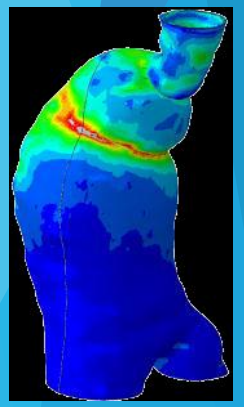
The 5.5cm diameter threshold for intervention is NOT obsolete

for infra-renal abdominal aortic aneurysms in men

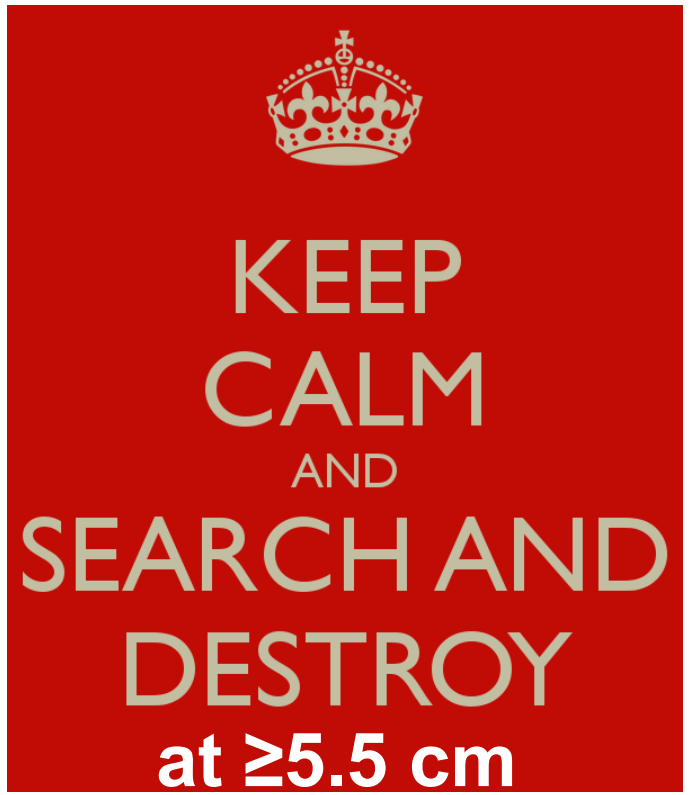
Janet Powell



Disclosures

- None

The debate in simple terms: rational, evidence-based versus greedy



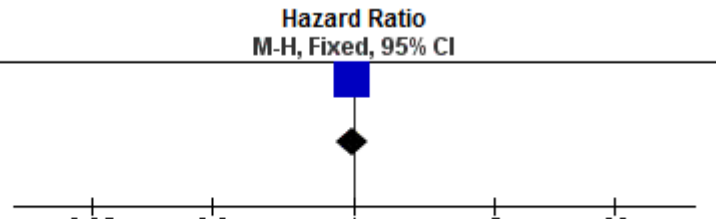
Cochrane review of 4 randomised trials of early intervention versus surveillance for small aneurysms (4.0-5.5cm)

Filardo et al Cochrane Database Systematic Review 2015

Early open repair versus surveillance

Study or Subgroup	Immediate Repair Events	Total	Surveillance Events	Total	Weight	Hazard Ratio M-H, Fixed, 95% CI
Pooled patient-level data ADAM and UKSAT	205	1132	200	1094	100.0%	0.99 [0.83, 1.18]
Total (95% CI)		**1132**		**1094**	**100.0%**	**0.99 [0.83, 1.18]**
Total events	205		200			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.11 (P = 0.92)



