

The logo for LINC (Lung Cancer International Network for Clinical Research) features a stylized blue and red swoosh with the letters 'LINC' in white.

LINC

Effectiveness and durability of open versus endovascular repair of abdominal aortic aneurysm in octogenarians



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Disclosure

Speaker name:

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I do not have any potential conflict of interest

Incidence of abdominal aortic aneurysm (AAA) in Hong Kong

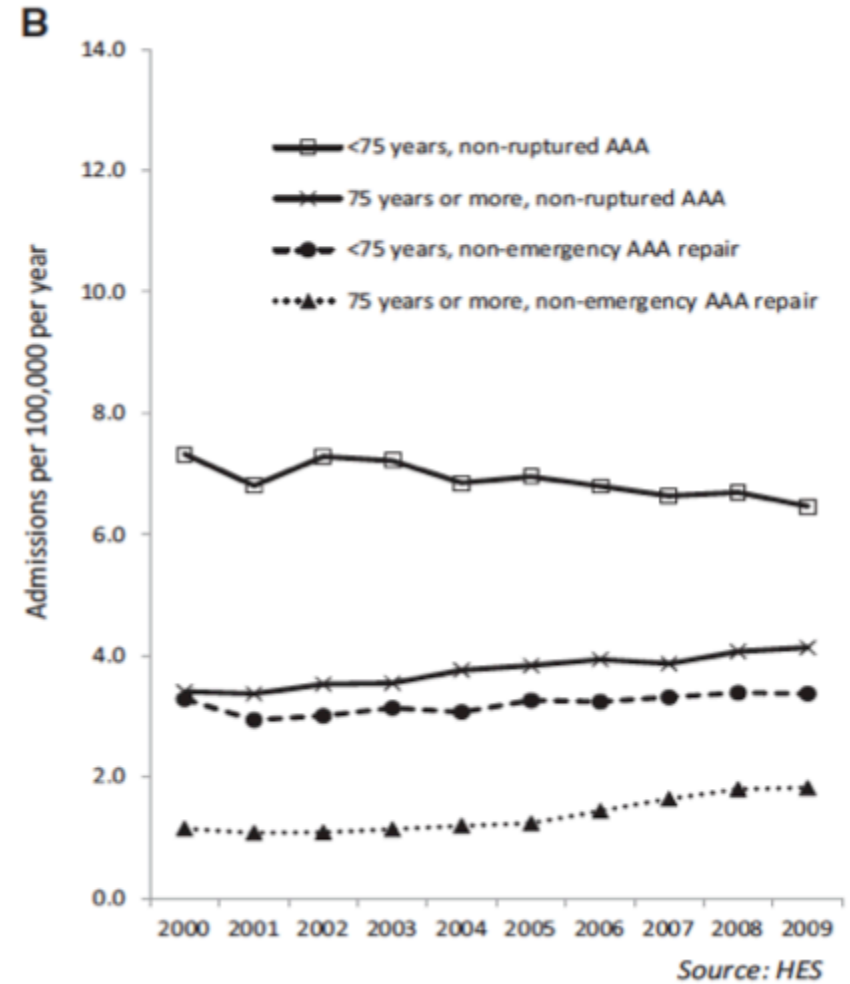
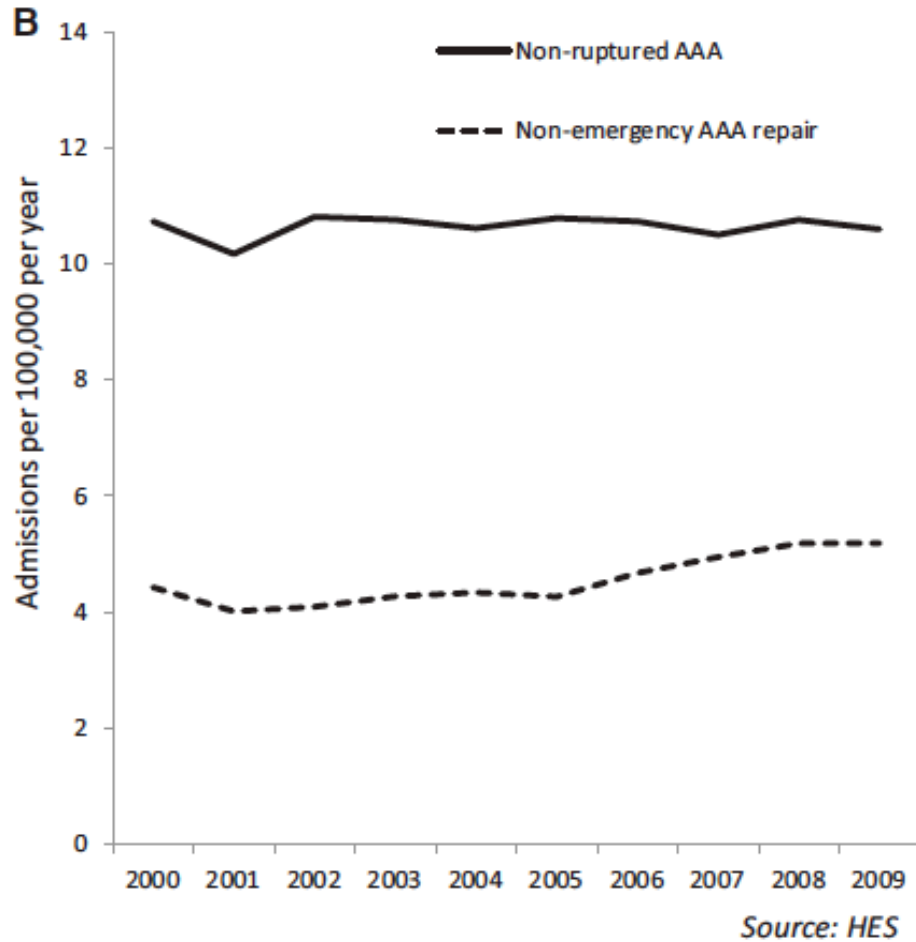
Overall: 13.7 per 100,000

