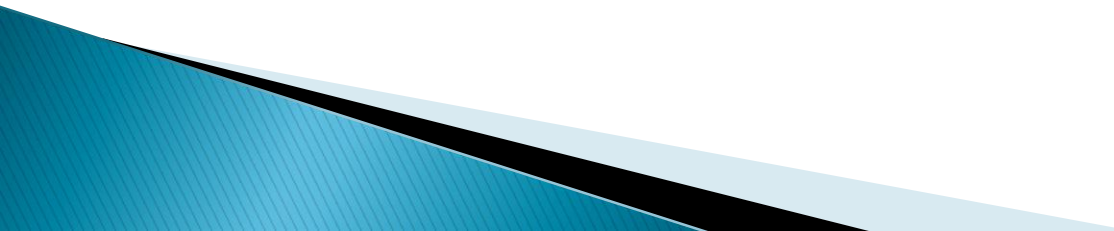


Prostate Cancer 101

John Tuckey
Urologist
Auckland

Prostate Cancer 101

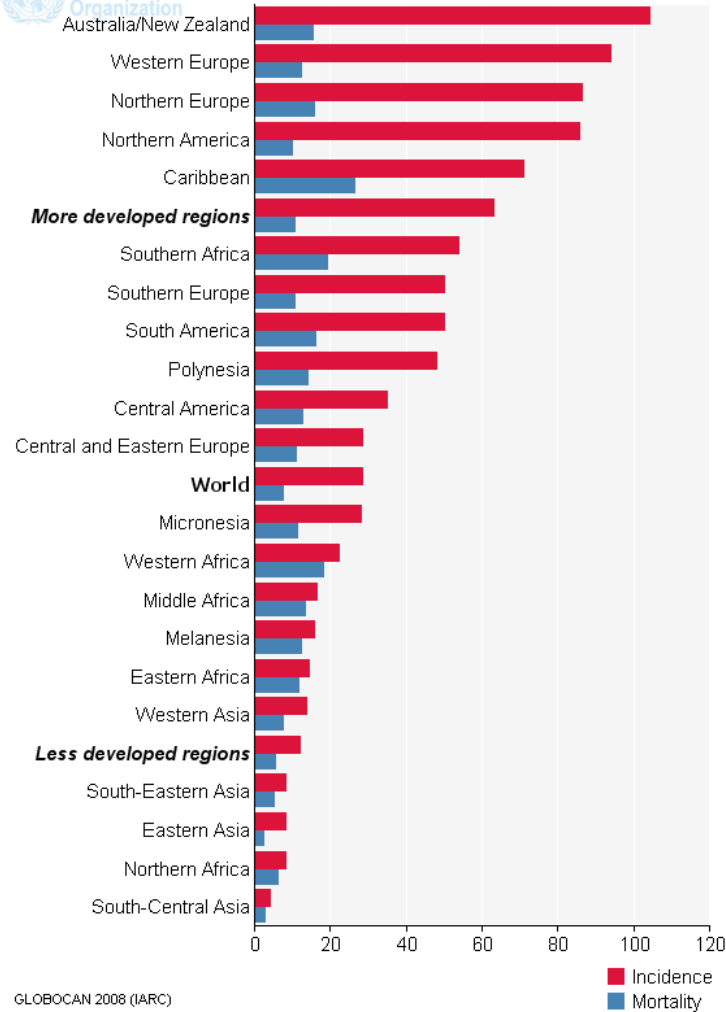
- ▶ screening studies
 - ▶ what to do with a raised PSA
 - ▶ how to minimise the risk of missing an important prostate cancer
 - ▶ prostate biopsy techniques
 - ▶ active surveillance
- 

Worldwide Incidence

International Agency for Research on Cancer



World Health Organization



Is Prostate Cancer important?

- ▶ Commonest male cancer – 2939 per year
- ▶ Third male cancer death – 670 per year

More die with than of the disease *but*

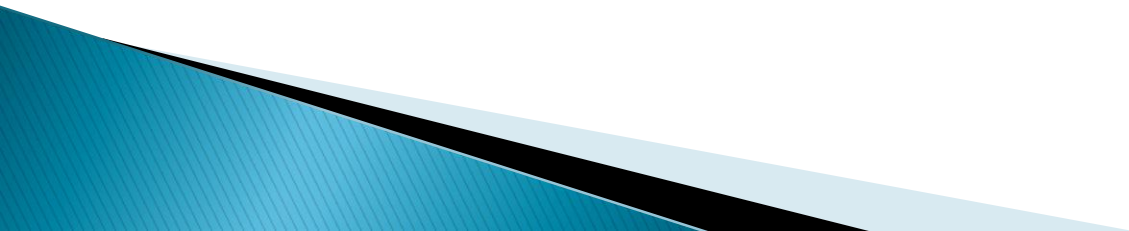
- ▶ More people die of prostate than breast cancer

Prostate Cancer Dilemmas

Microscopic cancer 50% of men in 50's

Clinical cancer 15% of men

Is the cancer clinically important?



