SUPPLMENTAL MATERIAL

Supplemental Table 1

		Surgical Clipping			Endovascular Treatment		
Study	**Year**	**Death***	**Disabled***	**Total**	**Death***	**Disabled***	**Total**
Birski	2014	1	1	45	2	3	31
Brilstra	2004	0.5	4.5	32	1	1	19
Brunken	2009	0.5	12.5	51	1	16	87
Dammann	2014	0.5	7.5	87	0.5	1.5	16
Iwamuro	2007	0.5	4.5	78	0.5	0.5	54
Johnston	2000	1	10	68	1	5	62
Kim	2010	3	11	846	2	8	824
Park	2014	0.5	0.5	12	0.5	0.5	39
Song	2015	2	3	558	0.5	1.5	566
Wiebers	2003	29	55	1917	8	10	451
Alawi	2014	1	5	70	7	40	778
Barker	2004	73	557	3498	7	31	421
Brinkij	2011	345	4184	29918	215	1655	34125
Higashida	2007	47	202	1881	6	37	654
Jalbert	2015	92	1912	4357	120	1196	7942
Johnston	1999	54	382	2357	1	26	255
Johnston	2001	59	373	1699	2	34	370
McDonald	2013	10	232	1380	7	56	1380

* 0.5 was added when there were 0 events to allow estimation. Disabled was calculated from subtracting "death" and "favorable functional outcome" from the total, resulting in values ending in 0.5.

Supplemental Table 2

Strategy	Cost[a]	Incr. Cost	QALY[a]	Incr. QALY	ICER	Category[b]
No Screen	90	0	24.212	0.000	0	Undominated
Screen: 10	1617	1527	24.246	0.033	45921	Undominated
Screen: 10, 20	2562	944	24.260	0.014	65243	Undominated
Screen: 10, 15, 20	2798	236	24.261	0.001	285995	Extended dominance
Screen: 10, 20, 30	3157	359	24.266	0.005	75700	Undominated
Screen: 10, 15, 20, 25	3214	57	24.265	-0.001	-52328	Absolute dominance
Screen: 10, 20, 30, 40	3513	355	24.267	0.001	265764	Undominated
Screen: 10, 20, 30, 40, 50	3703	190	24.267	0.000	-1303878	Absolute dominance
Screen: 10-35, q5	3801	288	24.268	0.001	465687	Undominated
Screen: 10-45, q5	4253	452	24.268	0.000	25327626	Undominated

ICER = incremental cost-effectiveness ratio
[a]QALYs and costs discounted at 3% per year
[b]There are 3 categories: undominated, extended dominance, and absolute dominance. Extended dominance means that a strategy (screen: 10, 15, 20) has a higher ICER than a more expensive but more efficient option (in this case, screen: 10, 20, and 30) relative to Screen: 10, 20. Absolute dominance means that the strategy is more costly and less effective than the comparative strategy.[1] Dominated strategies are removed from the final cost-effectiveness analysis.

Supplemental Figure Legends

Supplemental Figure 1 A simplified version of the tree. Circles represent possible chance events (transitions) and triangles represent the subsequent health state at the end of a Markov cycle.