Aged 65 or above: 105 per 100,000

Mean age: 74



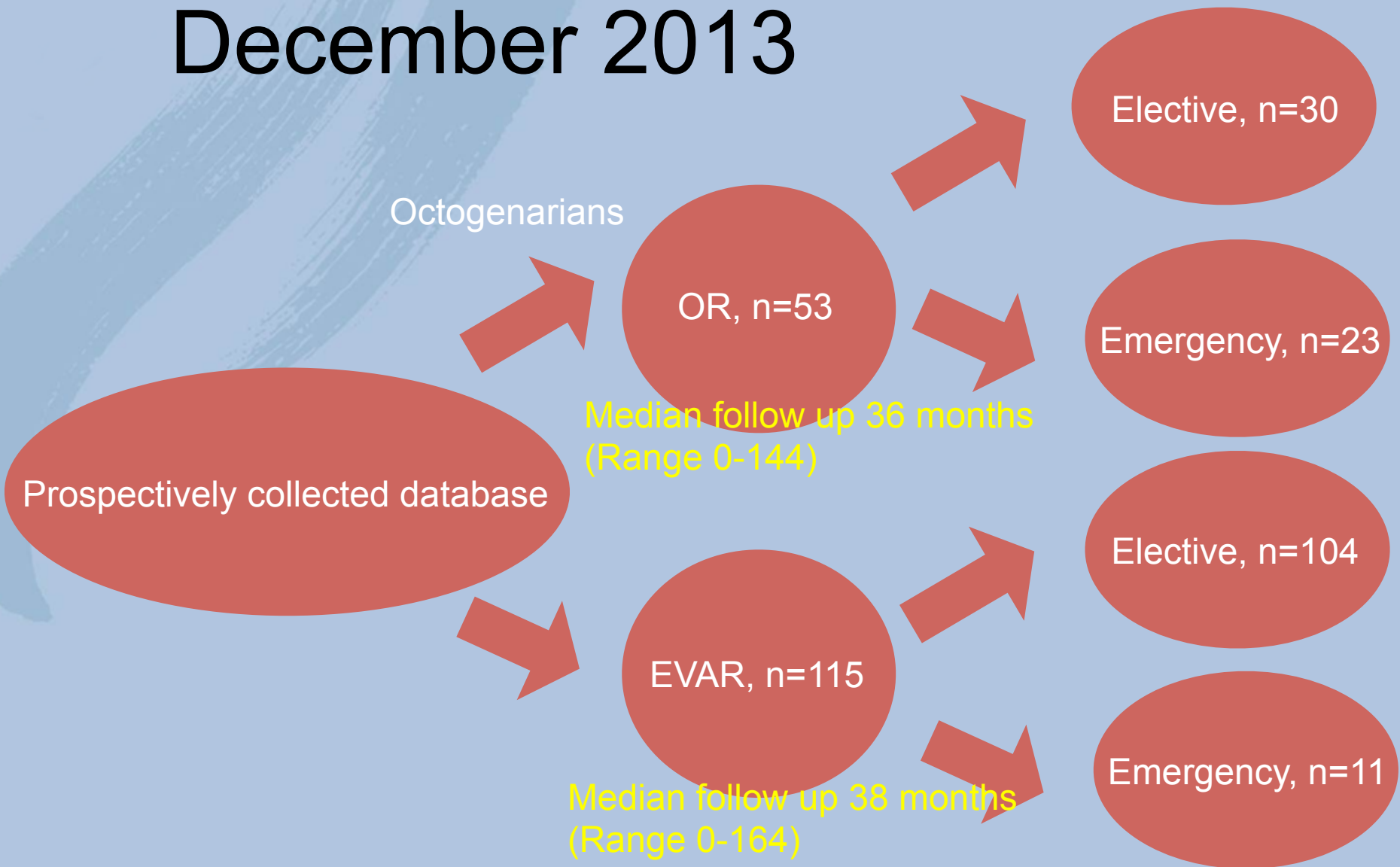
Shift of AAA to an older population



Methods

- Aim: compare short and long term outcomes of open repair (OR) v.s. endovascular repair (EVAR) in octogenarians
- Consecutive patients aged between 80-89 in a prospectively collected departmental database
- Short term: 30 days mortality and complications
- Long term: overall survival and re-intervention

January 1999- December 2013



Baseline patients' characteristics

	OR (n=53)	EVAR (n=115)	P Value
Age	83.2 (range 80-89)	83.6 (range 80-89)	NS*
Male: female	37:16	90:25	NS^
ASA grade			
- I-II	15 (28%)	15 (13%)	0.029^
- III-V	38 (72%)	100 (87%)	
Comorbidities			
- Smoking	10 (19%)	56 (57%)	<0.001^
- Hypertension	32 (60%)	73 (63%)	NS^
- Diabetes mellitus	4 (8%)	20 (17%)	NS^
- Heart disease	20 (38%)	53 (46%)	NS^
- CVA	7 (13%)	26 (23%)	NS^