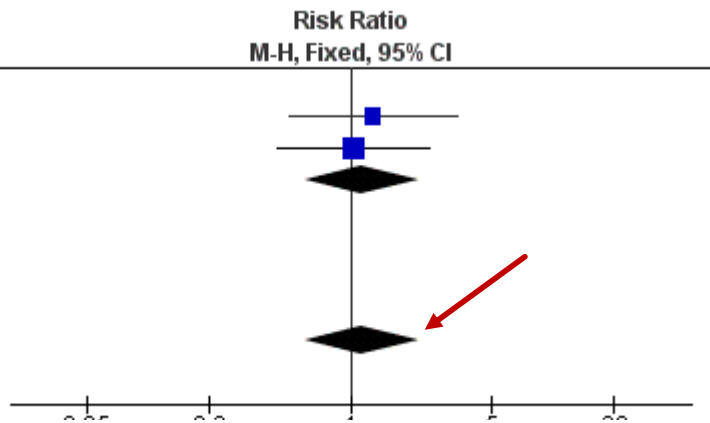
Early EVAR versus surveillance

Study or Subgroup	Immediate Repair Events	Total	Surveillance Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
1.1.1 EVAR repair						
CAESAR	9	157	7	158	41.6%	1.29 [0.49, 3.39]
PIVOTAL	10	253	10	263	58.4%	1.04 [0.44, 2.45]
Subtotal (95% CI)		**410**		**421**	**100.0%**	**1.15 [0.60, 2.17]**
Total events	19		17			

Heterogeneity: Chi² = 0.11, df = 1 (P = 0.74); I² = 0%
Test for overall effect: Z = 0.42 (P = 0.68)

Total (95% CI)		**410**		**421**	**100.0%**	**1.15 [0.60, 2.17]**
Total events	19		17			

Heterogeneity: Chi² = 0.11, df = 1 (P = 0.74); I² = 0%
Test for overall effect: Z = 0.42 (P = 0.68)
Test for subgroup differences: Not applicable



Evidence & limitations

- There was no evidence that early intervention led to better short, mid-term or long-term (to 12 years) survival
- Surveillance is the cheaper option
- Only the UK Small Aneurysm Trial included >5% women, so that the evidence is not robust for women

