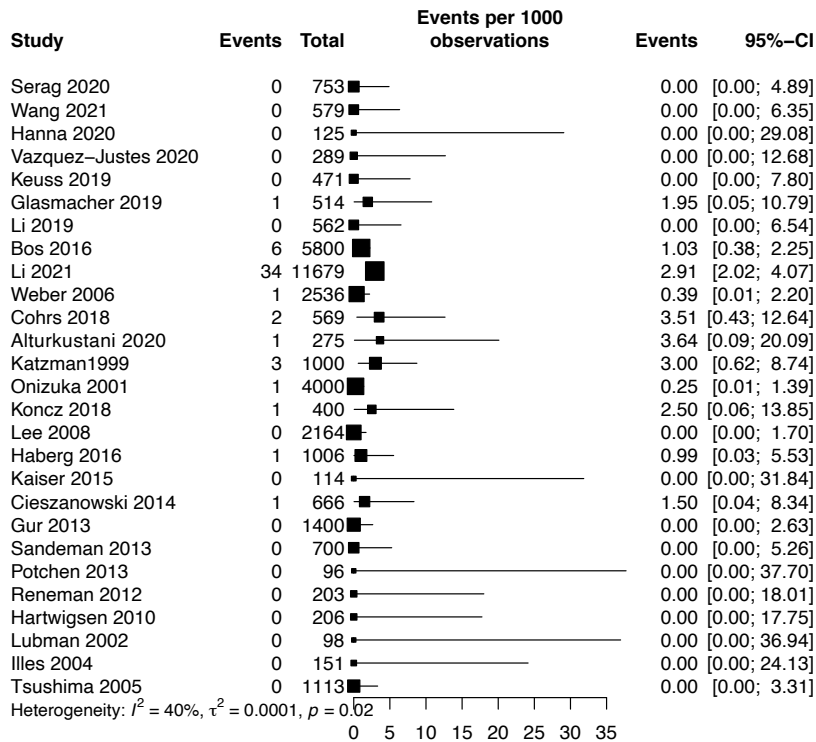
Meningioma



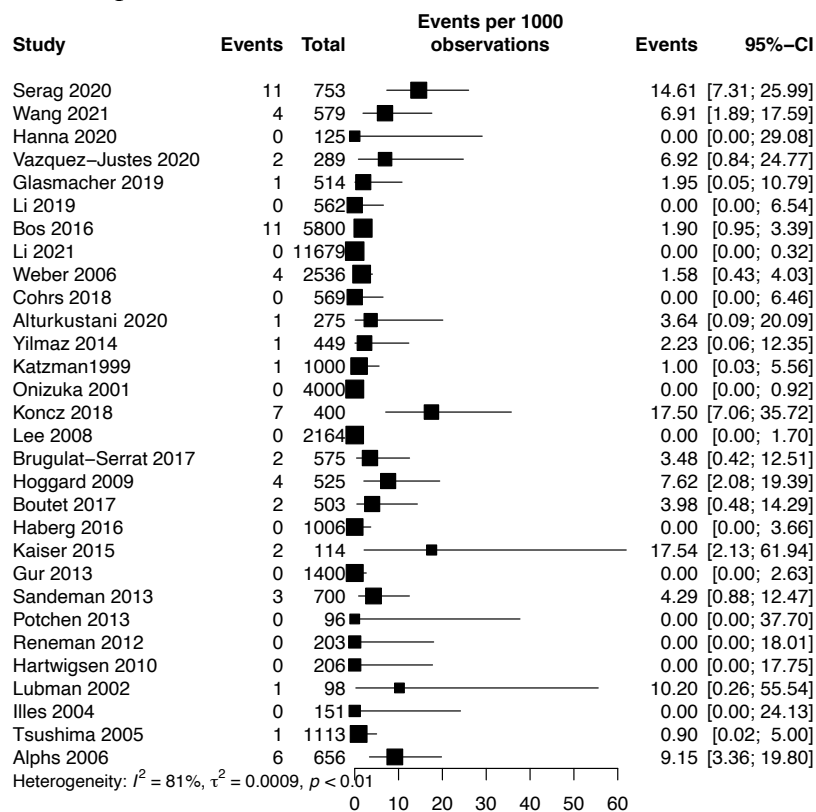
Pituitary



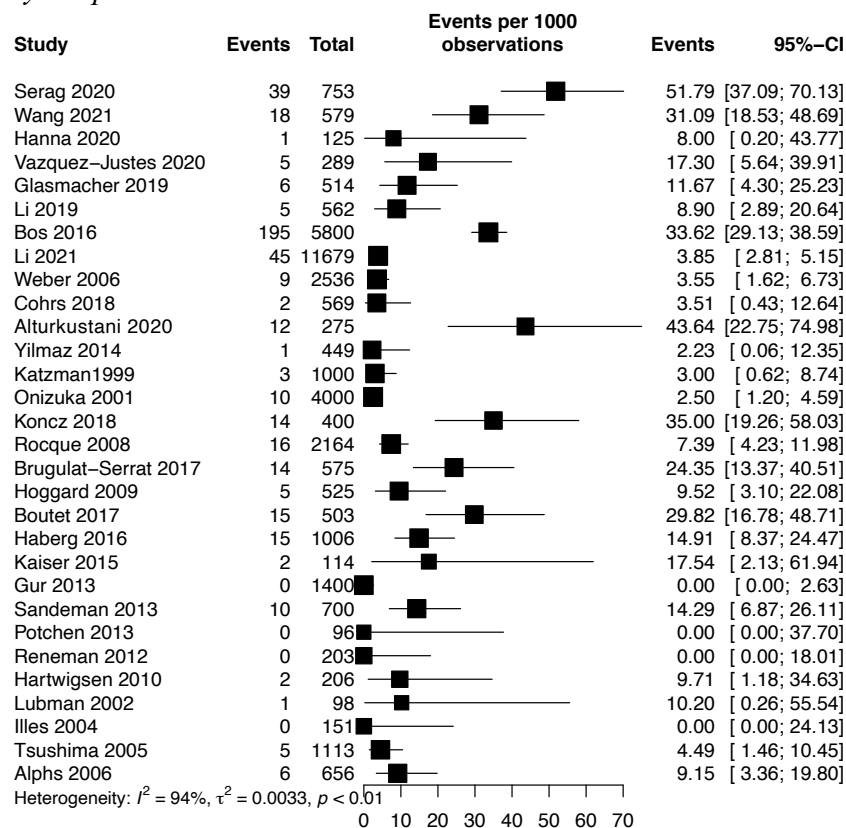
Glioma



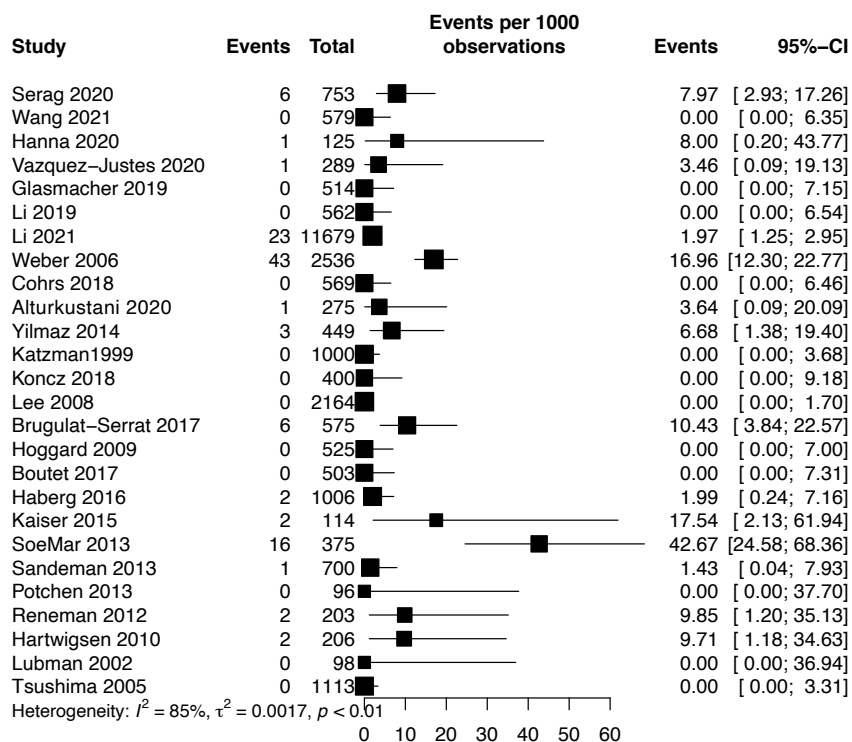
Other neoplasm



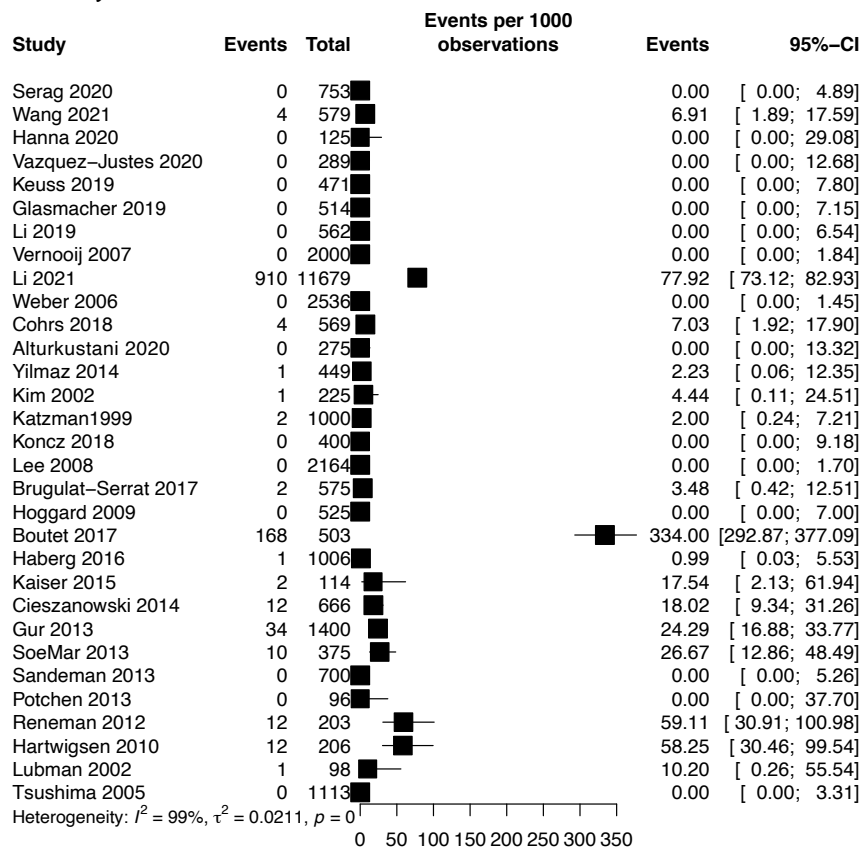
Any neoplasm



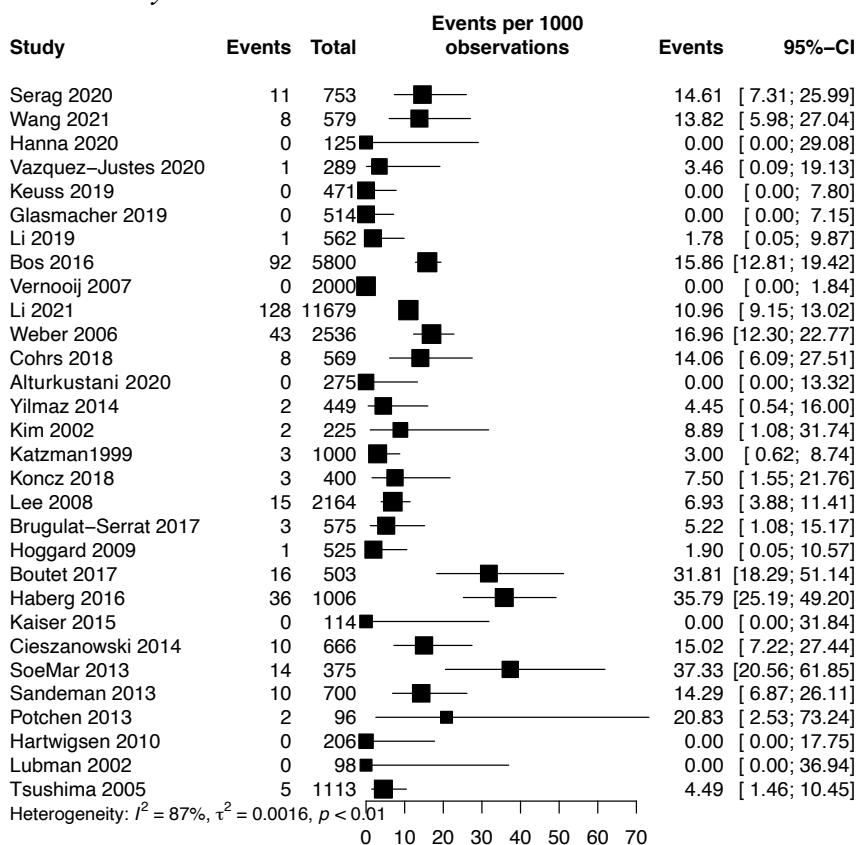
Chiari malformation



Pineal cyst



Arachnoid cyst



Supplementary Table I

Results of univariable meta-regressions for each analysis.

Var	Analysis	Studies	N	β	95%CI	R ²	p-value
Age	Any neoplastic	30	39,040	-0.000316	(0.000701 - 0.00234)	36.72	0.079
Male	Any neoplastic	30	39,040	-0.018000	(-0.221 - 0.0529)	2.16	0.53
Age	Any vascular	30	35,706	0.001680	(8.02e-05 - 0.00189)	12.84	<0.001