- Lung disease	8 (15%)	16 (14%)	NS^
- Renal disease	18 (34%)	44 (38%)	NS^
Nature of operation			
- Emergency	23 (43%)	11 (10%)	<0.001^
- Elective	30 (57%)	104 (90%)	

* Student t test, ^Chi square test

Baseline aneurysms' characteristics

	OR (n=53)	EVAR (n=115)	P Value
Diameter (cm)	7.1 (range 5.0-10.0)	6.1 (range 3.3-9.2)	<0.001*
Proximal extension			
- Thoracoabdominal/ Suprarenal/ Juxtarenal/Pararenal	8 (15%)	7 (6%)	NS^
- Infrarenal	45 (85%)	108 (94%)	
Iliac involvement	20 (38%)	41 (36%)	NS^
Operation time (minutes)	204 (range 35-540)	183 (range 50-520)	0.125^
Operation blood loss (ml)	1850 (range 200-8000)	823 (range 50-2000)	<0.001^

* Student t test, ^Chi square test

30 days mortalities

	OR (n=53)	EVAR (n=115)	P Value
Emergency	9/23 (39.1%)	3/11 (27.2%)	0.705 [^]
Elective	2/30 (6.7%)	0/104 (0%)	0.049 [^]
Overall	11/53 (20.8%)	3/115 (2.6%)	<0.001 [^]