Same rate as for rupture after EVAR

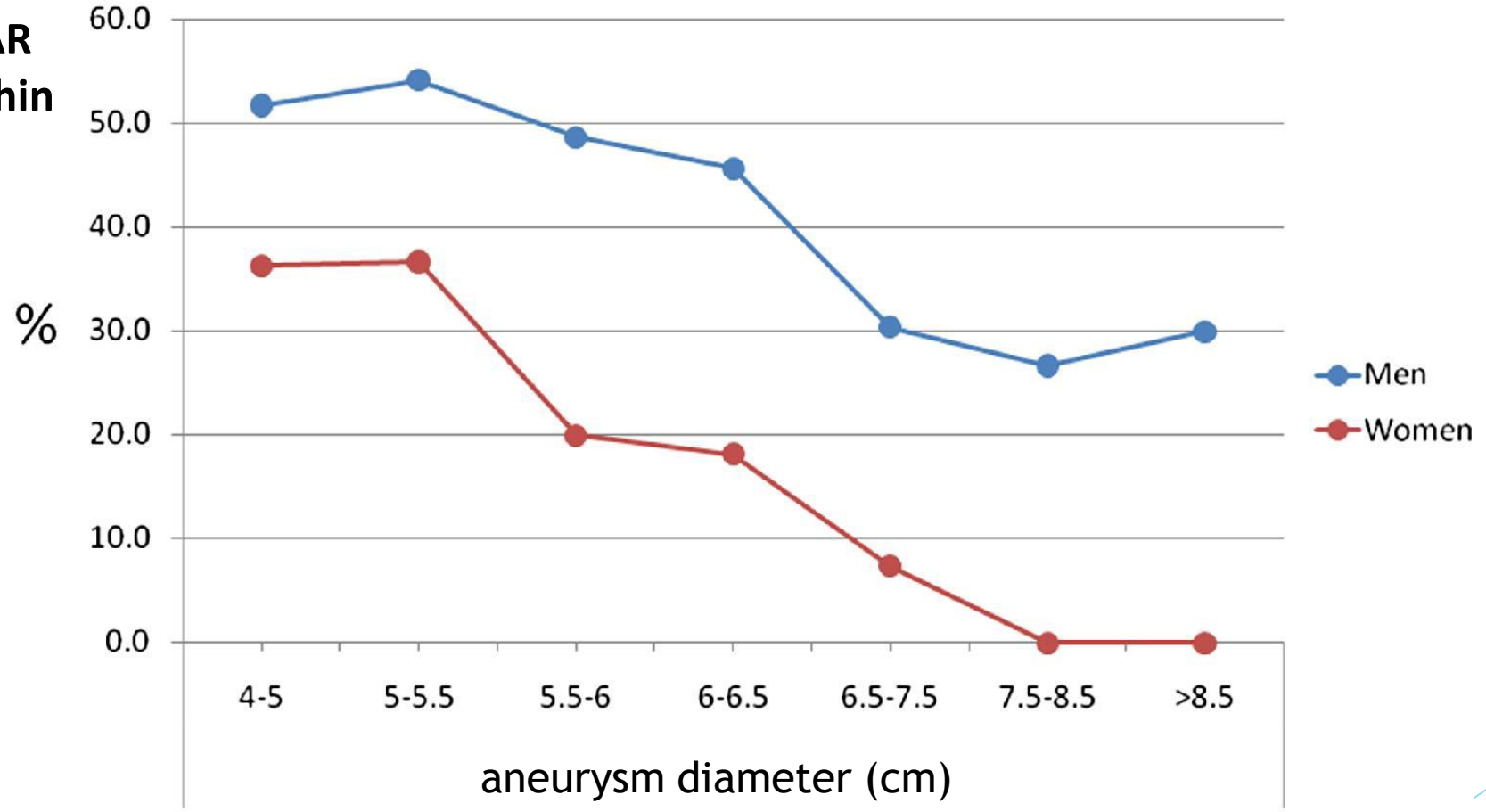
For men,

- the rupture rate of small aneurysms (<5.5cm diameter) is so low, <1% pa, that surveillance is the best management of small aneurysms.

- This defines the minimum **diameter** threshold for intervention as 5.5 cm but does not mandate repair the AAA when this threshold is attained.

Diameter & morphological suitability for EVAR

no loss of suitability for EVAR before 5.5 cm diameter



Sweet MP et al J Vasc Surg 2011 M2S database 2566 patients

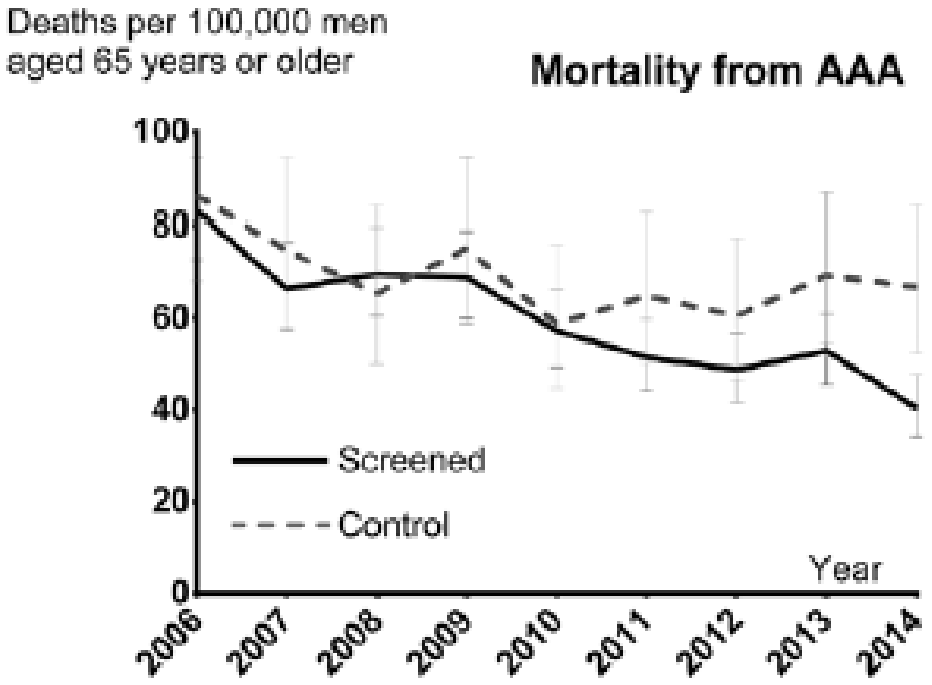
The safety of the 5.5 cm diameter threshold for men in the population: **Europe 2016**