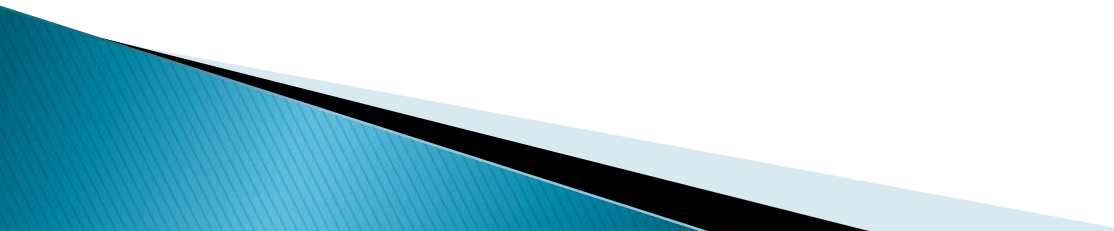
Prostate Cancer Dilemmas

Will they live long enough to need a cure?

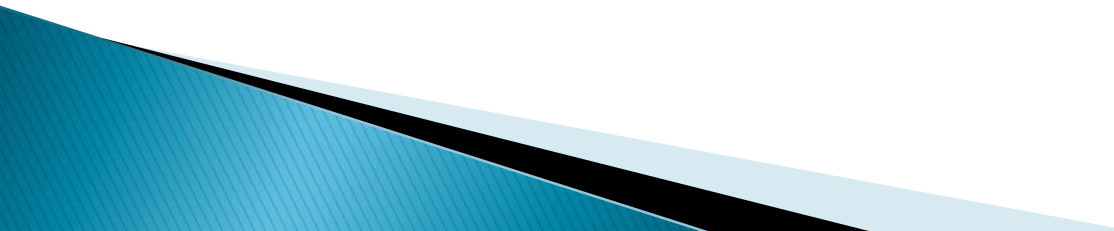
Average age at diagnosis 72 years

–life expectancy at 72 is 10 years

Progression time around 15–20 years



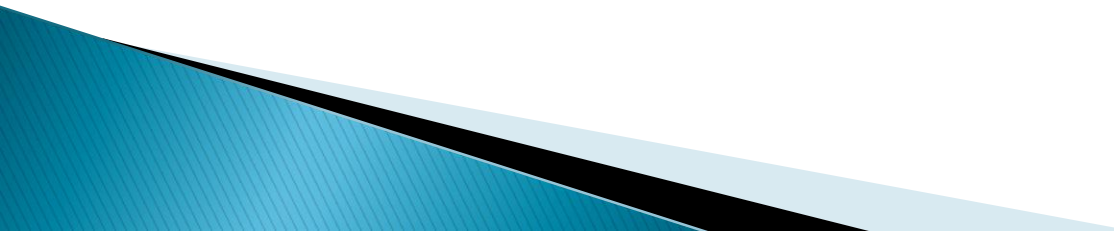
Screening Studies

- ▶ European Randomised Study for Screening for Prostate Cancer (ERSPC)
 - ▶ Prostate, Lung, Colorectal and Ovarian Screening (PLCO) Trial
 - ▶ Goteberg Study
- 

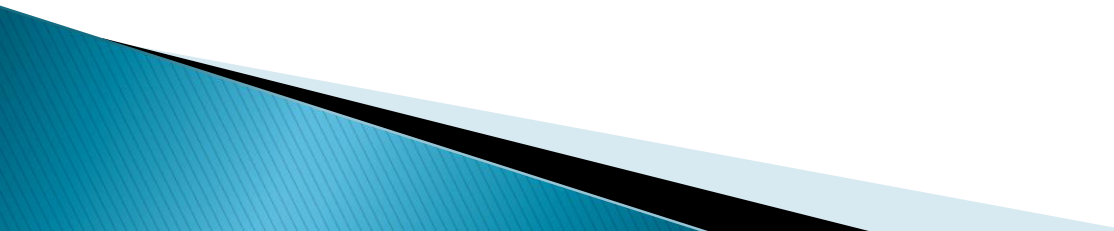
Screening Studies

- ▶ European multicentre randomised study
ERSPC
 - 182,000 men
 - 1991–2003
 - age 50–69
 - PSA every 4 years

European randomised study ERSPC

- PSA based, no DRE
 - biopsy if PSA $>3-4$ ng/ml
 - average number of PSA's = 2
 - average follow-up @ 9 years
- 

European randomised study ERSPC

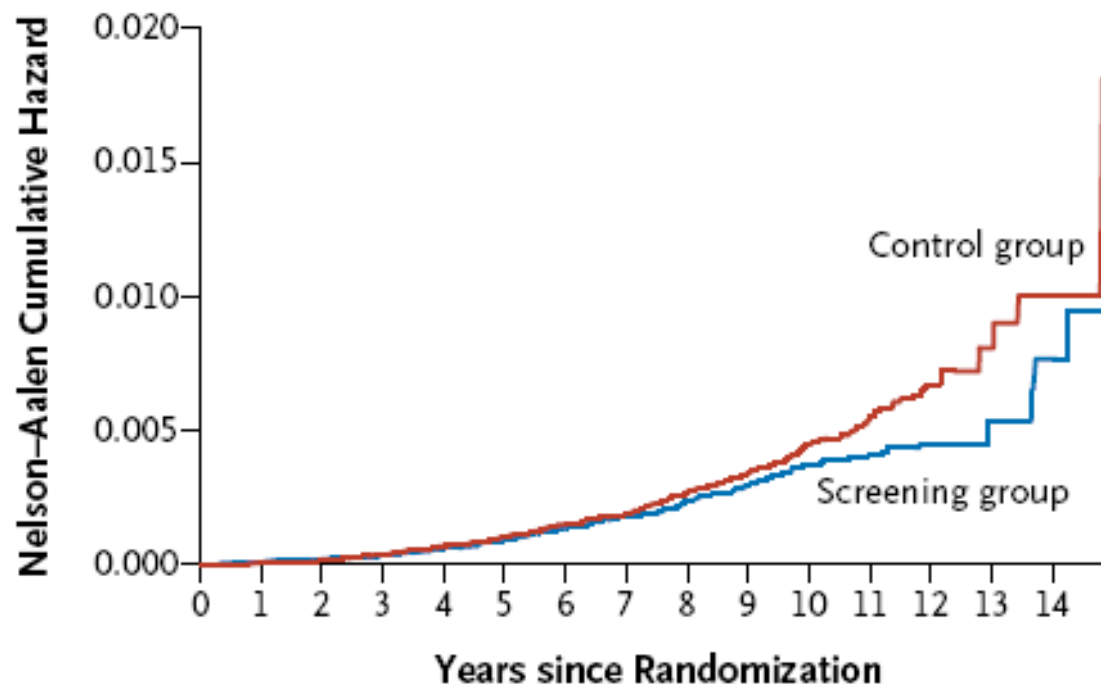
- screening results similar to other studies
 - acceptance of screening at least 1x=82%
 - PSA positive 16%
 - biopsies 85%
 - biopsies positive 24%
- 