Male	Any vascular	30	35,706	-0.140000	(-0.17 - 0.0935)	0.00	0.059
Age	Aneurysm	29	34,306	0.000499	(0.000531 - 0.00184)	38.93	0.12
Male	Aneurysm	29	34,306	0.020900	(-0.114 - 0.0924)	0.00	0.65
Age	Arachnoid cyst	30	36,367	0.000232	(-0.000995 - 0.000706)	0.00	0.53
Male	Arachnoid cyst	30	36,367	-0.010100	(-0.135 - 0.157)	0.00	0.82
Age	Cavernoma	30	34,777	-0.000610	(-0.000122 - 0.00118)	10.20	0.55
Male	Cavernoma	30	34,777	-0.262000	(-0.174 - -0.0102)	19.03	0.14
Age	Chiari malformation	26	27,408	-0.000561	(-0.00184 - -0.00019)	18.30	0.032
Male	Chiari malformation	26	27,408	-0.050300	(-0.152 - 0.145)	0.00	0.28
Age	Glioma	27	37,469	-0.000316	(-0.000669 - 3.7e-05)	25.62	0.079
Male	Glioma	27	37,469	-0.018000	(-0.0746 - 0.0386)	0.00	0.53
Age	Meningioma	28	38,076	0.001680	(0.000961 - 0.0024)	51.64	<0.001
Male	Meningioma	28	38,076	-0.140000	(-0.286 - 0.00513)	11.77	0.059
Age	Other neoplastic	30	39,040	0.000499	(-0.000136 - 0.00113)	10.39	0.12
Male	Other neoplastic	30	39,040	0.020900	(-0.0705 - 0.112)	0.00	0.65
Age	Other vascular	28	22,627	0.000232	(-0.00049 - 0.000954)	0.00	0.53
Male	Other vascular	28	22,627	-0.010100	(-0.0963 - 0.0761)	0.00	0.82
Age	Pineal cyst	31	32,170	-0.000610	(-0.0026 - 0.00138)	0.00	0.55
Male	Pineal cyst	31	32,170	-0.262000	(-0.612 - 0.0879)	3.91	0.14
Age	Pituitary	29	38,406	0.000561	(4.95e-05 - 0.00107)	26.38	0.032
Male	Pituitary	29	38,406	-0.050300	(-0.141 - 0.0407)	0.00	0.28