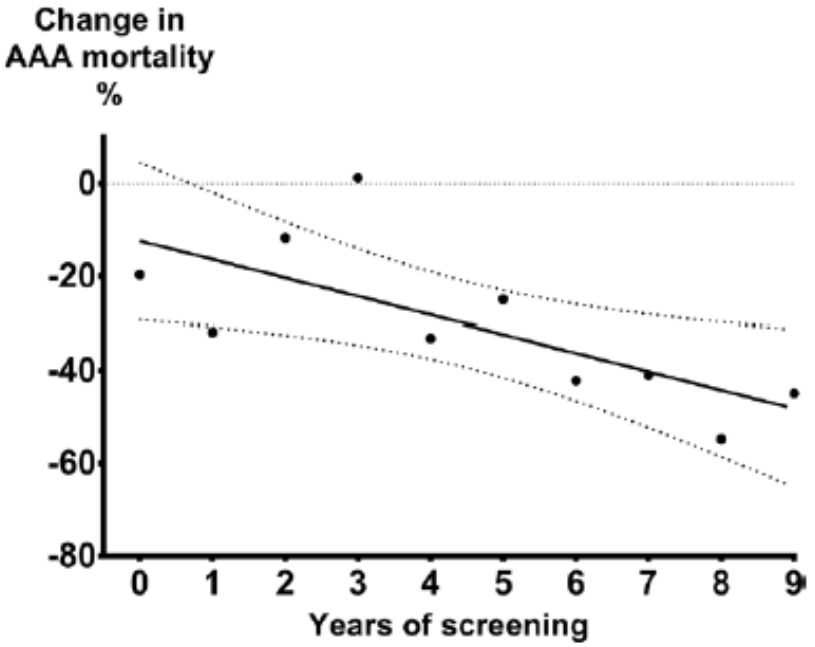
- Data from the **UK national screening** programme
- 157730 men screened 2009-2012, 2484 new AAA
- 1 rupture of a mycotic aneurysm
- Cost-effective, operative mortality <1%

- Data from the **Swedish national screening** programme
- 253896 men screened 2006-2014, 3891 new AAA
- No ruptures reported
- Cost-effective, operative mortality <1%

J Vasc Surg 2013;57:1440-5; Br J Surg 2016;103:1125-31; Circulation 2016;134:1141-8

Screening & intervention at 5.5cm reduces AAA-related mortality: **Sweden 2016**





Circulation 2016;134:1141-8

AAA screening & intervention at ≥5.5 cm is cost-effective at reducing AAA-related deaths

- **Safe, evidence-based approach**
- **But takes several years to accomplish reduction in AAA-related deaths**
- Men only

Why is the comparison of USA & England practice misleading?