European randomised study ERSPC

	screening	controls
– prostate cancer	8.2%	4.8%
– prostate death ratio	0.8	1.0
– 20% reduction in Ca P mortality, 27% for those screened		

European randomised study ERSPC

Cumulative Risk of death from Prostate Cancer



European randomised study *Update*

ERSPC

11 yrs

25 yrs

Mortality reduction (scr)	29%	
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Number needed to screen	930	262
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Number needed to treat	33	9
------------------------	----	---

Prostate, Lung, Colorectal and Ovarian Screening (PLCO) Trial

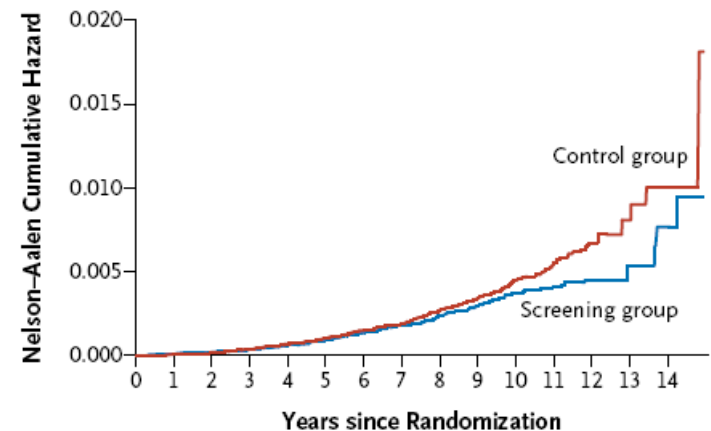
- USA , 1993–2001
 - 76,793 men
 - age 55–74
 - annual PSA, sometimes DRE
 - PSA > 4ng/ml
- 

Prostate, Lung, Colorectal and Ovarian Screening (PLCO) Trial

Controls 52% had a PSA

Screened 85% had a PSA

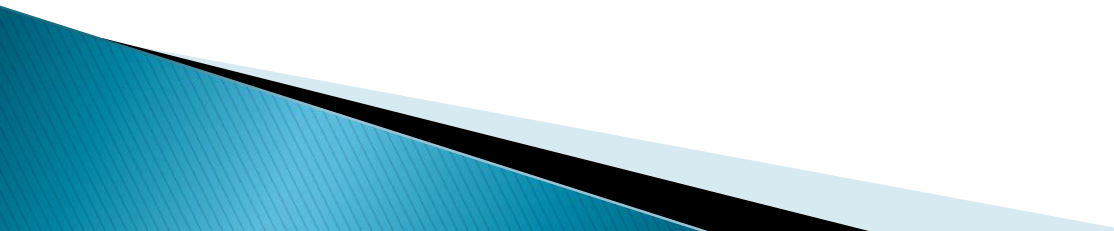
No survival difference at 7 years



Prostate, Lung, Colorectal and Ovarian Screening (PLCO) Trial

Analysis of no co-morbidity 0 vs ≥ 1

44% mortality reduction with screening



Göteborg

19,904 men (Europe)

1994 randomisation

PSA every 2 years

Followed 14 years

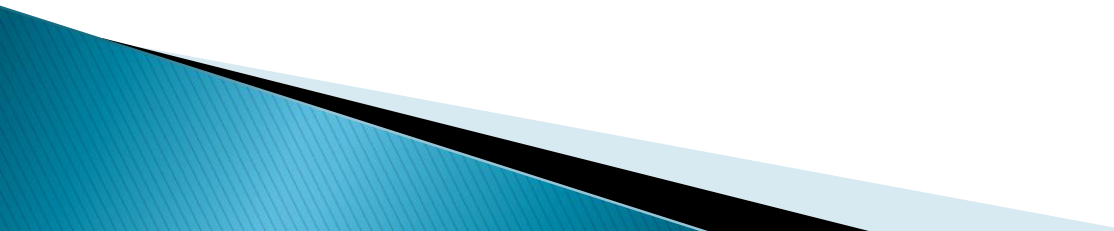
44% reduction in mortality

Number needed to treat 12

Screening Studies

- ▶ Screening reduces mortality
- ▶ Concerns exist for
 - over-diagnosis
 - treatment injury
 - cost-benefit analysis

Current recommendations?