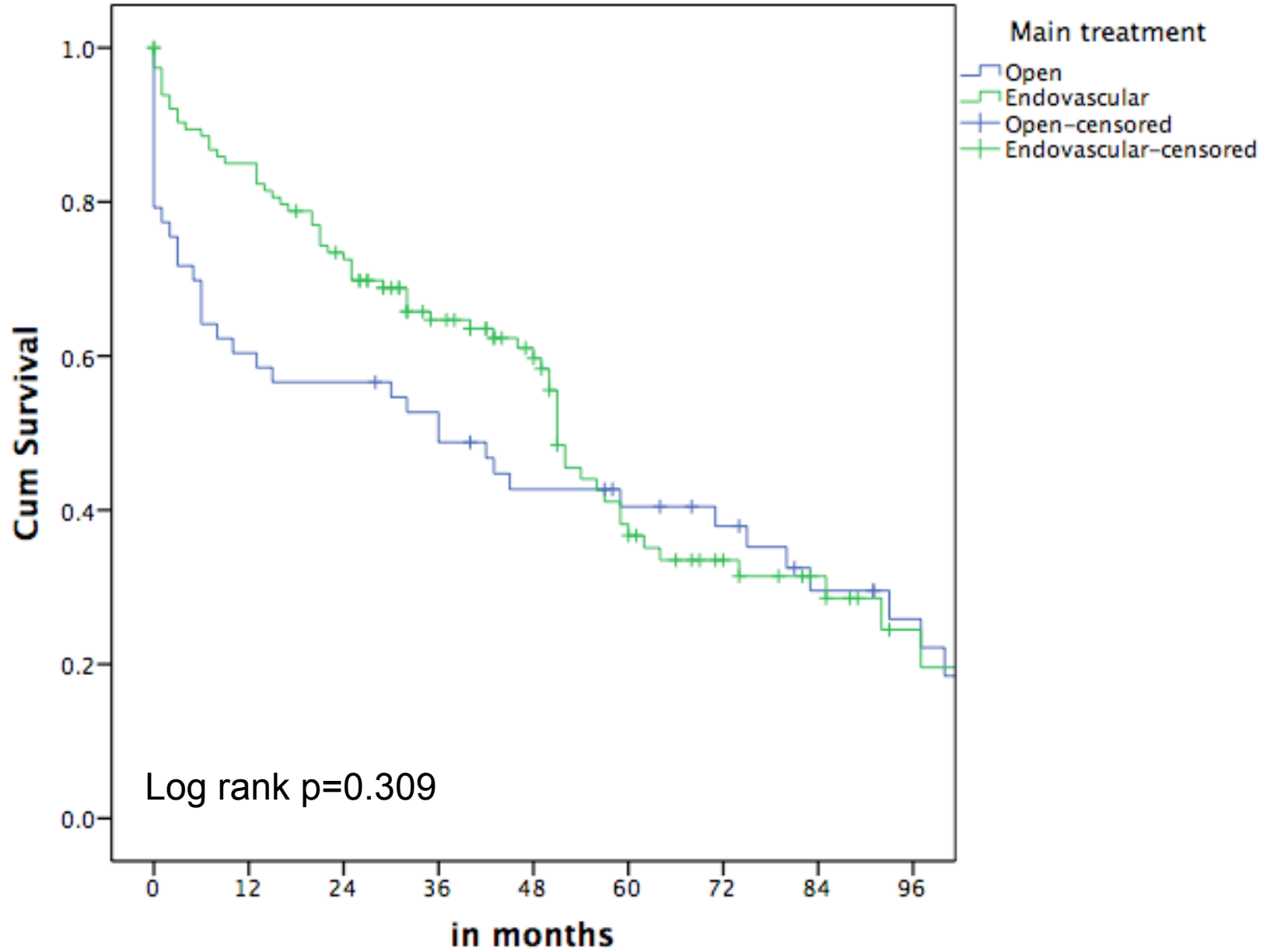
[^]Chi square test

Post-operative complications

	OR (n=53)	EVAR (n=115)	P Value
Cardiac			
- Minor	13	6	<0.001 [^]
- Symptomatic		6	
- Cardiac arrest/fatal	6	2	
Respiratory			
- Minor	16	8	<0.001 [^]
- Bronchial toilet	4		
- Tracheostomy	3	1	
- Ventilator/ fatal	3	3	
Renal			
- Transient, no dialysis	9	3	0.004 [^]
- Transient, dialysis	1	1	
- Permanent/fatal		4	
CVA			
- TIA	1	2	NS [^]
- Permanent deficit	1	1	
- Fatal			
GI tract	3		0.03 [^]
Local complications	5	14	NS [^]