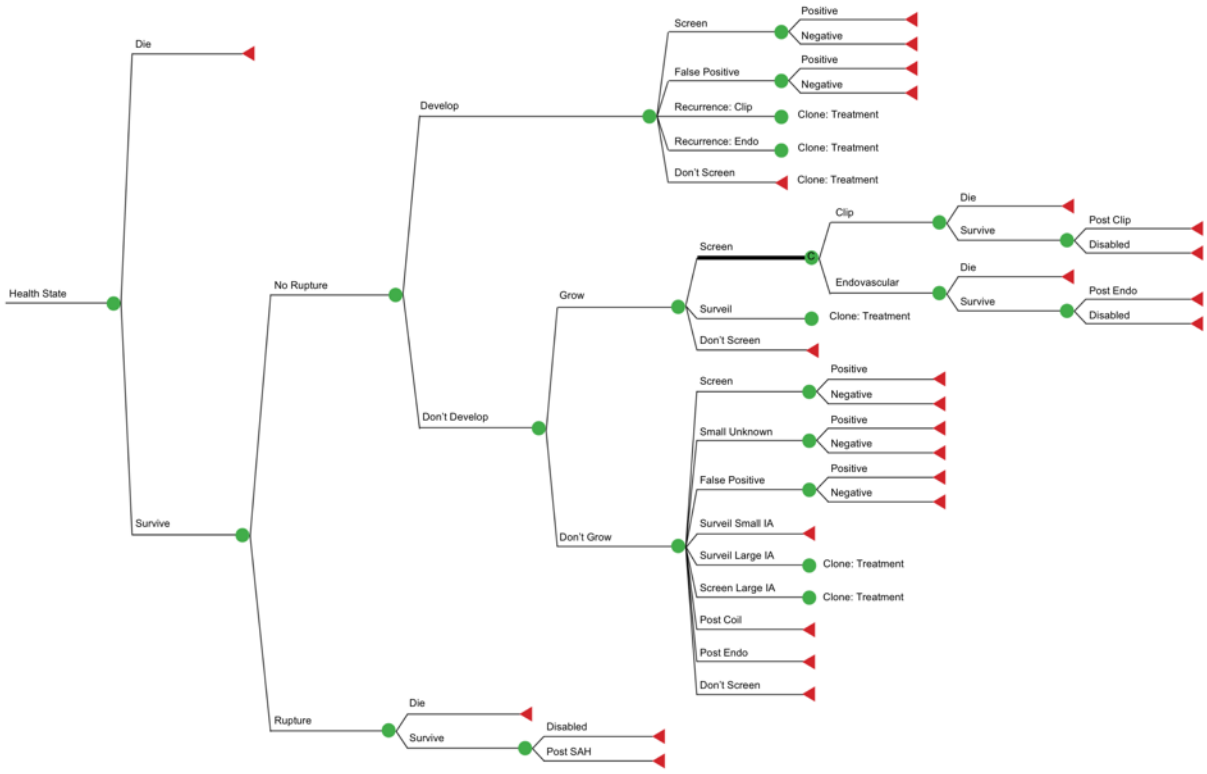
Supplemental Figure 2 Calibration results resulted in an annual aneurysm development rate of 0.00439 (based on minimizing the least squares difference). Model-estimated prevalence of intracranial aneurysm (IA) is plotted by age. The orange circles represent the reported prevalence of IA at a median age from three previously published studies.[2–4]

Supplemental Figure 3 Tornado diagrams of one-way sensitivity analyses to demonstrate the effects of varying parameters on the incremental cost-effectiveness ratio (ICER) for screening at age 10 years vs. no screening versus (a), and screening at ages 10 and 20 versus at age 10 years (b). The wider bars at the top have the greatest effect on the ICER, while variations in inputs at the bottom have small effects. The willingness-to-pay (WTP) line is at an ICER of $150,000. Variables that accounted for less than 0.1% of total uncertainty were excluded from the diagram.