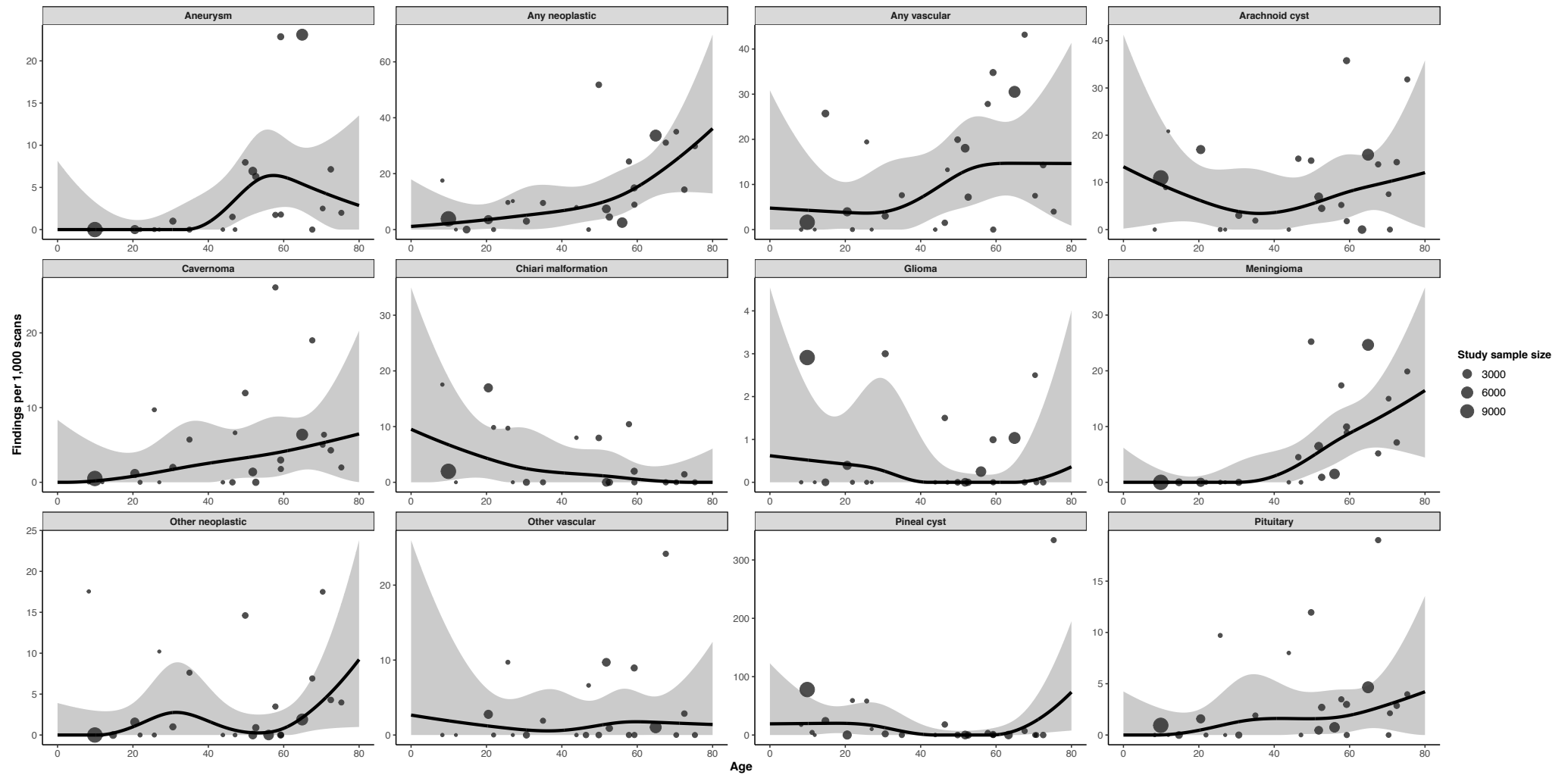
Supplementary Table II

Results of multivariable meta-regressions for each analysis.

Var	Analysis	Studies	N	β	95%CI	R ²	p-value
Age	Any neoplastic	30	39,040	0.001500	(0.000692 - 0.00231)	38.22	<0.001
Male	Any neoplastic	30	39,040	-0.078400	(-0.191 - 0.0338)		0.17
Age	Any vascular	30	35,706	0.000983	(7.03e-05 - 0.0019)	11.03	0.035
Male	Any vascular	30	35,706	-0.039100	(-0.163 - 0.0853)		0.54
Age	Aneurysm	29	34,306	0.001180	(0.000509 - 0.00185)	35.96	<0.001
Male	Aneurysm	29	34,306	-0.004390	(-0.0898 - 0.0811)		0.92
Age	Arachnoid cyst	30	36,367	-0.000140	(-0.00101 - 0.000731)	0.00	0.75
Male	Arachnoid cyst	30	36,367	0.008380	(-0.141 - 0.157)		0.91
Age	Cavernoma	30	34,777	0.000470	(-0.000142 - 0.00108)	25.42	0.13
Male	Cavernoma	30	34,777	-0.085900	(-0.166 - -0.00623)		0.035
Age	Chiari malformation	26	27,408	-0.001030	(-0.00188 - -0.000179)	12.87	0.018
Male	Chiari malformation	26	27,408	-0.017000	(-0.154 - 0.12)		0.81
Age	Glioma	27	37,469	-0.000378	(-0.000715 - -3.99e-05)	45.24	0.028
Male	Glioma	27	37,469	-0.033000	(-0.083 - 0.0169)		0.19
Age	Meningioma	28	38,076	0.001560	(0.000838 - 0.00228)	54.23	<0.001
Male	Meningioma	28	38,076	-0.091600	(-0.204 - 0.021)		0.11
Age	Other neoplastic	30	39,040	0.000509	(-0.000132 - 0.00115)	8.49	0.12
Male	Other neoplastic	30	39,040	0.025800	(-0.0615 - 0.113)		0.56
Age	Other vascular	28	22,627	0.000222	(-0.000521 - 0.000966)	0.00	0.56
Male	Other vascular	28	22,627	-0.006650	(-0.0945 - 0.0812)		0.88
Age	Pineal cyst	31	32,170	-0.000603	(-0.00255 - 0.00135)	1.82	0.54
Male	Pineal cyst	31	32,170	-0.261000	(-0.615 - 0.0922)		0.15
Age	Pituitary	29	38,406	0.000511	(-3.79e-05 - 0.00106)	17.99	0.068
Male	Pituitary	29	38,406	-0.027100	(-0.114 - 0.0597)		0.54

Supplementary Figure II

Relationship between proportions for each finding and age in each analysis, containing studies in healthy volunteers only. Points represent the findings of the individual studies, with size of the point proportional to the sample size of the study. The black line represents the fitted restricted cubic spline model, and the shaded area its 95% confidence interval.



