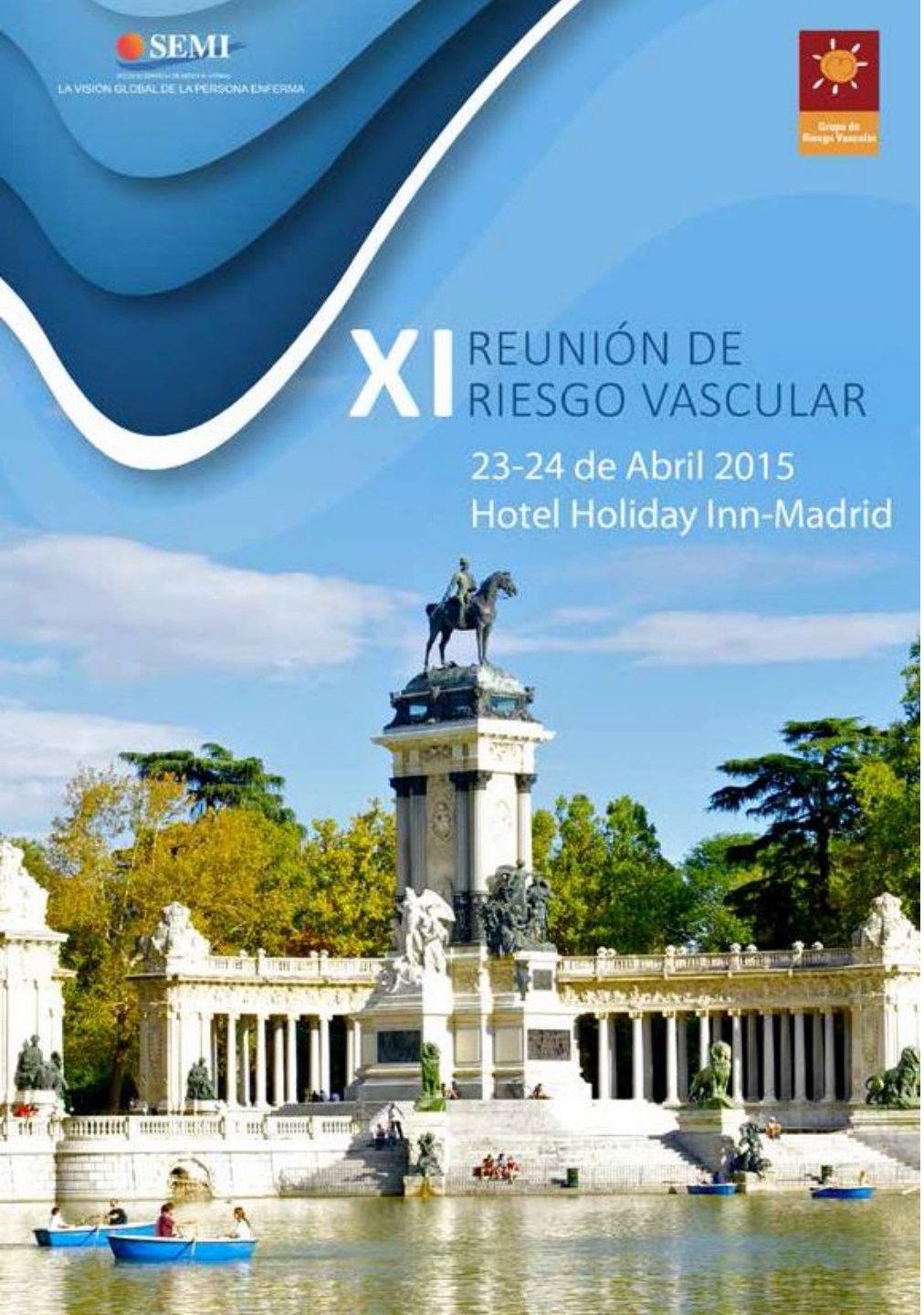


DESPISTAJE Y TRATAMIENTO DE LA ENFERMEDAD VASCULAR EN DIVERSOS TERRITORIOS

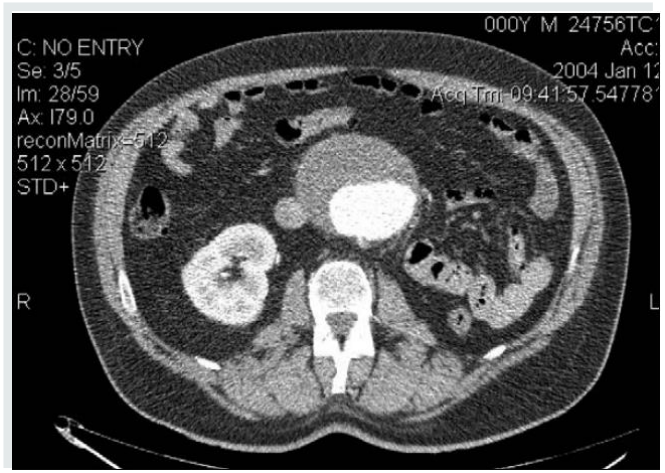
Aneurisma de aorta abdominal

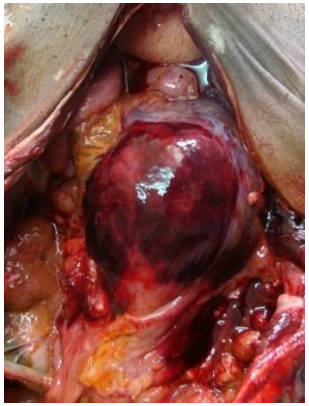
Dr. Carlos Guijarro

Hospital Universitario Fundación Alcorcón
SaludMadrid
Comunidad de Madrid

Universidad Rey Juan Carlos
Madrid

Aortic aneurysm



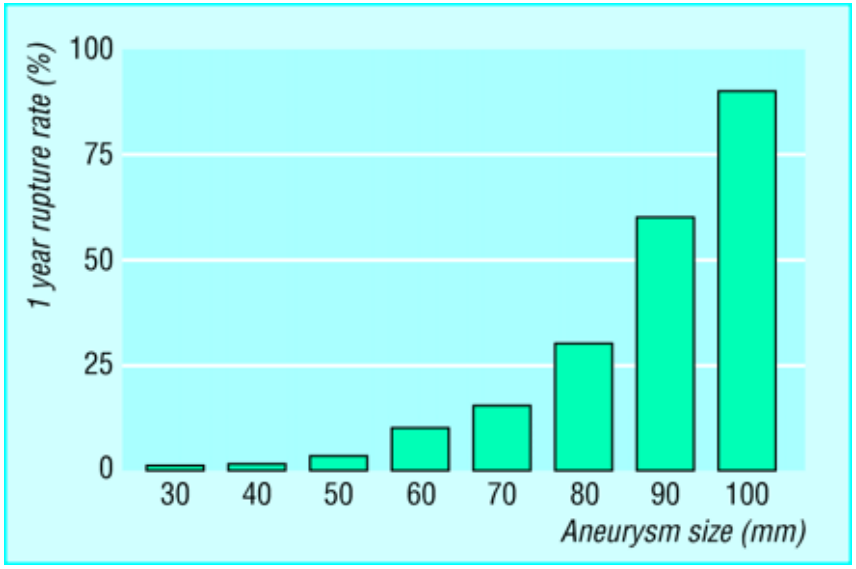


At 3.30 the next morning, I was awoken by an excruciating abdominal pain. I can only describe its intensity as inhuman, evoking dreaded images of horror films in which the victim is perforated by an industrial drill.
***Aortic aneurysm: the physician as patient. Lancet* 2005; 365: 1590**

A las 3.30 de la mañana, me despertó un dolor abdominal insoportable . Sólo puedo describir su intensidad como inhumano, evocando imágenes temidas de las películas de terror en el que la víctima es perforada por un taladro industrial