- ▶ Urological Society of Australasia
 - not recommend population screening
 - 55–69 age group can have a PSA as European study shows reduced mortality
 - increased risk exists in those with a PSA over median for age (2.5 – 3.5 risk)
- 

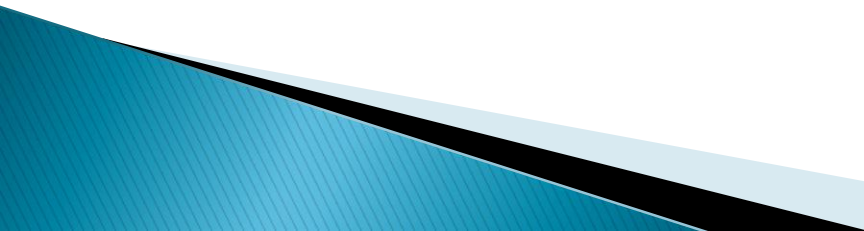
Current recommendations?

- ▶ Urological Society of Australasia
 - men over 40 to evaluate their risk with a single PSA
 - warning that PSA level does not predict volume or aggressiveness
 - active surveillance for small volume low grade
- 

Diagnosis



PSA

- ▶ only produced by prostatic epithelial cells
 - ▶ labs may have different assays
 - ▶ elevated by
 - UTI
 - cystoscopy
 - prostatitis (asymptomatic)
 - cycling no but....
 - exercise no but...
 - ejaculation 1–24hrs +/-
 - DRE no
- 

What to do with a raised PSA?

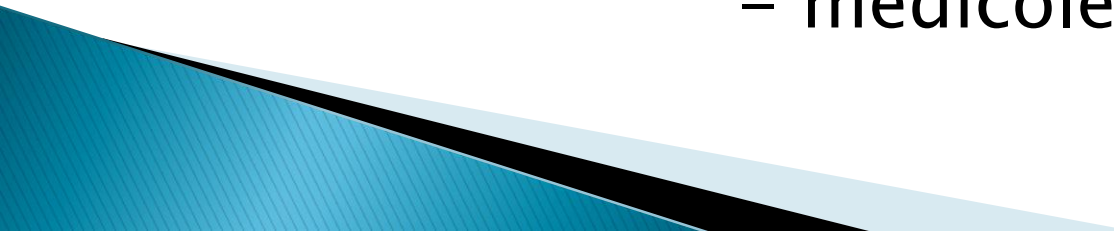
- ▶ 50% will fall naturally
- ▶ $T_{1/2}$ is 2–3 days – so wait 3–6 weeks
- ▶ If prostatitis suspected – 3/52 triprim 300mg
- ▶ DRE adds 10–20% extra information



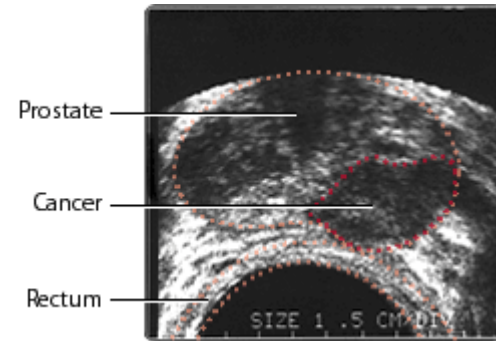
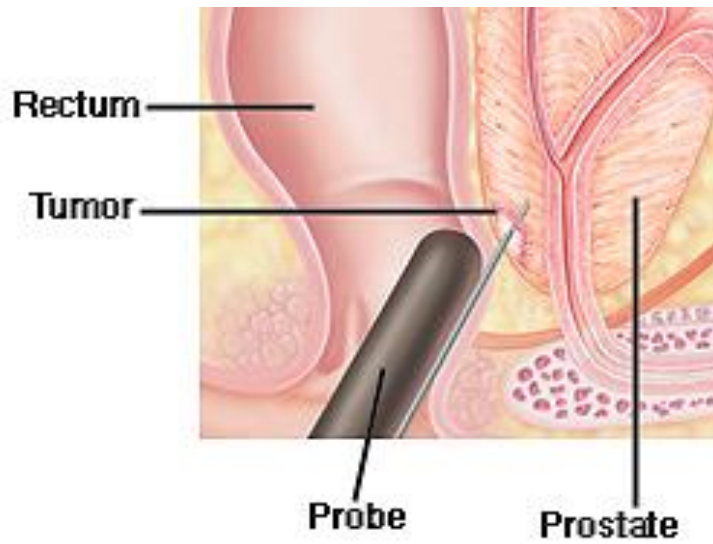
Chance of cancer ?

