There Is No Doubt AAA Screening Saves Lives

Do We Need Changes In The Screening Criteria

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Disclosures

- PI in Voyager-trial (Bayer)
- PI in Advance-trial
- NovoNordisk Grant Review Board member
- IsoMab CAB Chair
- Webinars- and lectures for Abbott, Medtronic, Cook, Bayer and WL Gore

No conflicts of interest for this presentation

Background

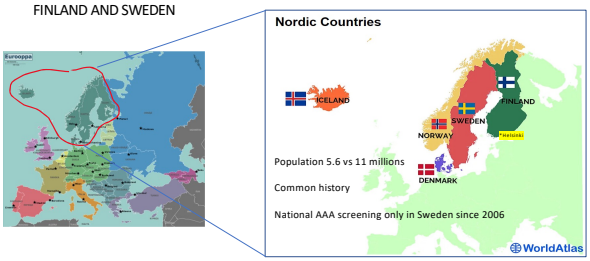
Because of low aneurysm prevalence in the existing aneurysm screening programs in Sweden and UK, there have been concerns on the benefit of programs.

Risk group	Potential for screening	
	Men	Women
65 year old	+	–
65 year old former or current smoker	+ +	–
Non-white ethnicity	–	–
First degree relative with abdominal aortic aneurysm	+ + +	+ + +
Other peripheral aneurysm	+ + +	+ + +
Cardiovascular disease	–	–
Organ transplanted	+ +	+ +

+ indicates different degrees of suitability for screening and – indicates not suitable for screening.

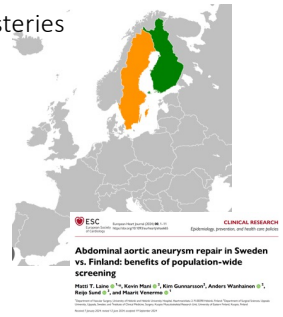
Figure 1 Suggested groups with potential to benefit from inclusion in abdominal aortic aneurysm (AAA) screening programmes from the European Society for Vascular Surgery (ESVS) 2024 management guidelines for AAA.

FINLAND AND SWEDEN



Mandatory National Registeries

- Institution of health and welfare register all surgical procedures and hospital episodes
- Cause of death registry register all deaths including cause and date of death
- Combining data from different registries possible with **personal identification numbers**



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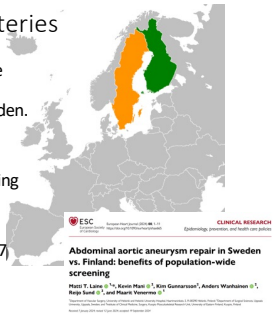
Abdominal aortic aneurysm repair in Sweden vs. Finland: benefits of population-wide screening

Mats T. Laine[1,2]*, Kevin Mani[1,3], Kim Gunnarsson[2], Anders Wanhainen[1,3], Reijo Sund[4,5], and Maarit Venermo[1]

Mandatory National Registeries

To understand the impact of screening, we compared elective and emergency AAA repairs and rAAA rates in Finland and Sweden. From national registeries we took:

- All AAA and rAAA repairs performed during 1998-2017
- All deaths due to AAA or rAAA 1998-2017



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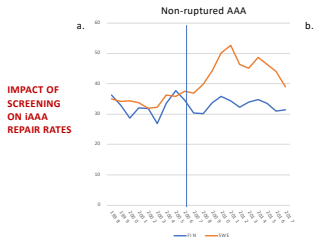
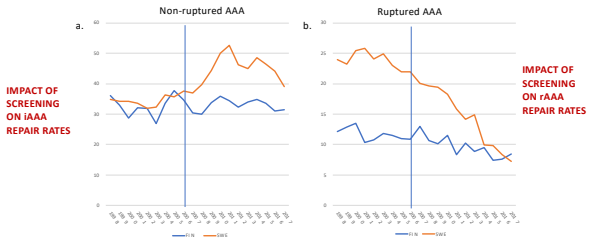


Incidence of AAA and RAAA repair in men aged 50 years or older per 100 000 population



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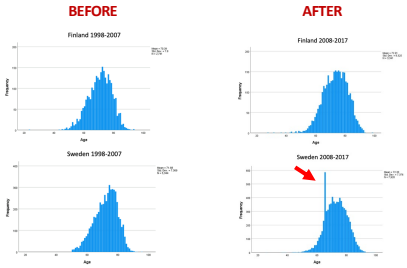
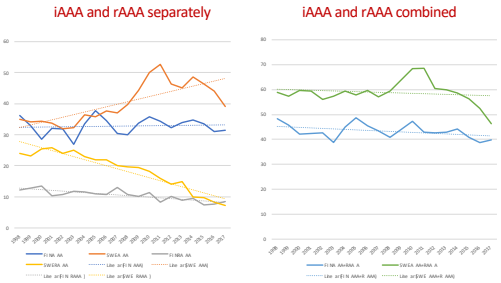