Juan Martinez L de Letona

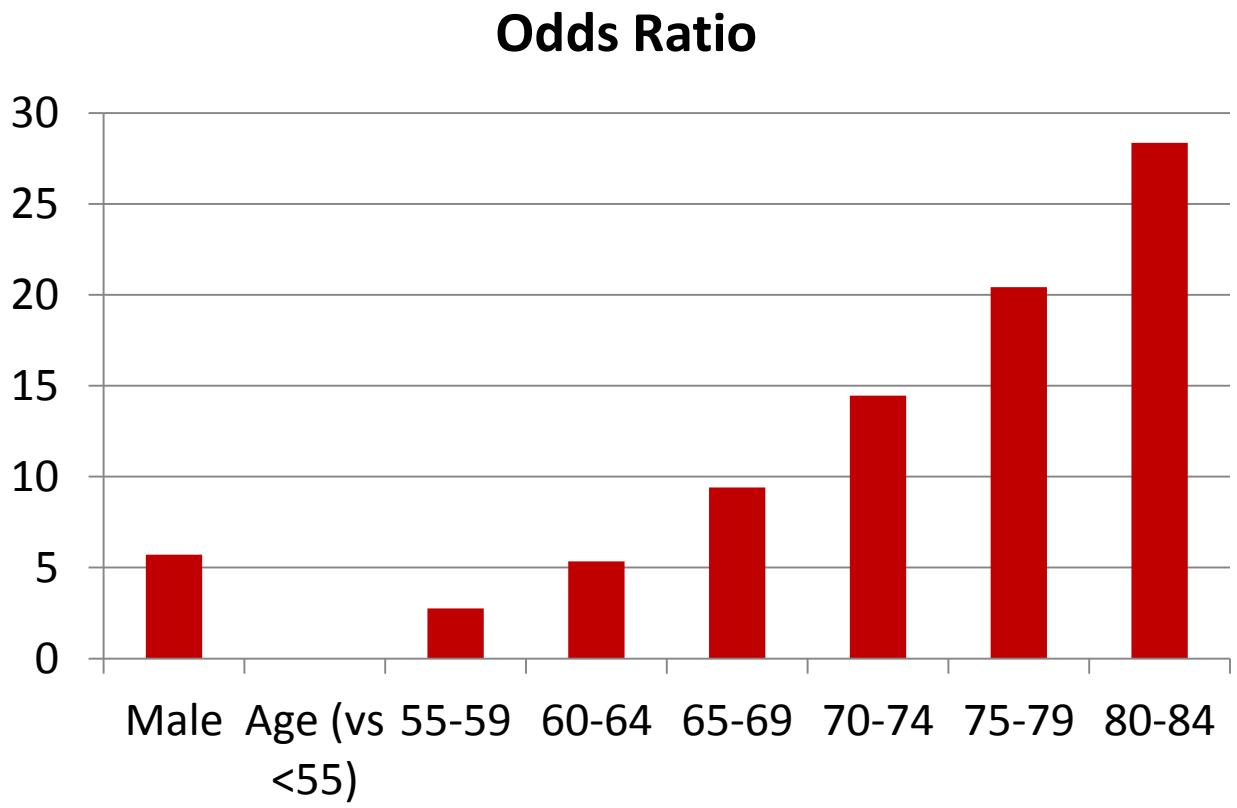
Risk of rupture highly correlated with aneurysm size



- Risk of rupture markedly increases if >5.5 cm
- Rate of expansion also predictive; high risk of rupture if increases by >0.5 cm over 6 months

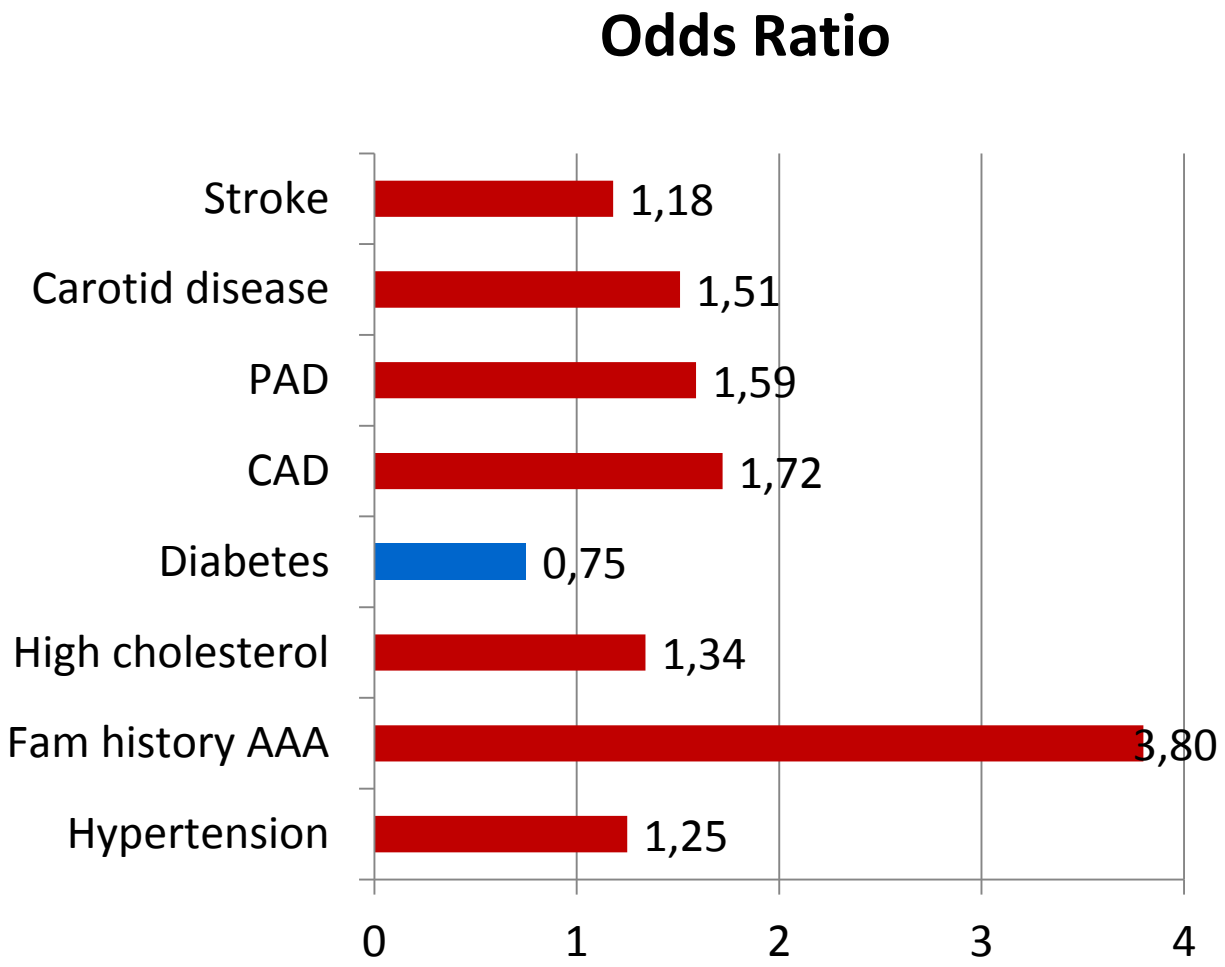
Figure courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne

Analysis of risk factors for AAA in a cohort of more than 3 million individuals



J Vasc Surg 2010;52:539-48

Analysis of risk factors for AAA in a cohort of more than 3 million individuals



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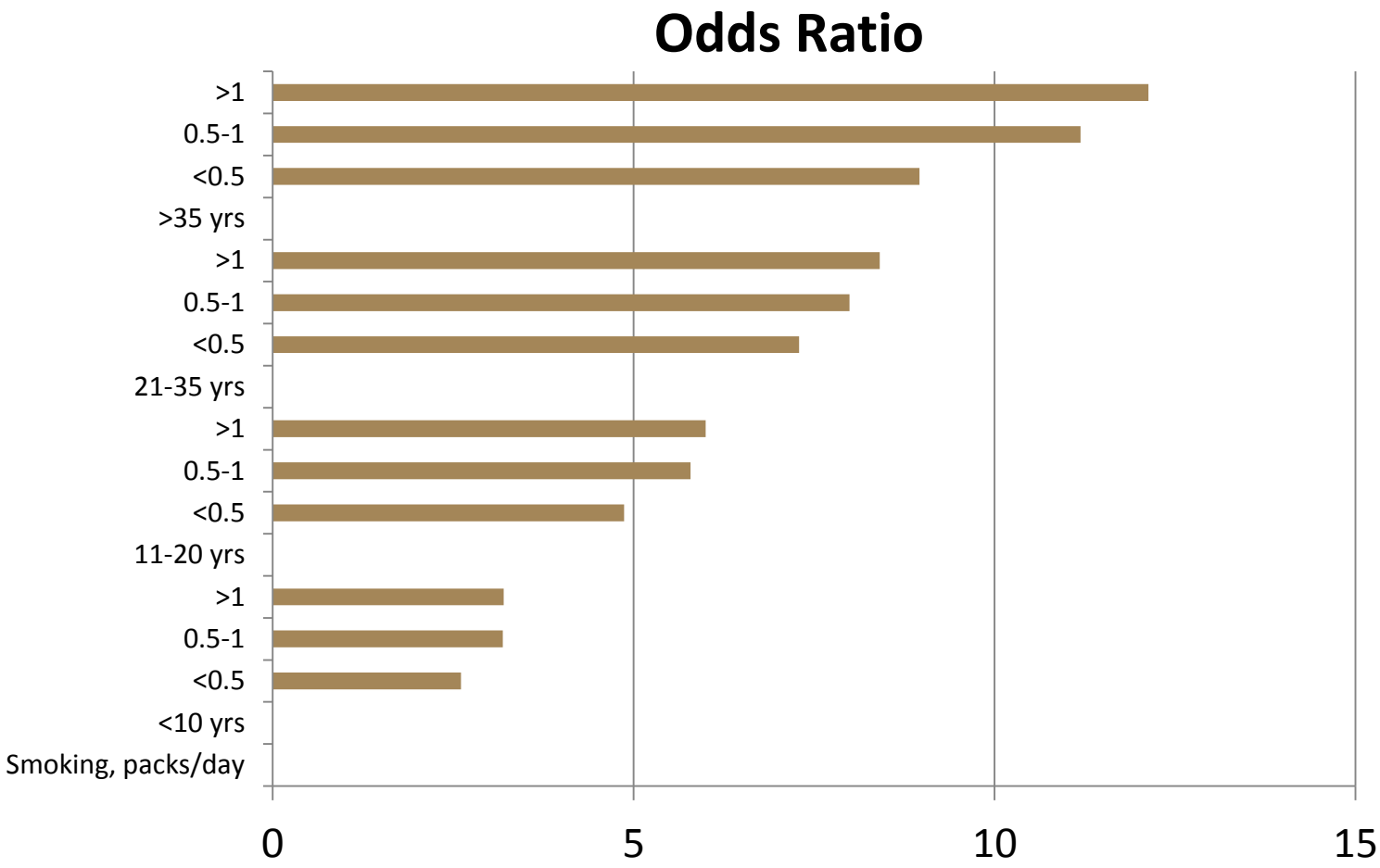
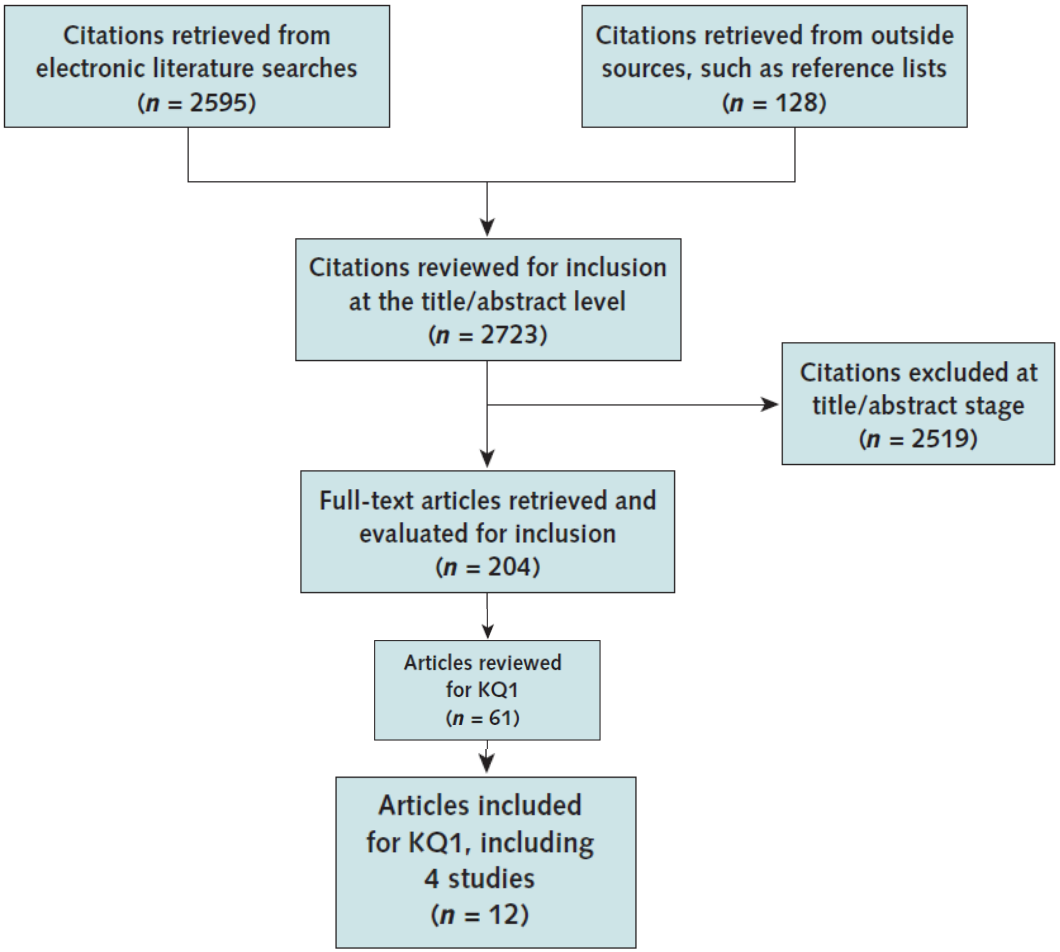
Analysis of risk factors for AAA in a cohort of more than 3 million individuals



J Vasc Surg 2010;52:539-48

Ultrasonography Screening for AAA: A Systematic Evidence Review for the U.S. Preventive Services Task Force



Ann Intern Med. doi:10.7326/M14-1204
online first on 24 June 2014.

Ultrasonography Screening for AAA: A Systematic Evidence Review for the U.S. Preventive Services Task Force

Table 1. **Methodological and Intervention Characteristics of the 4 Included Population-Based AAA Screening Randomized, Controlled Trials**

Variable	MASS (29–32)	Viborg Trial (37–41)	Western Australian Trial (42)	Chichester Trial (33–36)
Study quality	Good	Good	Fair	Fair
Participants randomly assigned, *n*	67 800 men	12 639 men	41 000 men	6433 men, 9342 women
Mortality follow-up, *n (%)*	65 834 (97.1)	12 639 (100.0)	38 704 (94.4)	6040 (93.9)*
Country	United Kingdom	Denmark	Australia	United Kingdom
Mean length of follow-up, *y*	13.1	13	3.6†	15.0
Mean age, *y*	69.2	67.7	72.6	72.0‡
AAA prevalence in screened group, %	4.9	4.0	7.2	Men: 7.6; women: 1.3
Intervention	Invitation to ultrasonography screening; follow-up of results by initial aortic diameters as follows: 3.0–4.4 cm: rescanned annually 4.5–5.4 cm: rescanned at 3-mo intervals ≥5.5 cm: referred to urgent vascular surgery	Invitation to ultrasonography screening; follow-up of results by initial aortic diameters as follows: 2.5–2.9 cm: rescanned after 5 y 3.0–4.9 cm: rescanned annually ≥5 cm: referred to vascular surgery	Invitation to ultrasonography screening; scan results sent to PCP for management or surveillance	Invitation to ultrasonography screening; follow-up of results by initial aortic diameters as follows: 3.0–4.4 cm: rescanned annually 4.5–5.9 cm: rescanned every 3 mo or until the patient died, had surgical intervention, or declined follow-up
Control	No invitation to screening	No invitation to screening	No invitation to screening	No invitation to screening

Ann Intern Med. doi:10.7326/M14-1204
online first on 24 June 2014.

Ultrasonography Screening for AAA: A Systematic Evidence Review for the U.S. Preventive Services Task Force

1-time invitation for **AAA screening in men aged 65 years or older reduced AAA rupture and AAA-related mortality** rates for up to 10 and 15 years, respectively, but had **no statistically significant effect on all-cause mortality rates** up to 15 years.

Screening was associated with more overall and elective surgeries but fewer emergency operations and lower 30-day operative mortality rates at up to 10- to 15-year follow-up.

One RCT involving 9342 **women** showed that screening had **no benefit** on AAA-related or all-cause mortality rates.

Ann Intern Med. doi:10.7326/M14-1204
online first on 24 June 2014.

Screening for Abdominal Aortic Aneurysm: U.S. Preventive Services Task Force Recommendation

- Evidencia
  - 4 EECC con 137241 pacientes en varones > 65 años
  - Reducción de rotura y muerte por AAA 10-15 años
  - No efecto en mortalidad global
- Recomendación
  - Ofrecer una vez en la vida rastreo ecográfico para
    - Varones > 65 años
    - Hipertensos
    - Fumadores

Ann Intern Med. 2014 Aug 19;161(4):281-90.
doi: 10.7326/M14-1204.