Thresholds for AAA repair in England & USA: NEJM 2016;375:2051-9

1 Based on dated data 2005-12

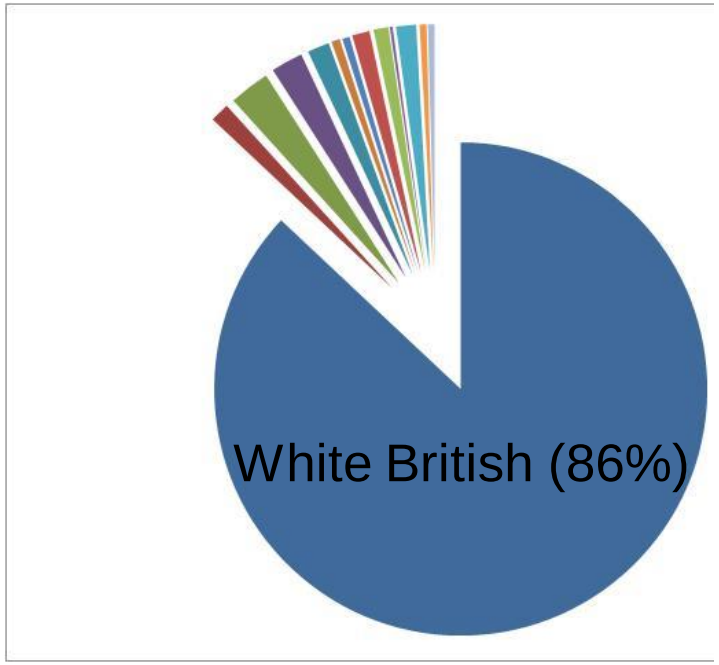
2010-2015 Hospital Episode Statistic data for England show that 75% or more elective repairs were by EVAR & deaths from rupture still declining fast

2 The populations are different, with different risks for AAA

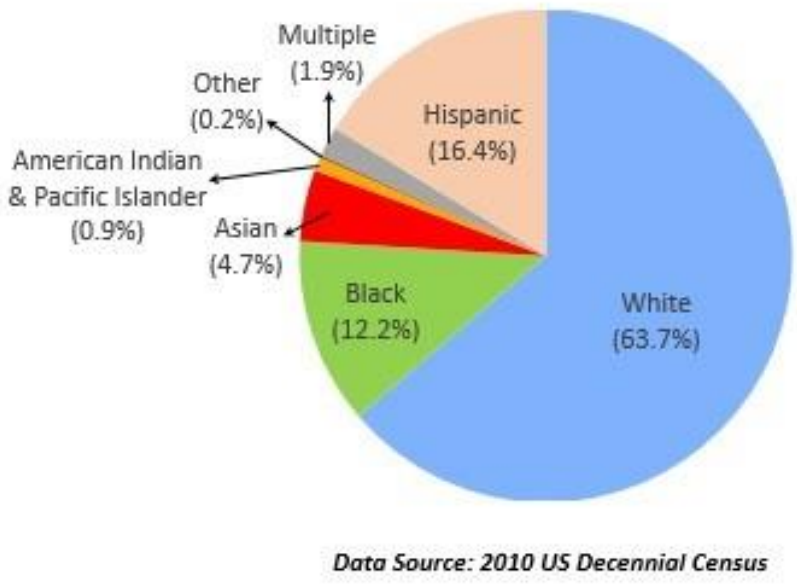
3 The USA spends twice as much on healthcare as Europe