	DRE-	DRE+
PSA normal	–	25%
PSA elevated	25%	50%

Persistently raised PSA

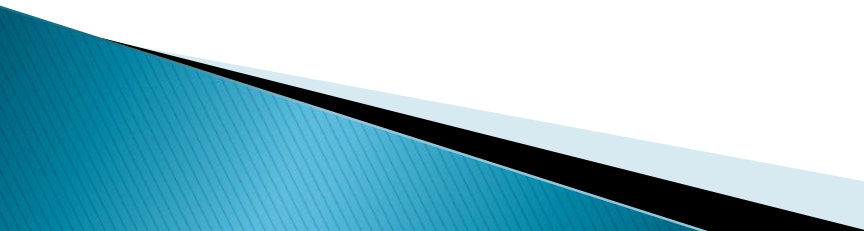
- ▶ Refer on – 25–50% risk is high
 - ▶ A mildly elevated PSA can be aggressive cancer
 - 2 patients with PSA 5–6 and Gleason 9 tumours
 - medicolegal cases
- 

Diagnosis



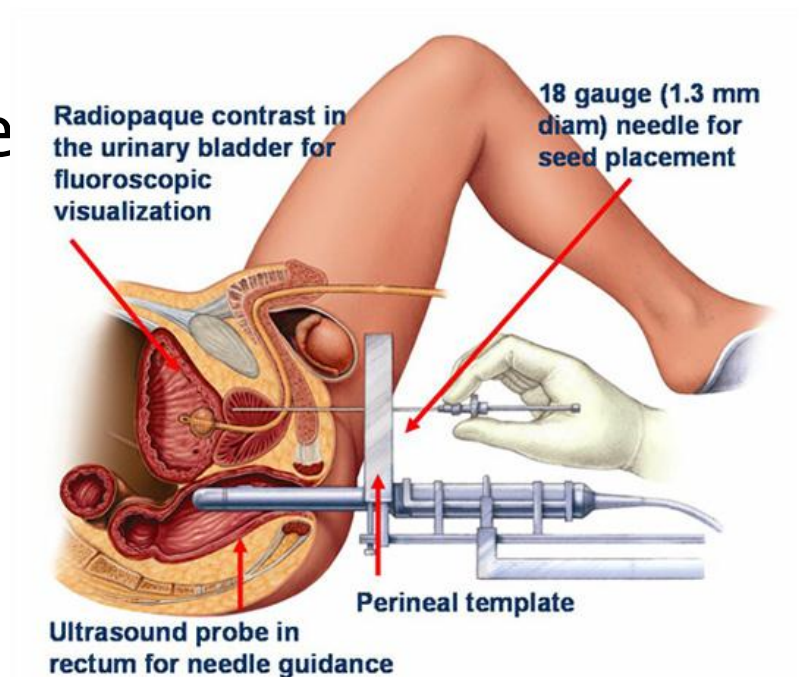
Ultrasound alone no value – need biopsy

Diagnosis

- ▶ risk of sepsis increasing
 - ▶ around 3%
 - ▶ travel to Asia – ESBL swab
 - ▶ sepsis treatment gentamicin +
amoxycillin/clavulanic acid
- 

Diagnosis

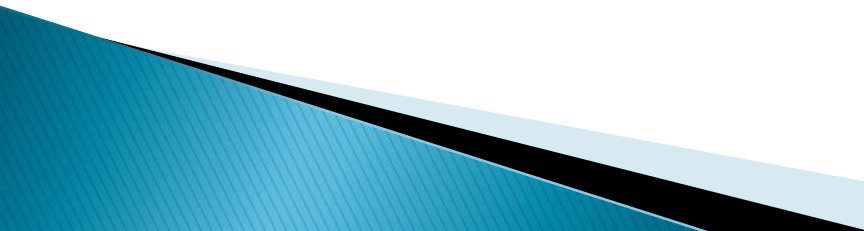
- ▶ transperineal biopsy an alternative
- ▶ sedation or GA or ?LA
- ▶ can reach anterior zone
 - 10% cancers
 - large glands and rising PSA



Treatment Options – localised

- ▶ Active Surveillance
- ▶ Radical Prostatectomy
- ▶ Radiotherapy
 - external beam
 - brachytherapy

low dose-rate
high dose-rate



Active Surveillance

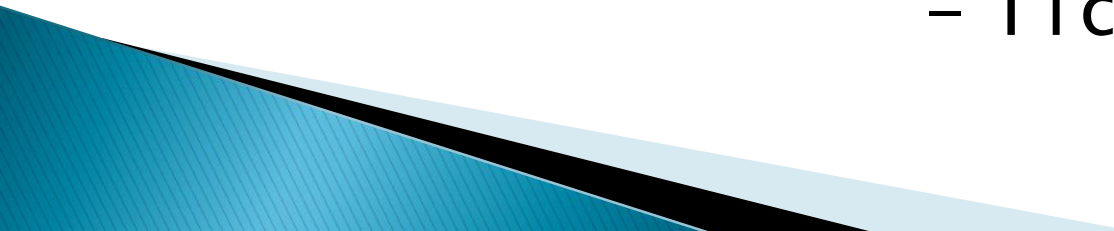
- ▶ close monitoring
 - ▶ low volume/grade tumours
 - ▶ reduce over-treatment
 - ▶ increasingly common, numbers large
 - ▶ ?GP's involved in management
- 

Active Surveillance

- ▶ Stamey 1982 Cysto-prostatectomy specimens
 - lifetime clinical prostate cancer 8%
 - largest 8% of tumours were $> 0.5\text{cc}$
 - significant cancers $> 0.5\text{cc}$
 - how to identify smaller tumours

Active Surveillance

- ▶ Epstein developed these biopsy criteria to identify low volume disease

- Criteria
- ≤ 3 cores positive
 - $< 50\%$ of any core +ve
 - Gleason 6 or less
 - T1c (impalpable)
- 

Active Surveillance

- ▶ Radical prostatectomy specimens
 - ‘low risk’ on biopsy
 - 2/3 had $< 0.5\text{cc}$ tumours