Angiología

2015

Volumen 67. Extraordinario 1

Junio

SEACV/SEA 2015: GUÍA DE PRÁCTICA CLÍNICA PARA EL DIAGNÓSTICO Y TRATAMIENTO DEL ANEURISMA DE AORTA ABDOMINAL

C. Esteban, C. Lahoz,

S. Bellmunt Montoya, L. Reinares García, M. Botas Velasco, A. Brea Hernando, E. Bravo Ruiz, M. Suárez Tembra,A. Fernández Heredero, C. Guijarro, G. Moñux Ducajú, X. Pintó,M . Vega de Ceniga y M.J. Vallina-Victorero

Clin Investig Arterioscler. 2015 Mar 30. pii: S0214-9168(15)00006-6. doi: 10.1016/j.arteri.2015.01.004

SEACV –SEA 2015
Recomendaciones cribado

Recomendación (GRADE)	Intensidad	Calidad de la evidencia
Cribado en varones 65-75 años para reducir mortalidad por AAA	Fuerte	Alta
No cribado para reducir mortalidad global	Fuerte	Alta
No cribado en mujeres	Débil	Moderada

Angiologia 2015 (en prensa)
Clin Investig Arterioscler. 2015 Mar 30. pii: S0214-9168(15)00006-6. doi: 10.1016/j.arteri.2015.01.004

SEACV –SEA 2015
Diagnóstico

Recomendación (GRADE)	Intensidad	Calidad de la evidencia
No debe basarse sólo en exploración física	Fuerte	Moderada
No se debe considerar la radiografía simple de abdomen como una prueba diagnóstica del AAA, ni como herramienta para su seguimiento	Fuerte	Baja
Se recomienda la **ecografía abdominal** como método de diagnóstico inicial, cribado y vigilancia posterior de los AAA	Fuerte	Alta
La **tomografía computarizada** (TC) es la técnica diagnóstica de elección para la decisión y planificación del tratamiento en pacientes con AAA	Fuerte	Moderada

Angiologia 2015 (en prensa)
Clin Investig Arterioscler. 2015 Mar 30. pii: S0214-9168(15)00006-6. doi: 10.1016/j.arteri.2015.01.004

SEACV –SEA 2015
Seguimiento / Derivación AAA

Recomendación (GRADE)		Intensidad	Calidad de la evidencia
Seguimiento periódico (ecografía) 30-54 mm		Fuerte	Alta
Seguimiento mediante Ecografia		Fuerte	Baja
Intervalo de seguimiento según tamaño		Fuerte	Baja
30-39 mm	2-3 años		
40-49 mm	1-2 años		
50-54	6-12 meses		
Derivación a Cirugía Vascular			
Cualquier tamaño		Débil	Muy baja
Preferente para > 50 mm		Fuerte	Moderada
Urgente para > 80 mm / sintomáticos		Fuerte	Baja
Emergente para rotura o sospecha		Fuerte	Alta

Angiologia 2015 (en prensa)
Clin Investig Arterioscler. 2015 Mar 30. pii: S0214-9168(15)00006-6. doi: 10.1016/j.arteri.2015.01.004

SEACV –SEA 2015
Tratamiento Médico

Recomendación (GRADE)	Intensidad	Calidad de la evidencia
Control estricto de FR vascular	Fuerte	Moderada
Abandono tabaco	Fuerte	Baja
No se recomiendan **betabloqueantes** para evitar rotura	Fuerte	Alta
Bloqueo SRA para evitar rotura (IECAs, ARA2)	Débil	Baja
Estatinas para reducir crecimiento y rotura	Débil	Baja
Antiagregantes para reducir riesgo crecimiento	Débil	Baja
Macrólidos para reducir crecimiento y rotura	Débil	Baja
No usar doxicilina para evitar riesgo crecimiento y rotura	Débil	Baja

Angiologia 2015 (en prensa)
Clin Investig Arterioscler. 2015 Mar 30. pii: S0214-9168(15)00006-6. doi: 10.1016/j.arteri.2015.01.004

Angiología. 2015;67(2):81–82

ELSEVIER

Angiología

www.elsevier.es/angiologia

EDITORIAL

¿Es factible un cribado de aneurisma de aorta abdominal en España?

Is screening for abdominal aortic aneurysm feasible in Spain?

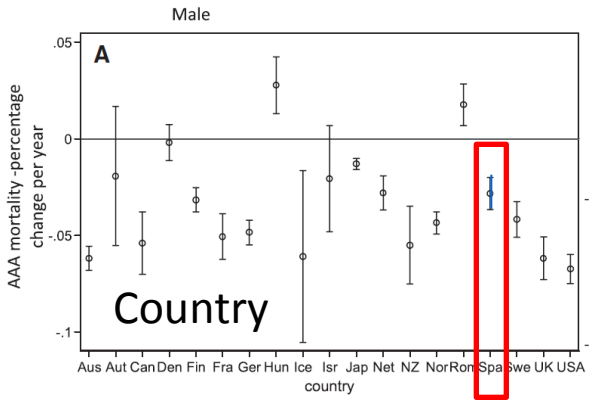
S. Bellmunt Montoya

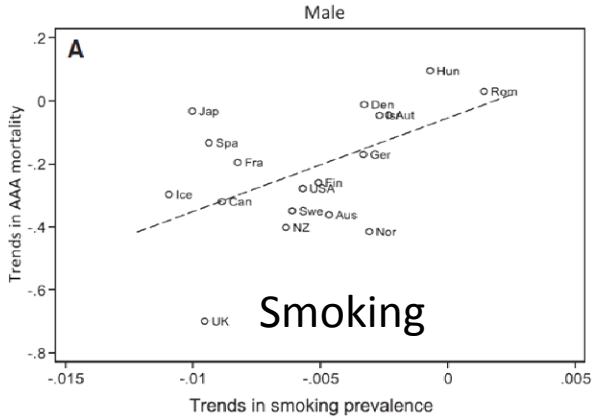
Eficacia y efectividad del cribado de aneurisma de aorta abdominal en población de riesgo. Análisis coste-efectividad. Aplicabilidad en el Sistema Nacional de salud

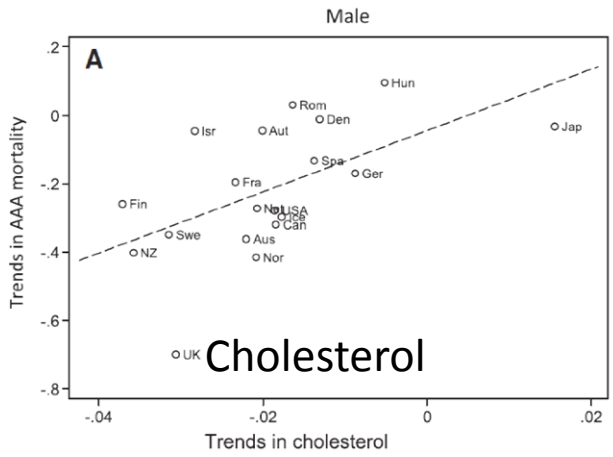
- La aplicabilidad en el Sistema Nacional de Salud, se refleja en la realización teórica de un programa de cribado de AAA en Galicia, donde los resultados aconsejan la realización del cribado, ya que se salvarían aproximadamente 40-42 vidas anuales y la carga de trabajo podría ser asumida por los profesionales.
- Los estudios de costes analizados en este trabajo presentan heterogeneidad, lo que hace difícil extraer conclusiones claras sobre si el programa de cribado de AAA sería coste-efectivo.