Age distribution of men undergoing intact AAA repair



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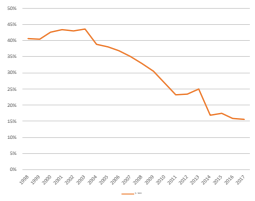
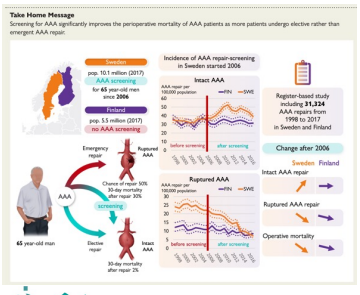


Proportion of rAAA of all AAA repairs in Sweden

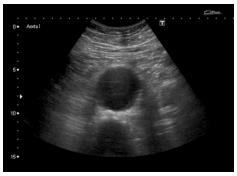
43% => 16%



SCREENING IS EFFECTIVE IN DECREASING RAAA RATES AND AAA-MORTALITY

Do We Need Changes In The Screening Criteria

Doe one recommendation fit all?



Optimal screening program finds all AAAs before they rupture

- Current screening programs invite:
  - Men 65 yrs once / "If you are at risk" = "Man 65-75 and have smoked at least 100 cigarettes in your lifetime"
  - Is this optimal?

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Rupture of Abdominal Aortic Aneurysms in Patients Under Screening Age and Elective Repair Threshold

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- 585 patients diagnosed with RAAA
- The mean age at the time of rupture was 73.6 years (SD 9.5, range 42-96 years).
- Men were on average 8 years younger than women.
- **18.3% of patients were under 65**

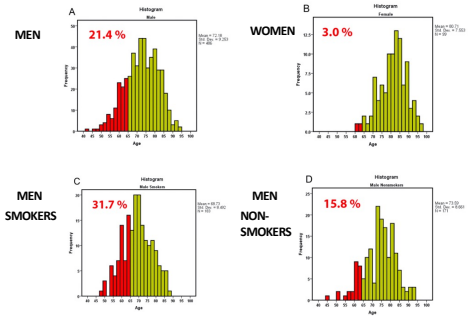

Table 3. Factors associated with patient age less than 65 years on multivariate analysis. * indicates p<.05.

	OR	95% CI		*p*
Male sex	15.448	2.073	115.127	0.008*
Smoking	2.113	1.210	3.687	0.008*
Hypertension	0.707	0.409	1.220	0.213
Coronary disease	0.371	0.194	0.709	0.003*
Pulmonary disease	0.704	0.345	1.436	0.704
Previous stroke/TIA	0.553	0.218	1.406	0.553

- The OR for rupture before 65 years of age for smokers was 2.1 compared with non-smokers

Aorta and Major Branches

Eur J Vasc Endovasc Surg (2024) 68, 10–15

Screening Men and Women above the Age of 50 Years for Abdominal Aortic Aneurysm: A Pilot Study in an Upper Middle Income Country

Igor B. Koncar [a,b,*], Aleksa Jovanovic [a], Ognjen Kostic [a], Andrija Roganovic [a], Djurdjija Jelicic [a], Stefan Ducic [a], Lazar B. Davidovic [a,b]
[a] Faculty of Medicine, University of Belgrade, Belgrade, Serbia
[b] Clinic for Vascular and Endovascular Surgery, University Clinical Centre of Serbia, Belgrade, Serbia
[c] Institute of Epidemiology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

- Individuals of both sexes aged > 50 years were invited for AAA screening via media and promotional material in hospitals => 4046 participants were screened

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Table 1. Characteristics of participants (n = 4 046) in relation to the presence of an abdominal aortic aneurysm (AAA) discovered on screening

Characteristic	Males		Females	
	AAA (n = 170, 8.2%)	No AAA (n = 1 902, 91.8%)	AAA (n = 25, 1.3%)	No AAA (n = 1 949, 98.7%)
Age – y	70.72 ± 7.47	69.80 ± 7.67	71.8 ± 5.13	67.69 ± 7.30
Age group				
50–64 years	20 (5.4)	350 (94.6)	3 (0.6)	520 (99.4)
65–69 years	42 (9.0)	423 (91.0)	2 (0.4)	450 (99.6)
70–74 years	46 (9.3)	447 (90.7)	7 (1.6)	439 (98.4)
≥ 75 years	45 (9.3)	440 (90.7)	7 (2.3)	291 (97.7)

The aneurysm prevalence in men was 8.2% and in men 50-64 years it was 5.4%

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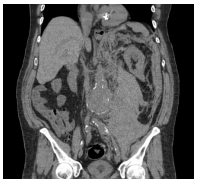
Smoking status				
Non-smoker	80 (5.8)	1 294 (94.2)	15 (1.1)	1 381 (98.9)
Smoker	54 (13.9)	334 (86.1)	7 (1.7)	407 (98.3)
Ex-smoker	36 (12.2)	260 (87.8)	3 (2.0)	144 (98.0)

Conclusion



- Although prevalence of AAA has decreased, screening still finds significant number of aneurysms and saves lives
- However, still relevant number of patients (men) have aneurysm rupture before the screening age (65 years), especielly smokers
- Significant differences in the prevalence of aneurysms between populations
- Recommendations should be tailored according to the local conditions (one recommendation does not fit all) – there are differences in the prevalences of risk factors, between ethnicities etc.