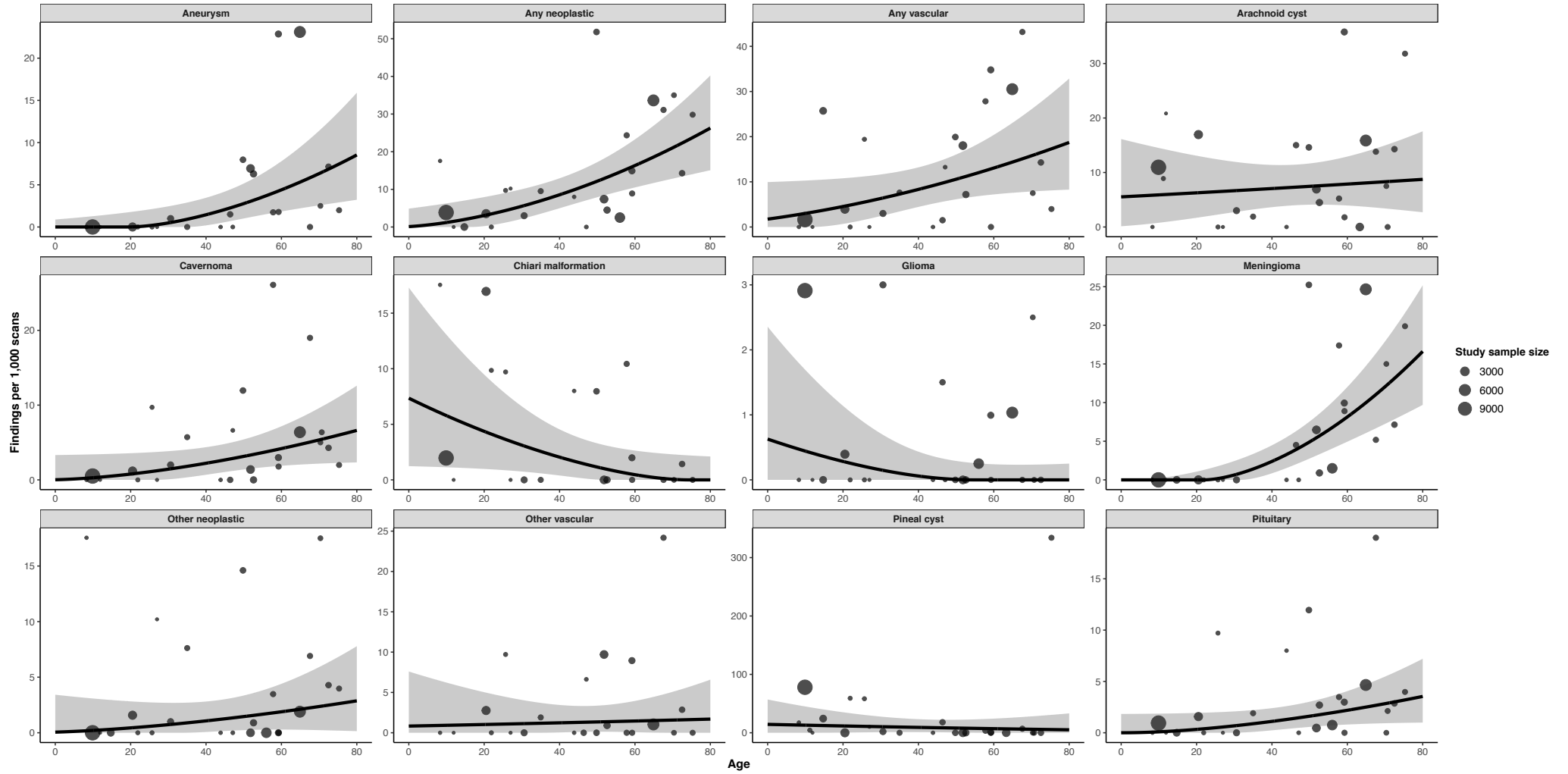
Supplementary Table III

Age-stratified estimates of proportions for each finding from restricted cubic spline models, limited to studies in healthy volunteers only.

Finding	Age - Findings /1,000 scans (95%CI)									
	1	5	10	20	30	40	50	60	70	80
Vascular										
<i>Aneurysm</i>	0 (0 - 8)	0 (0 - 5)	0 (0 - 3)	0 (0 - 1)	0 (0 - 2)	0.8 (0 - 5)	5 (1 - 10)	6 (3 - 11)	4 (0.8 - 10)	3 (0 - 14)
<i>Cavernoma</i>	0 (0 - 8)	0.03 (0 - 7)	0.2 (0 - 5)	0.8 (0 - 4)	2 (0 - 7)	3 (0.001 - 8)	3 (0.6 - 7)	4 (1 - 9)	5 (1 - 11)	6 (0.02 - 20)
<i>Other vascular</i>	3 (0 - 25)	2 (0 - 19)	2 (0 - 14)	1 (0 - 6)	0.7 (0 - 5)	0.6 (0 - 6)	1 (0 - 5)	2 (0 - 6)	2 (0 - 6)	1 (0 - 12)
<i>Any vascular</i>	5 (0 - 29)	5 (0 - 23)	4 (0 - 17)	4 (0.2 - 11)	4 (0 - 14)	7 (1 - 17)	12 (5 - 23)	15 (7 - 24)	15 (5 - 28)	15 (0.9 - 41)
Neoplastic										
<i>Meningioma</i>	0 (0 - 6)	0 (0 - 4)	0 (0 - 2)	0 (0 - 1)	0.0009 (0 - 4)	1 (0 - 6)	5 (1 - 9)	9 (5 - 14)	12 (6 - 21)	16 (4 - 35)
<i>Pituitary</i>	0 (0 - 4)	0 (0 - 3)	0.007 (0 - 3)	0.5 (0 - 2)	1 (0 - 5)	2 (0 - 5)	2 (0.1 - 4)	2 (0.3 - 4)	3 (0.5 - 7)	4 (0 - 14)
<i>Glioma</i>	0.6 (0 - 4)	0.6 (0 - 3)	0.5 (0 - 2)	0.4 (0 - 2)	0.3 (0 - 2)	0.01 (0 - 1)	0 (0 - 0.2)	0 (0 - 0.2)	0.05 (0 - 1)	0.4 (0 - 4)
<i>Other neoplastic</i>	0 (0 - 4)	0 (0 - 3)	0 (0 - 3)	1 (0 - 4)	3 (0 - 9)	2 (0 - 6)	0.4 (0 - 3)	0.8 (0 - 3)	4 (0.7 - 9)	9 (1 - 24)
<i>Any neoplastic</i>	1 (0 - 17)	2 (0 - 14)	2 (0 - 11)	4 (0.3 - 9)	5 (0.09 - 15)	7 (1 - 16)	9 (4 - 18)	15 (8 - 24)	25 (13 - 39)	36 (13 - 70)
Chiari malformation	9 (0 - 33)	8 (0.003 - 26)	7 (0.3 - 19)	4 (0.7 - 10)	3 (0 - 10)	2 (0 - 7)	1 (0 - 6)	0.6 (0 - 3)	0.07 (0 - 3)	0 (0 - 6)
Pineal cyst	19 (0 - 116)	19 (0 - 92)	20 (0.0007 - 67)	20 (3 - 50)	13 (0 - 52)	2 (0 - 19)	0 (0 - 7)	0.4 (0 - 13)	22 (2 - 60)	74 (8 - 195)
Arachnoid cyst	13 (0.3 - 39)	11 (0.7 - 31)	10 (1 - 23)	6 (1 - 14)	4 (0 - 13)	4 (0 - 12)	5 (1 - 12)	8 (3 - 16)	10 (4 - 19)	12 (0.4 - 36)

Supplementary Figure III

Relationship between age and proportion of findings derived from conventional linear regression models.