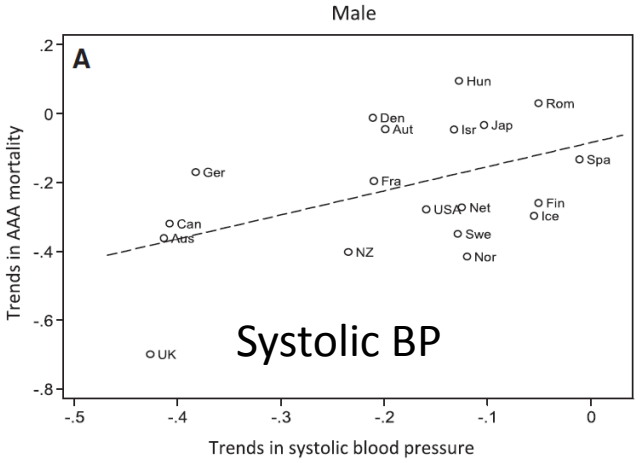
INF 2007/01 AVALIA-T XUNTA DE GALICIA

Aneurysm Global Epidemiology Study
AAA mortality





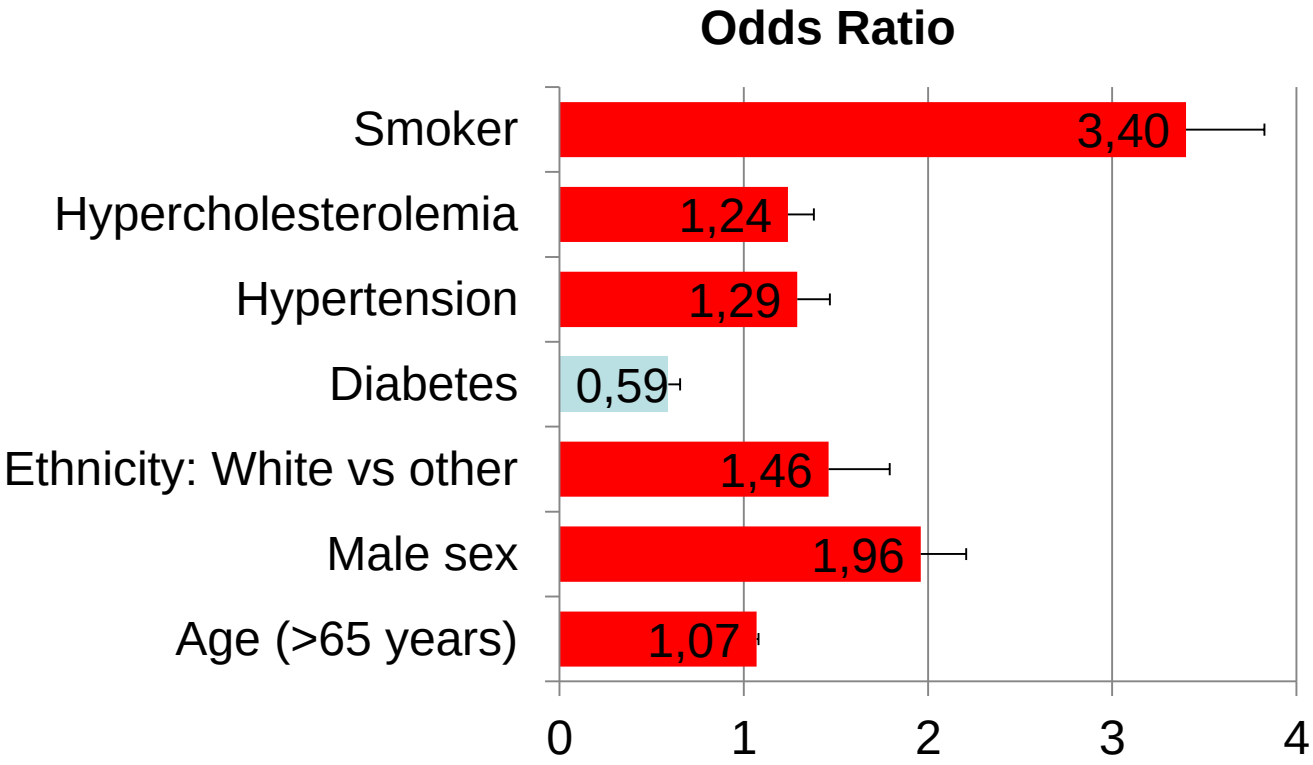




***Circulation*. 2014;129:747-753**

¿debemos hacer rastreo de aneurisma de aorta abdominal en todos los pacientes con enfermedad vascular establecida?

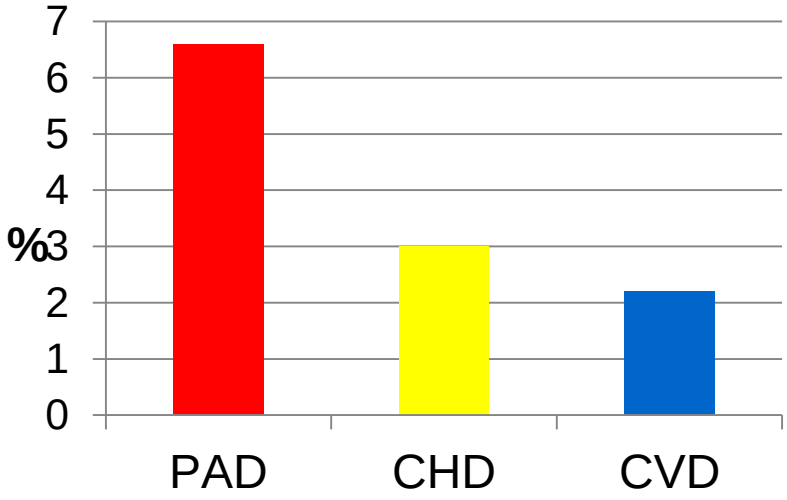
Cardiovascular risk profile and outcome of patients with AAA & atherothrombosis: The REACH Registry

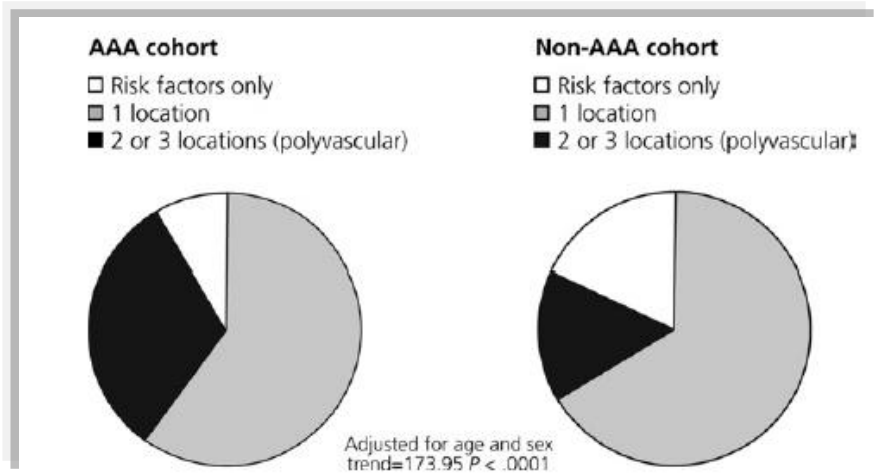


AAA n= 1722; Non AAA Atherothrombosis n= 66514

J Vasc Surg 2008;48:808-14.

Cardiovascular risk profile and outcome of patients with AAA & atherothrombosis: The REACH Registry



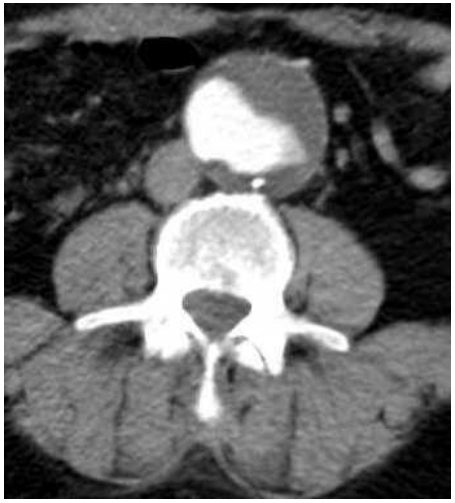


AAA n= 1722; Non AAA Atherothrombosis n= 66514

J Vasc Surg 2008;48:808-14.

Estudio AIRVAG

Aneurisma de aorta abdominal (n=10) en 157 pacientes coronarios



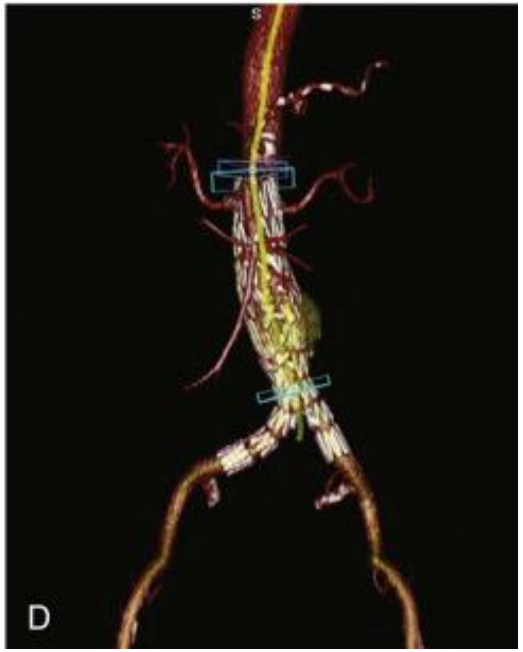
Variable	Modelo sin ajustar			Ajustado
	Odds Ratio	IC 95%	p	Odds Ratio
PVP	6.0	1.4-26.6	0.009	6.4
Microalbuminuria	7.6	1.8-31.9	0.004	6.2