[^]Chi square test

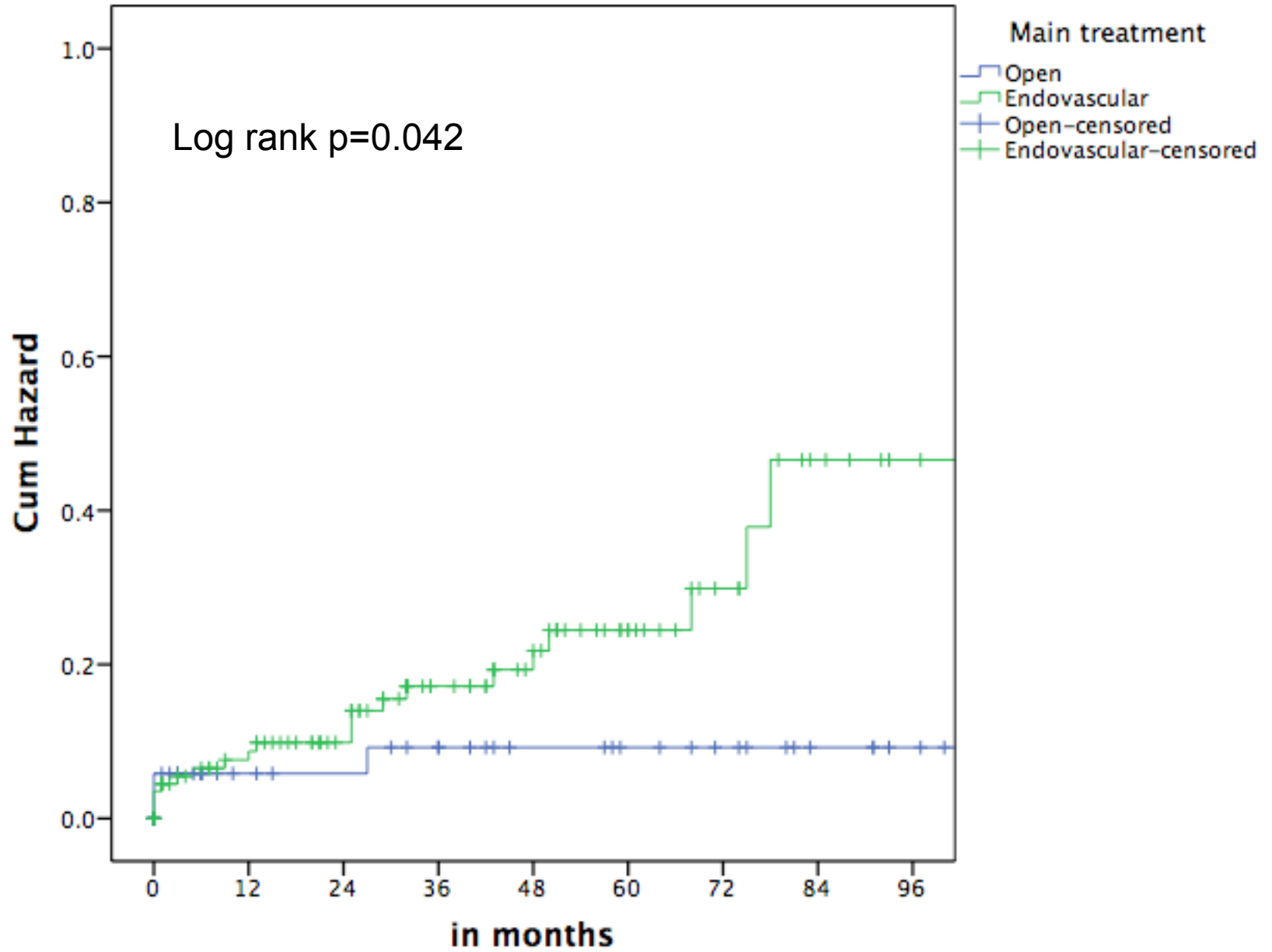
Overall Survival



Causes of death

	Within 30 days		Beyond 30 days		Overall	
	OR (n=53)	EVAR (n=115)	OR (n=42)	EVAR (n=112)	OR (n=53)	EVAR (n=115)
Any cause	11	3	30	63	41	66
Ruptured aneurysm	10	2	3	3	13	5
Cardiovascular						
- MI	1	1	1	7	2	8
- CHF			2	3	2	3
- Type A dissection				1		1
- CVA			3	5	3	5
Chest infection			12	20	12	20
Malignancy			4	11	4	11
Renal failure			1	1	1	1
Miscellaneous			1	5	1	5
Unknown			3	7	3	7

Cummulative hazard for reintervention



Indication for first re- intervention n

Indication	OR (n=53)	EVAR (n=115)	Overall (n=168)
Any	4	22	26
Graft related indication			
Thrombo-occlusive disease	2	3	5
Type I endoleak		3	3
Migration		4	4
Endotension		2	2
Material failure		1	1
Para-anastomotic aneurysm			
Aneurysm rupture		1	1
Wound-related indication			
Incisional hernia			
Wound infection			
Miscellaneous		2	2
Local or systematic indication			
Bleeding			
Type 2 endoleak		6	6
Bowel resection or ileus	2		2

Predictors for 30 days mortality

	Uni-variate			Multi-variate		
	OR	95% CI	P value	OR	95% CI	P Value
Open repair	9.78	2.60-36.78	0.001	2.93	0.40-21.66	0.292
Female	1.27	0.38-4.27	0.705			
ASA III-V	1.33	0.28-6.29	0.716			
Smoking	0.21	0.05-0.98	0.048	0.38	0.05-2.65	0.328
Hypertension	0.78	0.26-2.37	0.666			