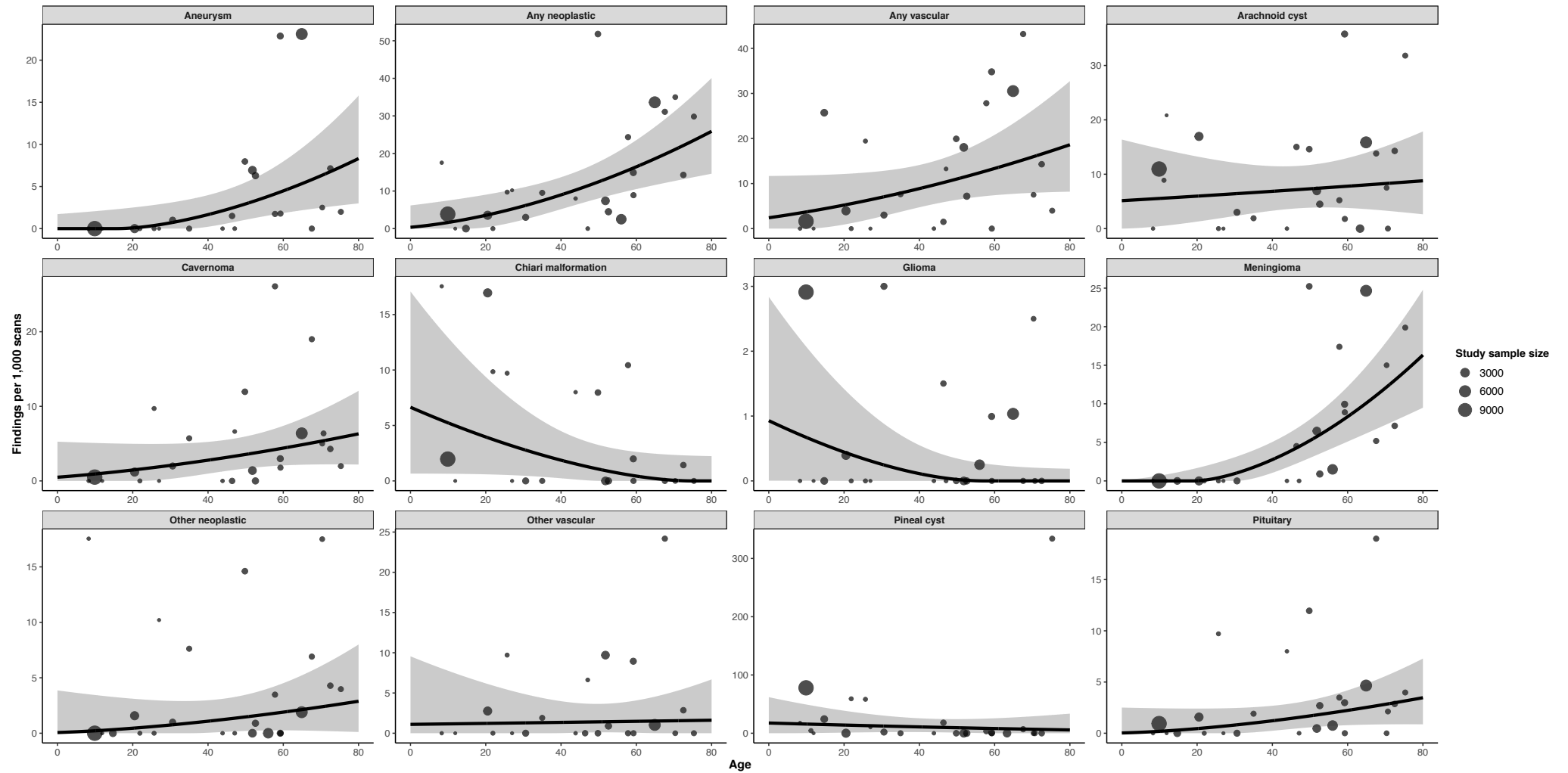
Supplementary Table IV

Age-stratified estimates of proportions, derived from univariable linear regression models.