Guijarro et al. Am J Cardiol 2006;97:1549

CONCLUSIONES

- La literatura apoya el rastreo poblacional del AAA en varones fumadores > 65 años
- Dudas de coste-eficacia en otros contextos / reducción tasa AAA
- No hay ningún programa en marcha
- Rastreo en pacientes con enf. Vascular?
  - Varones, fumadores
  - Enfermedad arterial periférica
  - Disponibilidad de ecógrafos

GRACIAS POR SU ATENCIÓN




DR RUDD
DR CREAN
DR EMERSON
DR CONROY
DR SMITH
DR FAULKNER
DR TANNER
DR FERGUSON
DR GILLARD
DR BEAZLEY
DR SWAN
Mind you listen to the advice of Your doctors!
Nicholson
15 JAN 2005

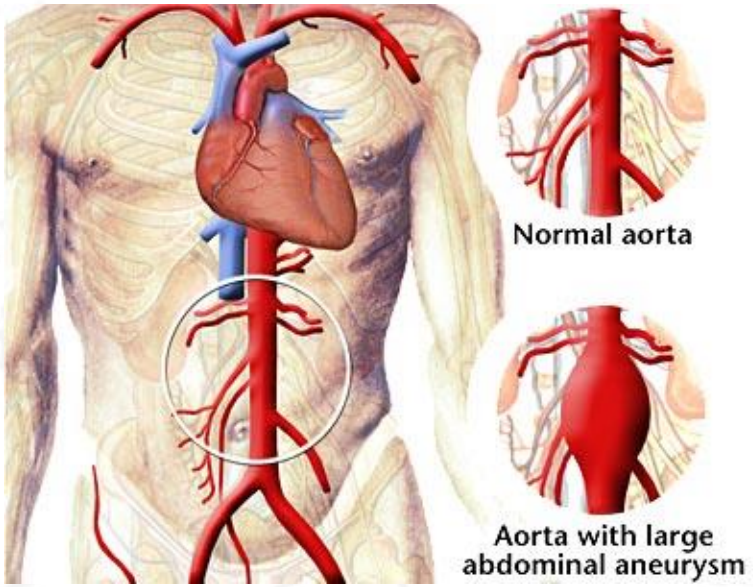
Cree a aquellos que buscan la verdad; duda de los que la han encontrado.

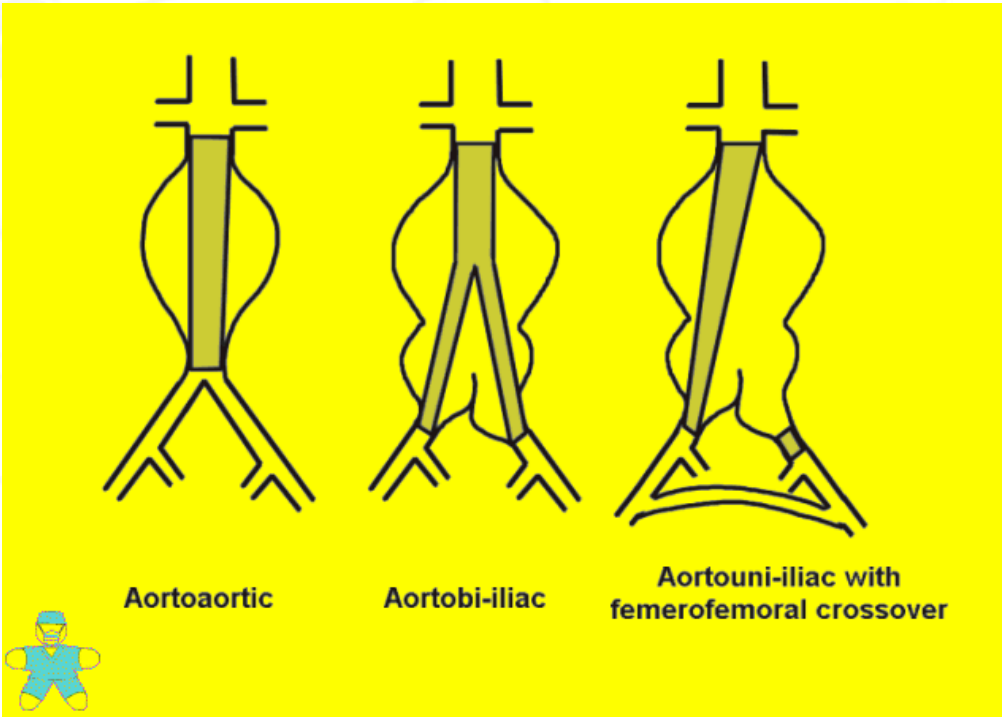
" Croyez ceux qui cherchent la vérité, doutez de ceux qui la trouvent. "

André Gide.

Abdominal Aortic Aneurysms (AAA)

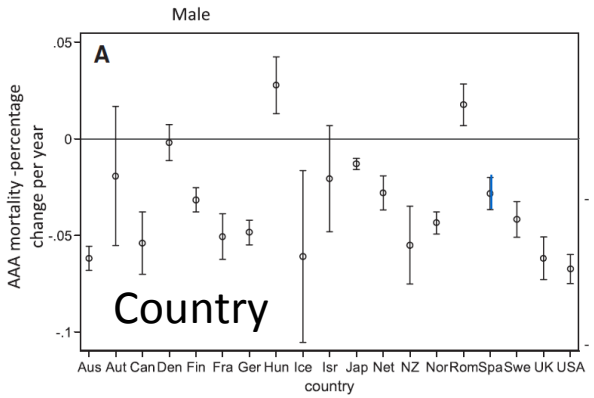
- AAA = aortic diameter >1.5x diameter of aorta measured at the level of the renal arteries
  - Normal abdominal aortic diameter = 2.0 cm
  - >3.0 cm is considered an aneurysm
- Involve all layers of aorta (unlike thoracic aortic dissections); therefore, no intimal flap or false lumen created
- Location: most often infra-renal (95%)
- Can involve renal, iliac, and visceral arteries

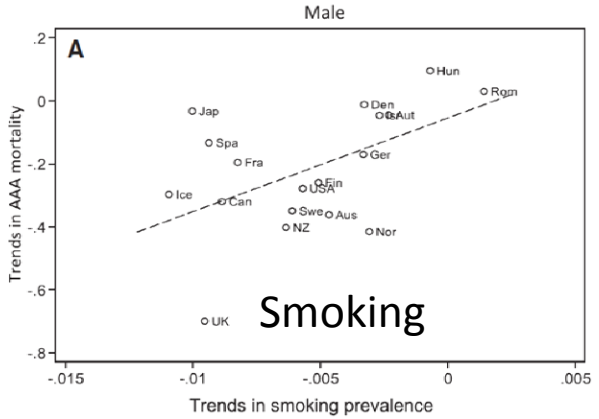


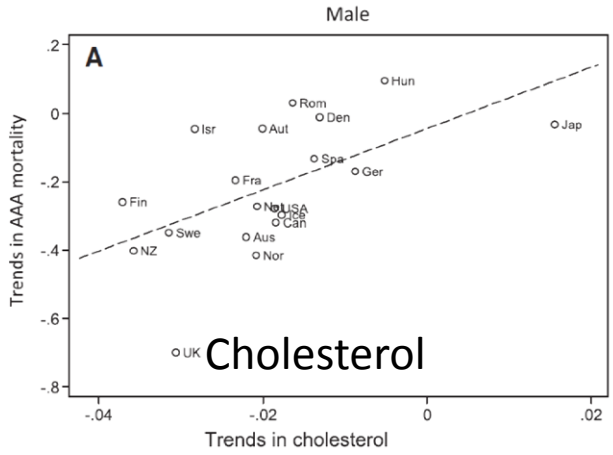


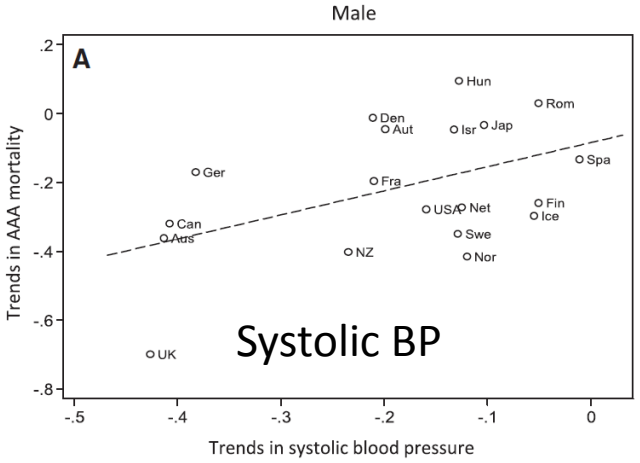
Images courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne and http://healthmetz.com/2011/06/17/tests-and-diagnosis-of-abdominal-aortic-aneurysm.html