The population risk of AAA is different

England



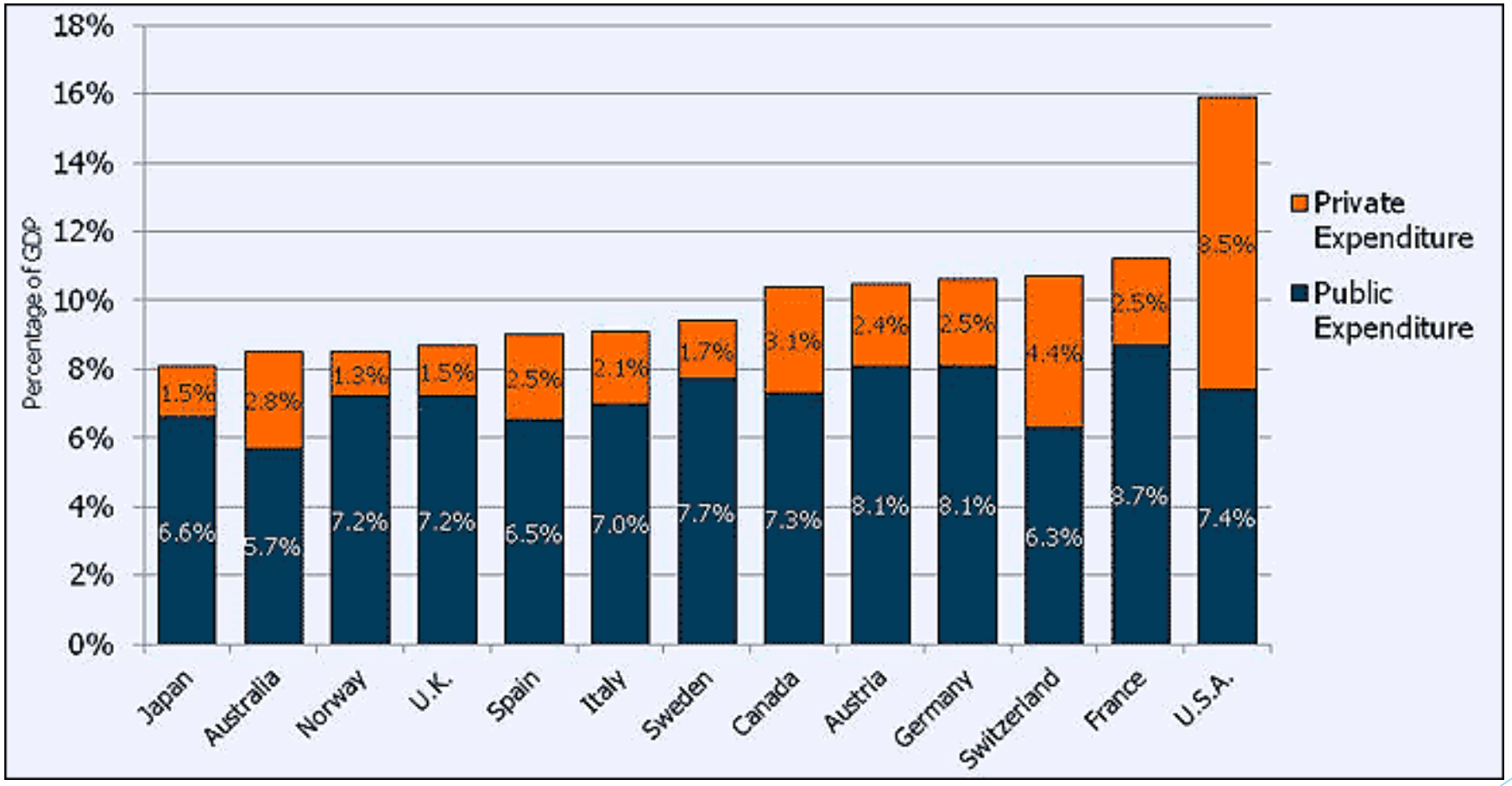
USA



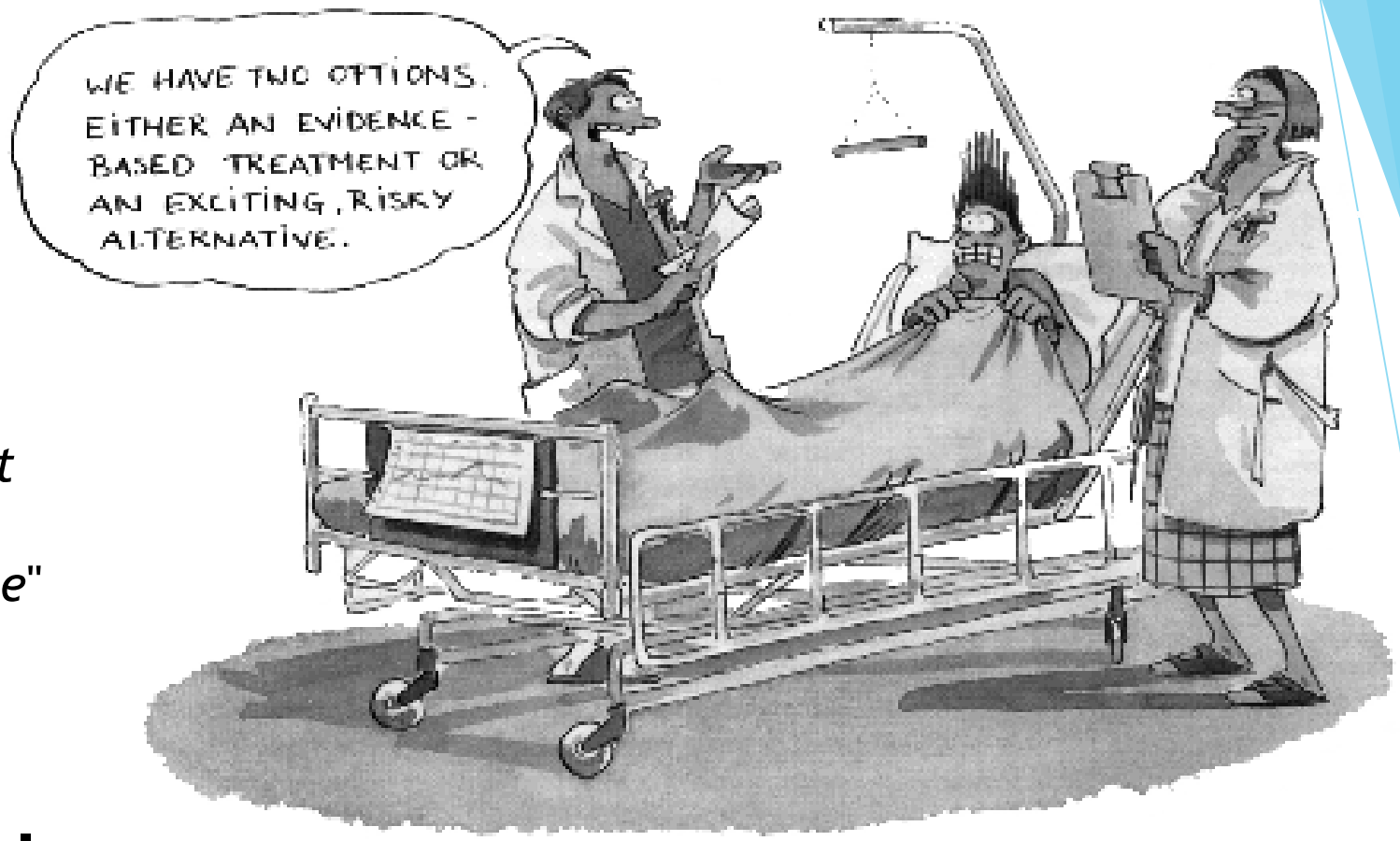
19% smokers **2014** **15% smokers**

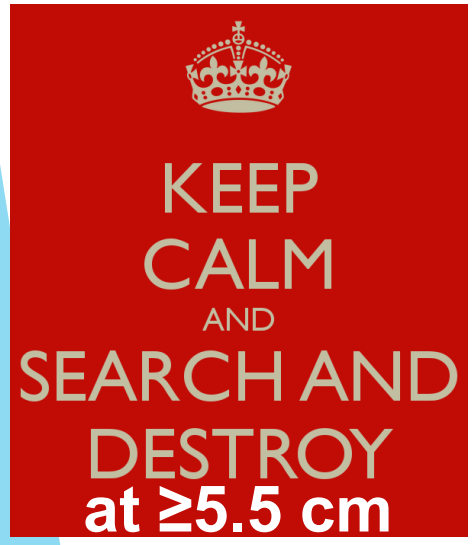
Ethnic minorities have a lower rate of AAA than whites

Expenditure on health care is different



"Nous avons deux options: soit un traitement basé sur des faits prouvés, soit une alternative excitante mais risquée"





In men:
Screening & intervention at the 5.5cm threshold remains clinically effective & cost effective

For women, there is no good evidence