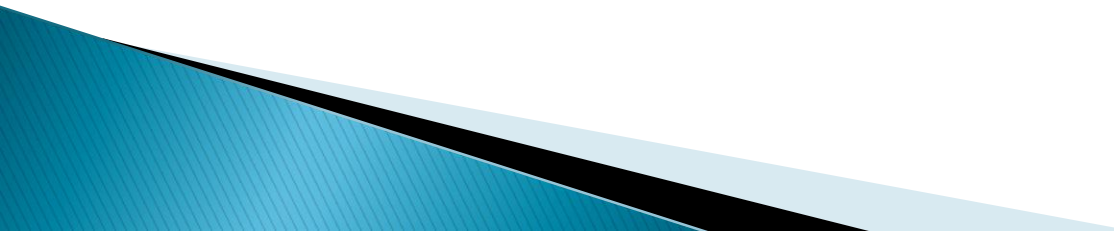
Active Surveillance

- ▶ Experience up to 5 years show
 - 14–30% progression
 - consistent with Epstein 1 / 3 $>0.5\text{cc}$
 - change to DRE/biopsy grade/volume
 - PSA kinetics disappointing
 - 97% 10 year Ca specific survival

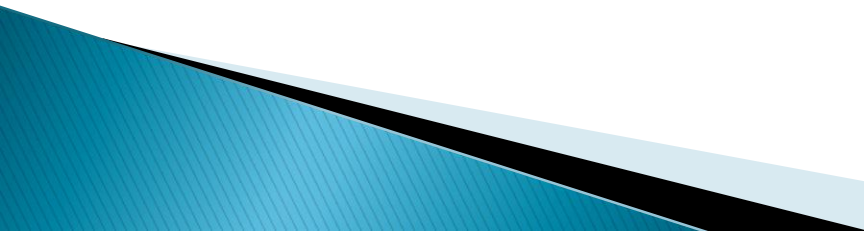
Active Surveillance

- ▶ Protocols vary
 - some protocols not catching disease early
 - lowest extracapsular spread rate 8%
 - 3 / 12 PSA/DRE
 - yearly biopsy

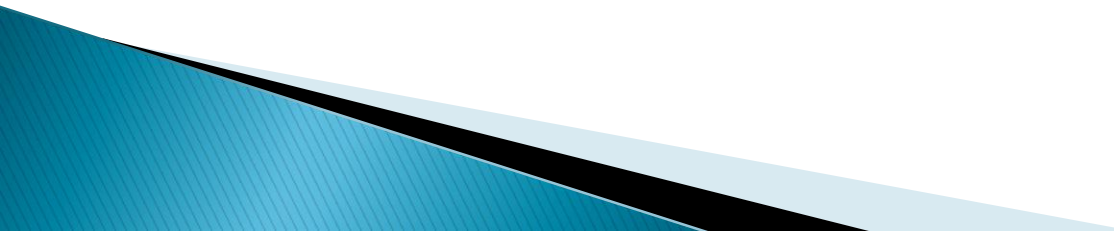
Active Surveillance

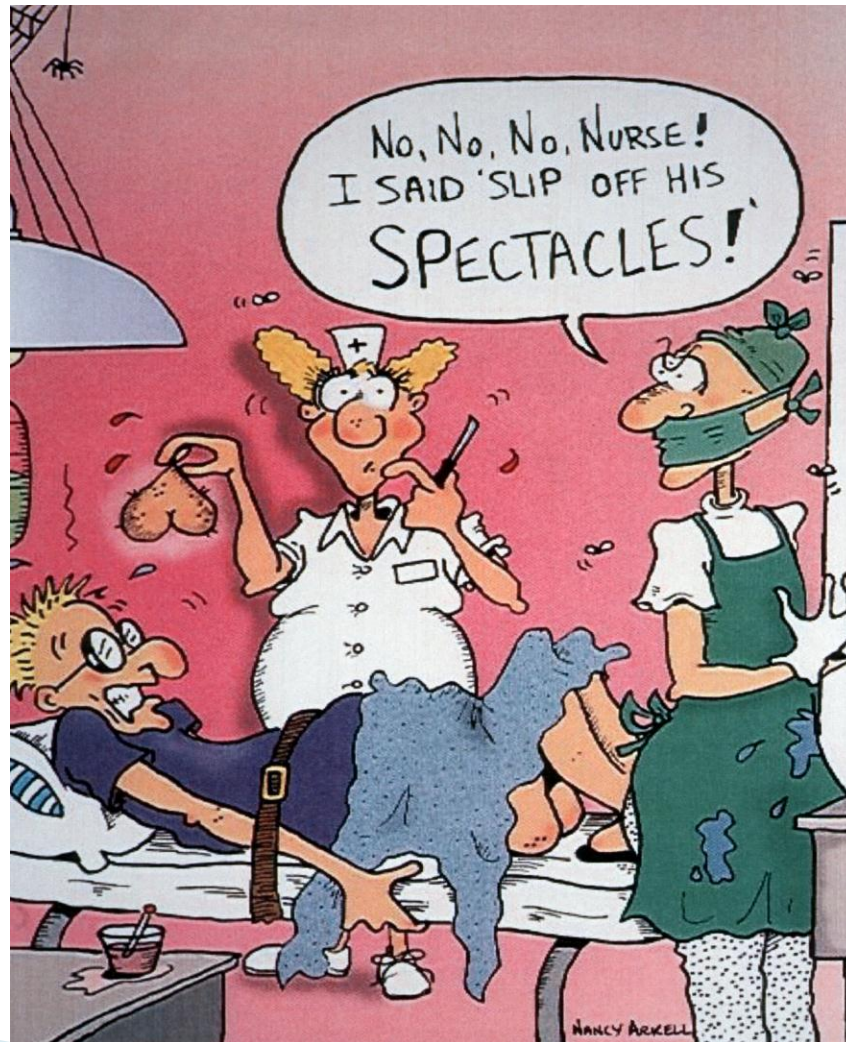
- ▶ there is some risk
 - DRE important
 - PSA may be misleading
 - biopsy may be the most accurate
 - optimal protocol not known
- 