Finding	Age - Findings /1,000 scans (95%CI)									
	1	5	10	20	30	40	50	60	70	80
Vascular										
<i>Aneurysm</i>	0 (0 - 0.9)	0 (0 - 1)	0 (0 - 1)	0.005 (0 - 2)	0.5 (0 - 2)	1 (0.2 - 3)	3 (1 - 5)	4 (2 - 8)	6 (3 - 11)	9 (3 - 16)
<i>Cavernoma</i>	0.03 (0 - 3)	0.1 (0 - 3)	0.3 (0 - 3)	0.8 (0 - 4)	1 (0.07 - 4)	2 (0.7 - 4)	3 (1 - 5)	4 (2 - 7)	5 (2 - 10)	7 (2 - 13)
<i>Other vascular</i>	0.8 (0 - 7)	0.9 (0 - 7)	0.9 (0 - 6)	1 (0 - 5)	1 (0 - 4)	1 (0.04 - 3)	1 (0.1 - 3)	1 (0.07 - 4)	2 (0 - 5)	2 (0 - 7)
<i>Any vascular</i>	2 (0 - 10)	2 (0 - 10)	3 (0 - 10)	5 (0.7 - 11)	6 (2 - 12)	8 (4 - 13)	11 (6 - 16)	13 (7 - 20)	16 (8 - 26)	19 (8 - 33)
Neoplastic										
<i>Meningioma</i>	0 (0 - 0)	0 (0 - 0.02)	0 (0 - 0.2)	0 (0 - 1)	0.6 (0 - 2)	2 (0.8 - 4)	5 (3 - 8)	8 (5 - 12)	12 (7 - 18)	17 (10 - 25)
<i>Pituitary</i>	0.0004 (0 - 2)	0.02 (0 - 2)	0.09 (0 - 2)	0.3 (0 - 2)	0.7 (0.002 - 2)	1 (0.2 - 2)	2 (0.6 - 3)	2 (0.8 - 4)	3 (0.9 - 5)	4 (1 - 7)
<i>Glioma</i>	0.6 (0 - 2)	0.5 (0 - 2)	0.4 (0 - 2)	0.3 (0 - 1)	0.2 (0 - 0.7)	0.06 (0 - 0.4)	0.007 (0 - 0.3)	0 (0 - 0.2)	0 (0 - 0.2)	0 (0 - 0.3)
<i>Other neoplastic</i>	0.07 (0 - 3)	0.1 (0 - 3)	0.2 (0 - 3)	0.4 (0 - 3)	0.7 (0 - 3)	1 (0.07 - 3)	1 (0.2 - 3)	2 (0.3 - 4)	2 (0.2 - 6)	3 (0.1 - 8)
<i>Any neoplastic</i>	0.2 (0 - 5)	0.5 (0 - 6)	1 (0 - 6)	3 (0.2 - 8)	6 (2 - 10)	9 (5 - 13)	12 (8 - 17)	16 (11 - 23)	21 (13 - 31)	26 (15 - 40)
Chiari malformation	7 (1 - 17)	7 (1 - 15)	6 (1 - 13)	4 (1 - 9)	3 (0.8 - 7)	2 (0.4 - 5)	1 (0.03 - 3)	0.5 (0 - 3)	0.05 (0 - 2)	0 (0 - 2)
Pineal cyst	14 (0 - 56)	14 (0 - 51)	13 (0 - 45)	12 (0.3 - 35)	10 (0.9 - 28)	9 (1 - 23)	8 (0.5 - 22)	7 (0 - 24)	6 (0 - 28)	5 (0 - 33)
Arachnoid cyst	6 (0.2 - 16)	6 (0.4 - 15)	6 (0.8 - 14)	6 (2 - 13)	7 (3 - 12)	7 (4 - 11)	7 (4 - 12)	8 (4 - 13)	8 (3 - 15)	9 (3 - 18)

Supplementary Figure IV

Relationship between age and proportions for each finding, derived from linear regression models adjusted for both age and gender. Models are fitted with gender proportion held at an equal number of males and females.



Supplementary Table V

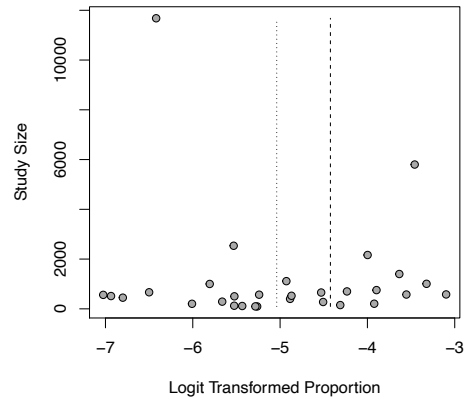
Age-stratified estimates of proportions for each finding, derived from multivariable linear regression models adjusted for age and gender proportion. Estimates are derived from predictions assuming each and an equal distribution of males and females.

Finding	Age - Findings /1,000 scans (95%CI)									
	1	5	10	20	30	40	50	60	70	80
Vascular										
<i>Aneurysm</i>	0 (0 - 2)	0 (0 - 2)	0 (0 - 2)	0.08 (0 - 3)	0.7 (0 - 3)	2 (0.2 - 4)	3 (1 - 5)	4 (2 - 8)	6 (2 - 11)	8 (3 - 16)
<i>Cavernoma</i>	0.5 (0 - 5)	0.7 (0 - 5)	0.9 (0 - 5)	1 (0 - 5)	2 (0.3 - 5)	3 (1 - 5)	4 (2 - 6)	4 (2 - 7)	5 (2 - 9)	6 (2 - 12)
<i>Other vascular</i>	1 (0 - 9)	1 (0 - 9)	1 (0 - 8)	1 (0 - 6)	1 (0 - 5)	1 (0.01 - 4)	1 (0.1 - 4)	1 (0.06 - 4)	2 (0 - 5)	2 (0 - 7)
<i>Any vascular</i>	3 (0 - 12)	3 (0 - 12)	4 (0 - 12)	5 (0.9 - 12)	7 (3 - 13)	9 (5 - 14)	11 (6 - 17)	13 (7 - 21)	16 (8 - 26)	19 (8 - 33)
Neoplastic										
<i>Meningioma</i>	0 (0 - 0.1)	0 (0 - 0.3)	0 (0 - 0.7)	0.02 (0 - 2)	1 (0 - 3)	3 (1 - 5)	5 (3 - 8)	8 (5 - 12)	12 (7 - 18)	16 (9 - 25)
<i>Pituitary</i>	0.04 (0 - 2)	0.09 (0 - 2)	0.2 (0 - 2)	0.5 (0 - 2)	0.8 (0.002 - 2)	1 (0.2 - 3)	2 (0.6 - 3)	2 (0.8 - 4)	3 (0.9 - 6)	3 (0.9 - 7)
<i>Glioma</i>	0.9 (0.003 - 3)	0.8 (0.003 - 2)	0.7 (0.002 - 2)	0.4 (0.0004 - 1)	0.3 (0 - 0.9)	0.1 (0 - 0.6)	0.02 (0 - 0.3)	0 (0 - 0.2)	0 (0 - 0.2)	0 (0 - 0.2)
<i>Other neoplastic</i>	0.07 (0 - 4)	0.1 (0 - 4)	0.2 (0 - 3)	0.5 (0 - 3)	0.7 (0 - 3)	1 (0.04 - 3)	1 (0.2 - 3)	2 (0.3 - 5)	2 (0.2 - 6)	3 (0.1 - 8)
<i>Any neoplastic</i>	0.4 (0 - 6)	0.9 (0 - 7)	2 (0 - 7)	4 (0.3 - 9)	6 (2 - 11)	9 (5 - 14)	12 (8 - 18)	16 (11 - 24)	21 (13 - 31)	26 (15 - 40)
Chiari malformation	6 (0.7 - 17)	6 (0.7 - 15)	5 (0.6 - 13)	4 (0.6 - 9)	3 (0.5 - 7)	2 (0.2 - 4)	1 (0.003 - 3)	0.4 (0 - 3)	0.06 (0 - 2)	0 (0 - 2)
Pineal cyst	17 (0 - 61)	17 (0.01 - 55)	16 (0.2 - 49)	14 (1 - 39)	12 (2 - 31)	11 (2 - 26)	9 (1 - 24)	8 (0.03 - 26)	7 (0 - 29)	6 (0 - 34)
Arachnoid cyst	5 (0.01 - 16)	5 (0.1 - 16)	6 (0.4 - 15)	6 (1 - 13)	6 (2 - 12)	7 (3 - 11)	7 (4 - 12)	8 (4 - 13)	8 (3 - 15)	9 (3 - 18)