Diabetes mellitus	1.73	0.45-6.71	0.430			
Heart disease	1.83	0.60-5.52	0.286			
CVA	1.13	0.30-4.29	0.861			
Lung disease	1.73	0.45-6.71	0.430			
Renal disease	2.47	0.82-7.49	0.110			
AAA diameter	1.34	0.90-2.01	0.153			
Infrarenal	0.31	0.08-1.26	0.102			
Iliac involvement	1.54	0.49-4.83	0.456			
Emergency	36.0	7.54-171.9	<0.001	18.78	3.37-104.5	0.001

Logistic regression analysis

Predictors for long term survival

	Uni-variate			Multi-variate		
	HR	95% CI	P value	HR	95% CI	P Value
Open repair	1.23	0.83-1.83	0.315			
Female	1.44	0.89-2.35	0.140			
ASA III-V	1.57	0.92-2.69	0.096			
Smoking	1.11	0.74-1.66	0.607			
Hypertension	1.00	0.67-1.48	0.985			
Diabetes mellitus	1.01	0.57-1.78	0.975			
Heart disease	1.33	0.91-1.94	0.143			
CVA	1.04	0.65-1.68	0.863			
Lung disease	1.98	1.20-3.27	0.007	1.73	1.03-2.90	0.039
Renal disease	2.08	1.42-3.06	<0.001	2.05	1.38-3.05	<0.001
AAA diameter	1.19	1.04-1.37	0.012	1.13	0.97-1.31	0.125
Infrarenal	0.37	0.21-0.64	<0.001	0.56	0.31-1.02	0.057
Iliac involvement	0.93	0.63-1.38	0.716			
Emergency	2.24	1.43-3.50	<0.001	2.03	1.27-3.26	0.003

Cox regression analysis

Conclusion

- EVAR gave survival benefit in short term, but more re-intervention in long term compared to OR
- Over half of patient died after 5 years in this high risk group