Aneurysm Global Epidemiology Study
AAA mortality









***Circulation*. 2014;129:747-753**

Epidemiology of AAA

- Prevalence: very rare <60 yrs, then increases dramatically w/ age
  - 4-9% of men >60 yrs old; increases w/ each decade
  - Most (57-88%) are less than 3.5cm
- Risk factors:
  - **SMOKING!!** (OR 5.07)
  - Male gender
  - Age >65 yrs (OR 1.71 per 7 yrs older than 60)
  - Known atherosclerotic disease (OR 1.66)
  - Family history of AAA (OR 1.94)

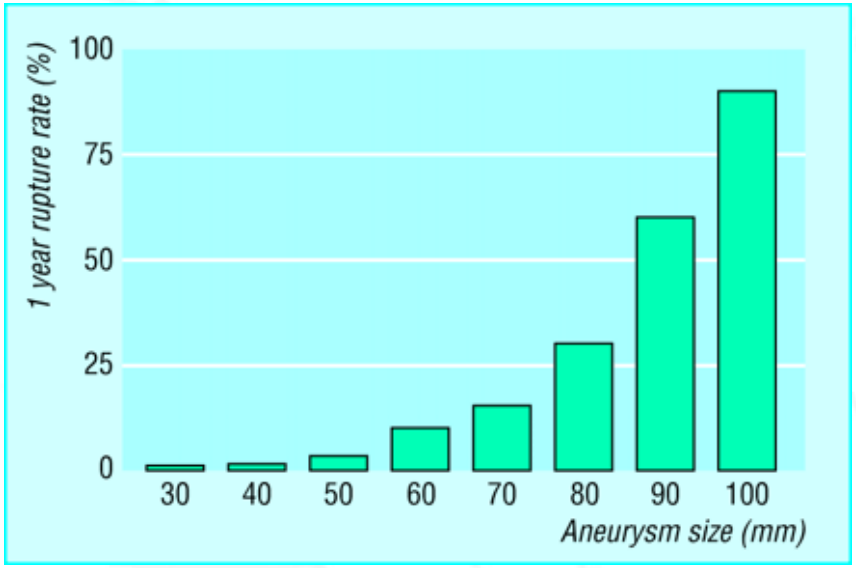
Clinical Presentation

- Most AAA are asymptomatic and discovered incidentally or via screening
- More likely to cause sx when expanding, which increases risk of rupture:
  - Pulsatile, expansile mass at or above the umbilicus
  - Abdominal (usually vague, chronic, steady, unaffected by movement), lumbar back, flank, and/or groin pain
  - Sudden onset of pain with hypotension may suggest rupture

AAA rupture

- Classic sx: severe abdominal and/or lumbar back pain, hypotension, and pulsatile abdominal mass
- Overall 50-80% mortality w/ AAA rupture
- Only about 50% of pts w/ ruptured aneurysm reach hospital alive
- Surgical emergency
- However, high intra-op mortality of 50%

Risk of rupture highly correlated with aneurysm size



- Risk of rupture markedly increases if >5.5 cm
- Rate of expansion also predictive; high risk of rupture if increases by >0.5 cm over 6 months

Figure courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne

Diagnosing AAA

- Physical exam: 30% of asymptomatic AAA are detected by palpation of pulsatile abdominal mass on routine exam
- Imaging
  - Ultrasound = preferred modality
  - CT and MRI = better for defining shape of aneurysm and assessing suprarenal aneurysms as well as involvement of renal, mesenteric, or iliac arteries

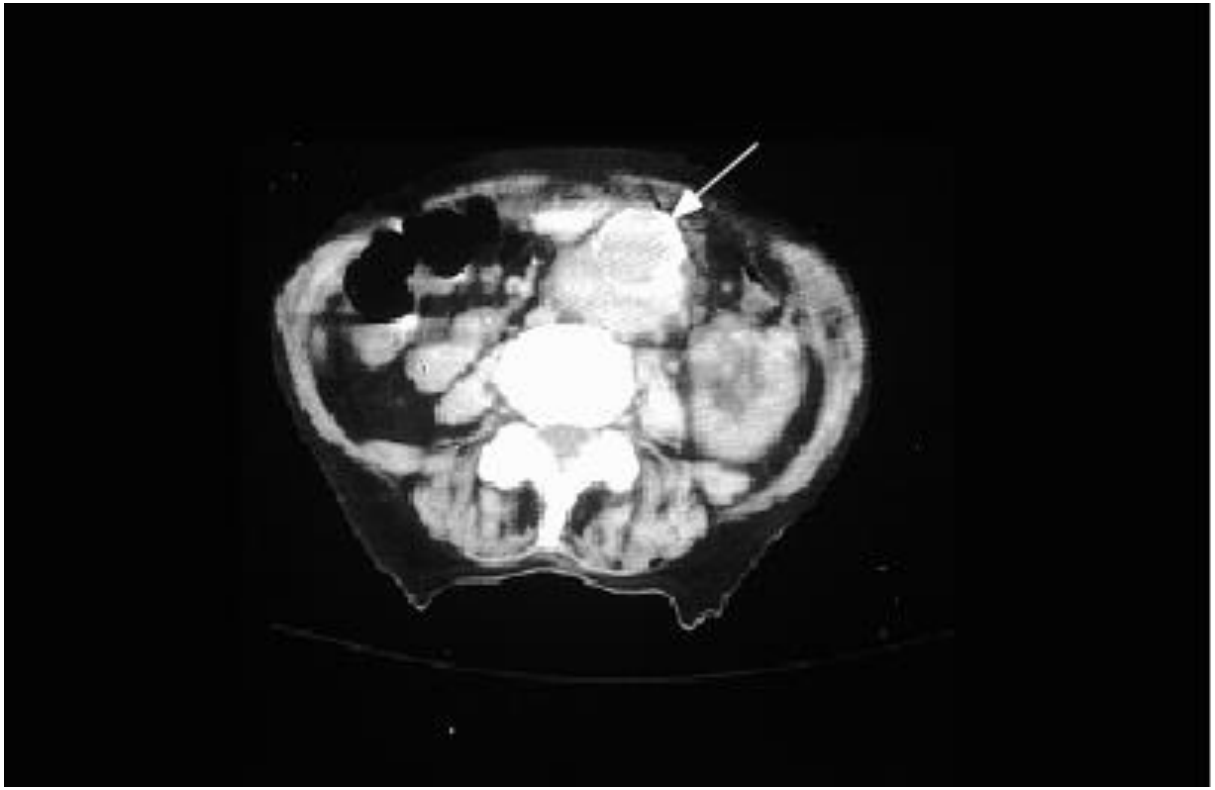
AAA on abdominal ultrasound

Image courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne

AAA on CT

Image courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne

Ruptured AAA on CT



Up-To-Date. Epidemiology, clinical features, and diagnosis of abdominal aortic aneurysm.

AAA Screening Recommendations

- In the U.S. Preventive Services Task Force, recommend one-off abdominal ultrasound for men aged 65-74 yrs with any history of smoking
- Australia appears to be evaluating their plans for AAA screening recommendations. 2008 study in western Australia found screening men 65-74 cost-effective.

Medical Management

- Smoking cessation
- Statins
- Beta blockers
- Aspirin
- Routine monitoring:
  - Aneurysms 3.0 to 4.0 cm = ultrasound q 2-3 yrs
  - Aneurysms 4.0 to 5.4 cm = ultrasound or CT q 6-12 mos

Indications for Surgical Intervention

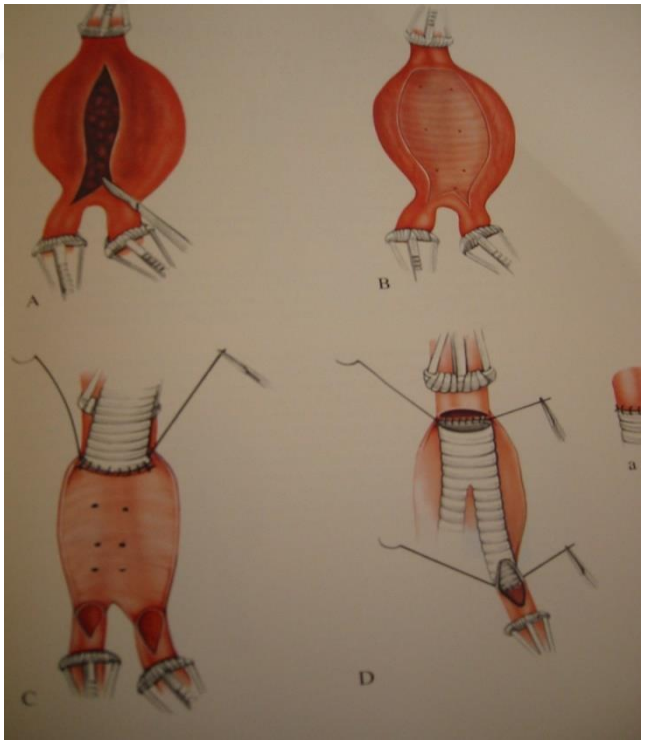
- Ruptured AAA (if they make it to the OR)
- Aneurysm >5.5 cm
- Symptomatic aneurysm (any size)
- Rapid expansion: >0.5 cm increased size in 6 mos
- Complicated aneurysms:
  - Suprarenal and/or thoraco-abdominal aneurysms
  - Iliac or femoral artery aneurysms requiring tx
  - Thrombotic/embolic complications