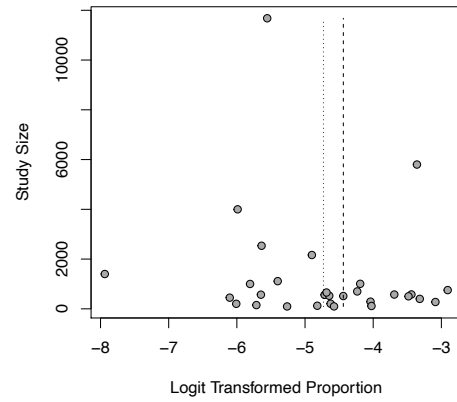
Supplementary Figure V

Funnel plots for each analysis. Funnel plots are plots of sample size versus log odds, as conventional funnel plots may be inaccurate in estimates of rare proportions.

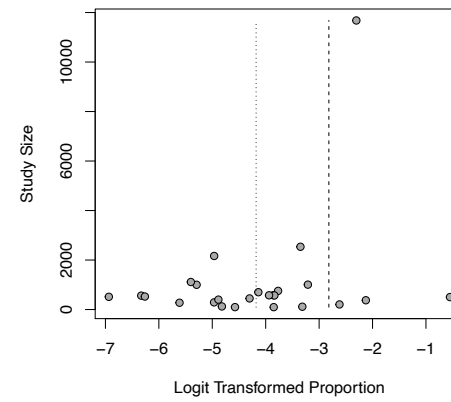
Vascular findings



Neoplastic findings



Other findings



Supplementary Table VI

Regression coefficients for publication year (newer versus older) from multivariable meta-regression models additionally adjusted for age.

Analysis	β (95%CI)	p-value
Vascular		
<i>Aneurysm</i>	-0.000774 (-0.00301 - 0.00147)	0.498
<i>Cavernoma</i>	0.00171 (-0.000445 - 0.00386)	0.120
<i>Other vascular</i>	-0.000431 (-0.0029 - 0.00204)	0.732
<i>Any vascular</i>	3.73e-05 (-0.00323 - 0.00331)	0.982
Neoplastic		
<i>Meningioma</i>	0.00289 (0.000934 - 0.00485)	0.004
<i>Pituitary</i>	0.00166 (0.00023 - 0.00308)	0.023
<i>Glioma</i>	0.000947 (7.06e-05 - 0.00182)	0.034
<i>Other neoplastic</i>	0.00102 (-0.00102 - 0.00307)	0.326
<i>Any neoplastic</i>	0.00416 (0.00206 - 0.00627)	<0.001
Chiari malformation	0.00115 (-0.00192 - 0.00422)	0.464
Pineal cyst	0.00302 (-0.00462 - 0.0107)	0.438
Arachnoid cyst	0.00122 (-0.00194 - 0.00438)	0.450

Supplementary Table VII

Proportions (findings per 1,000 scans) for each analysis with versus without contrast estimated from meta-regression regression models additionally adjusted for age. Proportions relate to the median age for the analysis in question.

Analysis	β (95%CI)	Contrast	No contrast	p-value
Vascular				
<i>Aneurysm</i>	0.0111 (-0.0224 - 0.0447)	2.87 (0.466 - 6.68)	1.62 (0.086 - 4.34)	0.515
<i>Cavernoma</i>	-0.00663 (-0.0385 - 0.0252)	2.66 (0.409 - 6.24)	3.51 (1.22 - 6.67)	0.683
<i>Other vascular</i>	0.0067 (-0.0258 - 0.0392)	1.08 (0 - 3.73)	0.561 (0 - 2.61)	0.686
<i>Any vascular</i>	-0.0026 (-0.0472 - 0.042)	8.25 (2.82 - 16)	8.76 (3.87 - 15.3)	0.909
Neoplastic				
<i>Meningioma</i>	0.0056 (-0.0298 - 0.041)	6.44 (2.54 - 11.8)	5.5 (2.21 - 9.96)	0.756
<i>Pituitary</i>	0.00537 (-0.019 - 0.0297)	2.45 (0.621 - 5.11)	1.85 (0.528 - 3.73)	0.666
<i>Glioma</i>	-0.00526 (-0.0211 - 0.0105)	0.0484 (0 - 0.645)	0.244 (0 - 0.951)	0.514
<i>Other neoplastic</i>	-0.00105 (-0.0321 - 0.03)	1.82 (0.0913 - 4.9)	1.93 (0.285 - 4.53)	0.947
<i>Any neoplastic</i>	0.00215 (-0.0394 - 0.0437)	13.2 (6.56 - 21.8)	12.7 (7.03 - 19.7)	0.919
Chiari malformation	0.0153 (-0.026 - 0.0567)	4.01 (0.607 - 9.52)	2.06 (0.0606 - 5.8)	0.467
Pineal cyst	-0.0445 (-0.147 - 0.0578)	2.99 (0 - 20.1)	10.7 (1.06 - 28.1)	0.394
Arachnoid cyst	0.0242 (-0.0175 - 0.0658)	11.5 (5.03 - 20.1)	6.63 (2.89 - 11.6)	0.255