Treatment options

- ▶ GP in a unique position
 - ▶ know patient best
 - ▶ cure rates are similar
 - ▶ relevant
 - co-morbidity
 - urinary/bowel/anticoagulants
 - work commitments
 - travel
- 

Treatment options

- ▶ Surgery younger patient
 - risk of second malignancy
 - options have similar outcomes
 - ▶ Radiotherapy – older patient
 - brachytherapy best tolerated
 - ▶ Resources – Cancer Society, prostate.org.au
- 



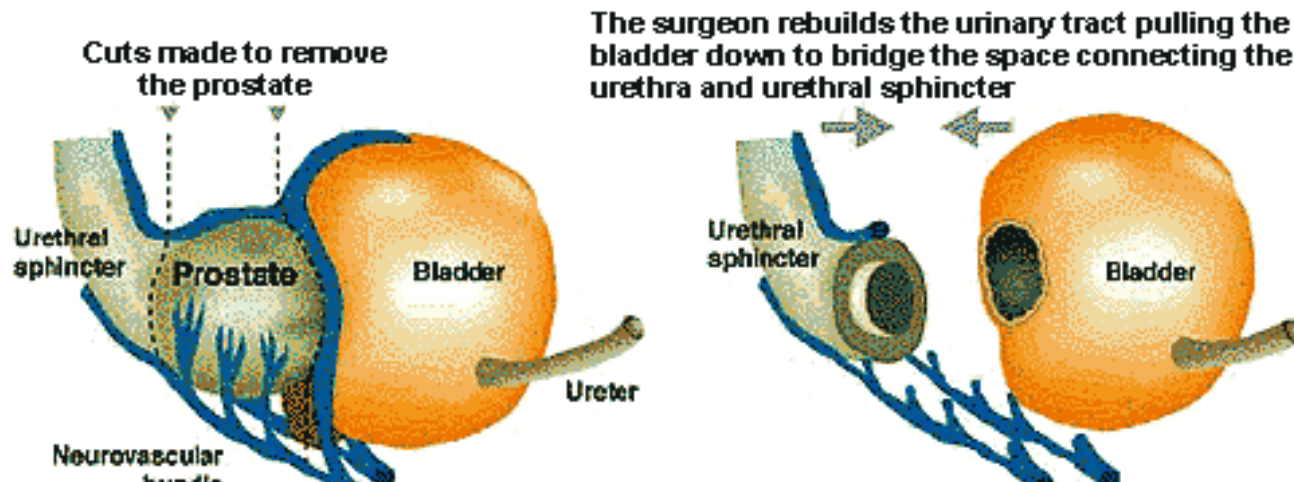
YOUR RETURN SEEMS TO BE IN ORDER, MR. FERGUS, SO I'LL JUST GIVE YOUR PROSTATE A QUICK CHECK AND LET YOU GO.