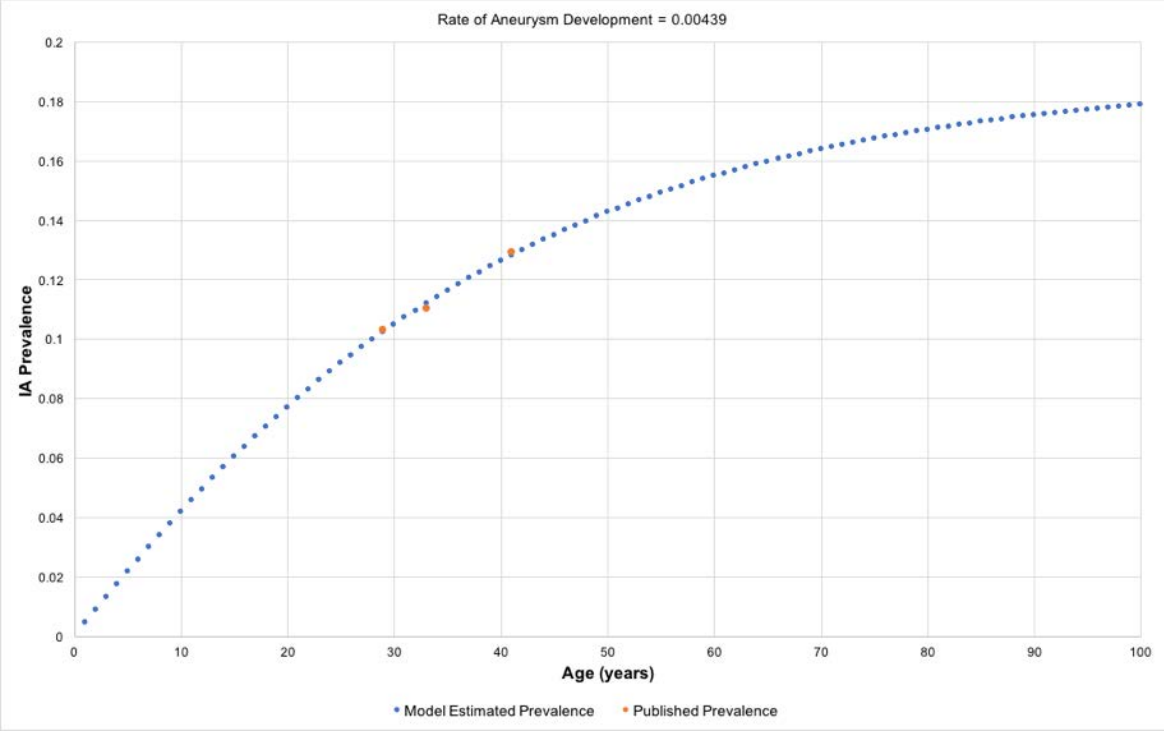
Supplemental Figure 4 One-way sensitivity analysis of the annual probability a small aneurysm (< 5 mm) grows versus net monetary benefit (higher is better) at a willingness-to-pay threshold of $150,000 per quality adjusted life year (QALY). Growth is defined by increase in size ≥1.0 mm or an undisputable change in aneurysm shape (i.e. change from regular shape to irregular shape). At the base-case value of 0.057, screening at ages 10, 20, and 30 is preferred. If

probability of growth falls below 0.027, screening at ages 10 and 20 is preferred; and below 0.0098, screening at age 10; and then below 0.0051, no screening.

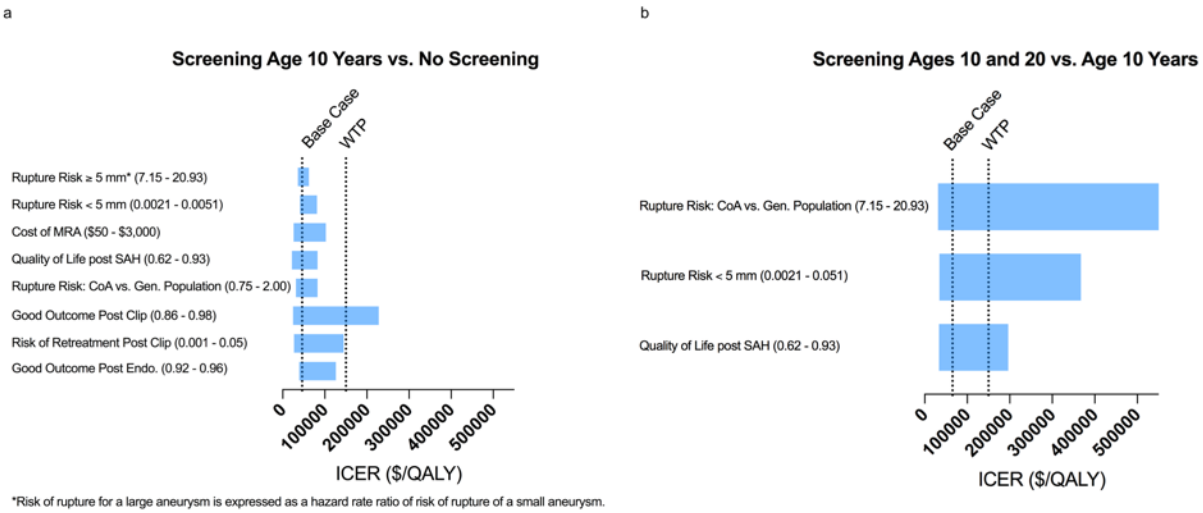
Supplemental Figure 1



Supplemental Figure 2



Supplemental Figure 3



Supplemental Figure 4