Surgical Management

- Open surgical repair (recommended for most low to average risk pts)
  - Minimal incision
  - Abdominal approach
  - Retroperitoneal appr
- Endovascular Stent Grafts (recommended for pts at high risk of complications from open repair)

Graft

Open repair



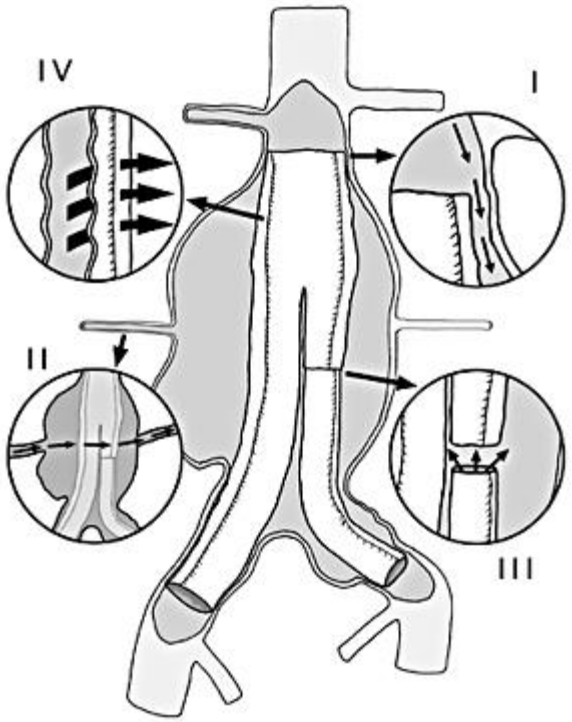
Images courtesy of Mr. Nikolas Kosanovic M.D, General Surgery, Rural Clinical School, University of Melbourne Up-To-Date, Endovascular repair of abdominal aortic aneurysms

Complications of Endovascular Repair

- Endoleak
  - Persistent blood flow of blood into aneurysm after device placement that is still at risk for expansion and rupture
- Post-implantation syndrome
  - Acute inflammatory syndrome for first 7-10 days after device placement, assoc w/ fever, leukocytosis, and elevated CRP
- Device migration
- Graft thrombosis or kinking

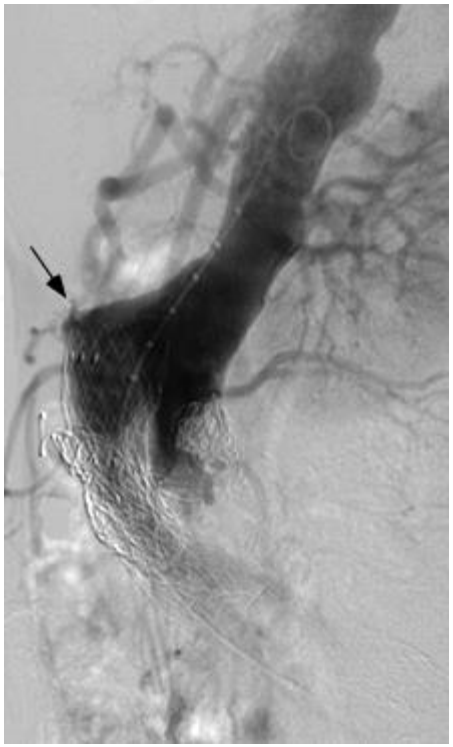
Complications of Endovascular Repair

Endoleak



Four types of endoleaks are seen after an endovascular repair of an abdominal aortic aneurysm. Type I is due to an incompetent seal at the proximal (or distal) attachment site. Type II results from flow into and out of the aneurysm sac from a patent branch vessel (lumbar). Type III endoleak results from dissociation of modular components. Type IV is due to leaks though the porous graft material.

Device Migration



Contrast angiogram demonstrates downward migration of endograft into the aneurysm sac (arrow).

Images courtesy of Up-To-Date, Endovascular repair of abdominal aortic aneurysms

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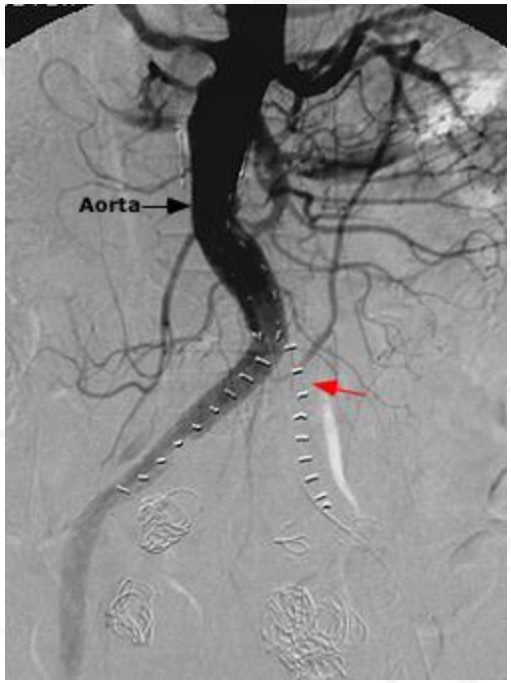
Graft thrombosis

(before tx)

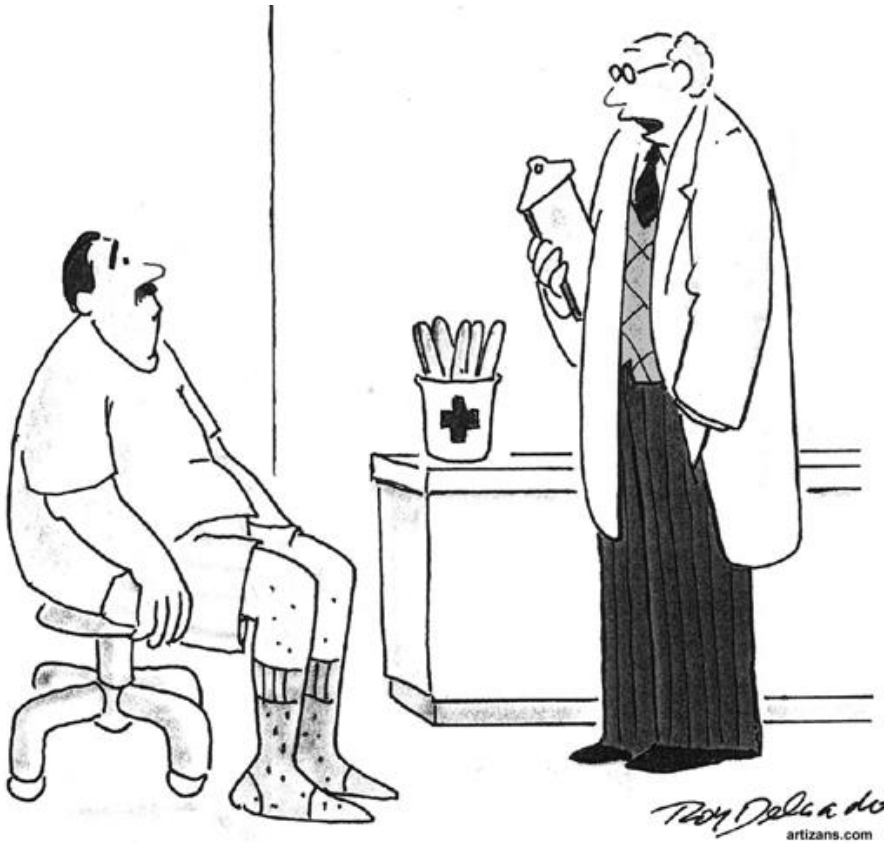


Contrast angiogram shows absence of filling of the left limb of bifurcated endograft due to thrombosis (red arrow).

(after tx)

The thrombosis of the left limb of the endograft (red arrow) was succesfully treated percutaneously with with thrombolysis, angioplasty, and stent placement.

Images courtesy of Up-To-Date, Endovascular repair of abdominal aortic aneurysms



" One of the side-effects is shortness of cash. "