Surgery–Radical Prostatectomy

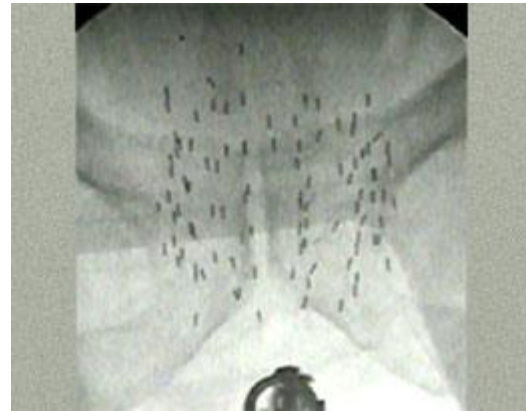
- ▶ Cure rates 80–90%



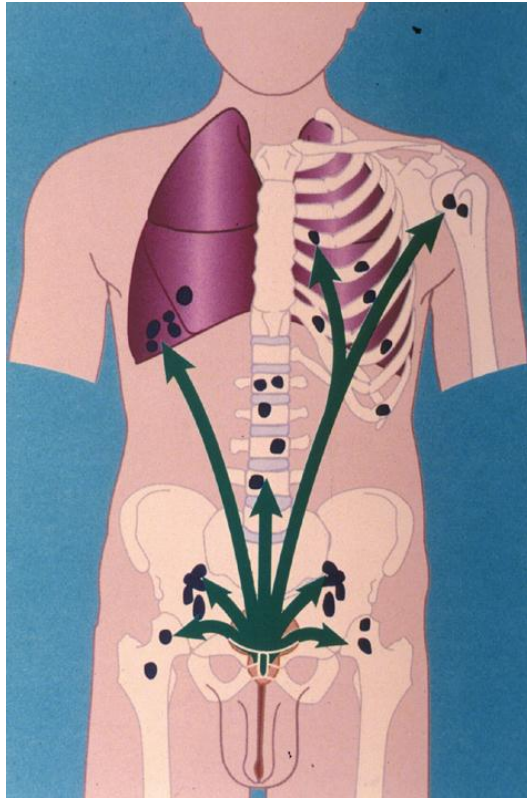
External Beam Radiotherapy



Brachytherapy



If the cancer has spread



Screening Studies

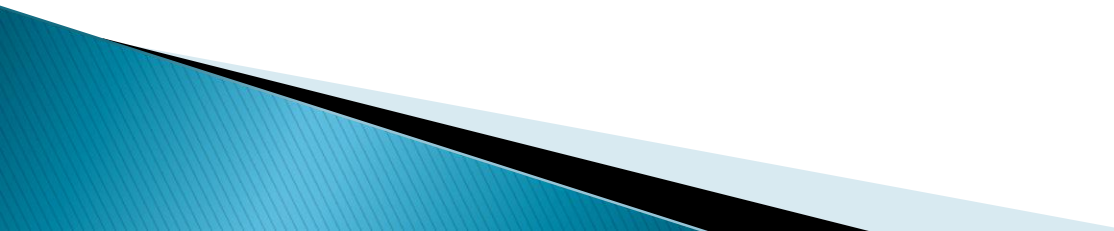
- ▶ European (ERSPC) 182,000 men

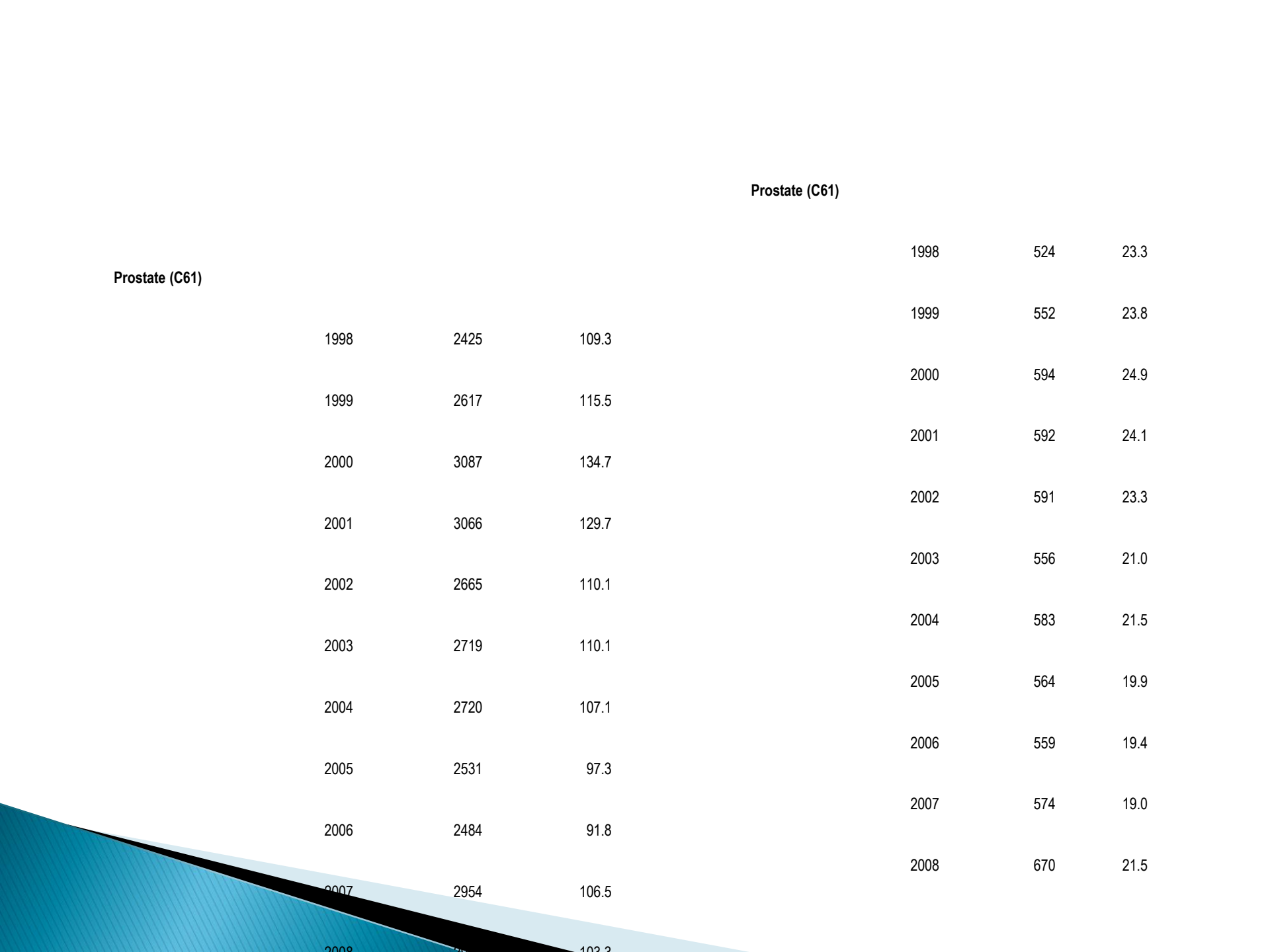
4 yearly PSA +/- DRE

Controls	326 deaths
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Screened	214 deaths
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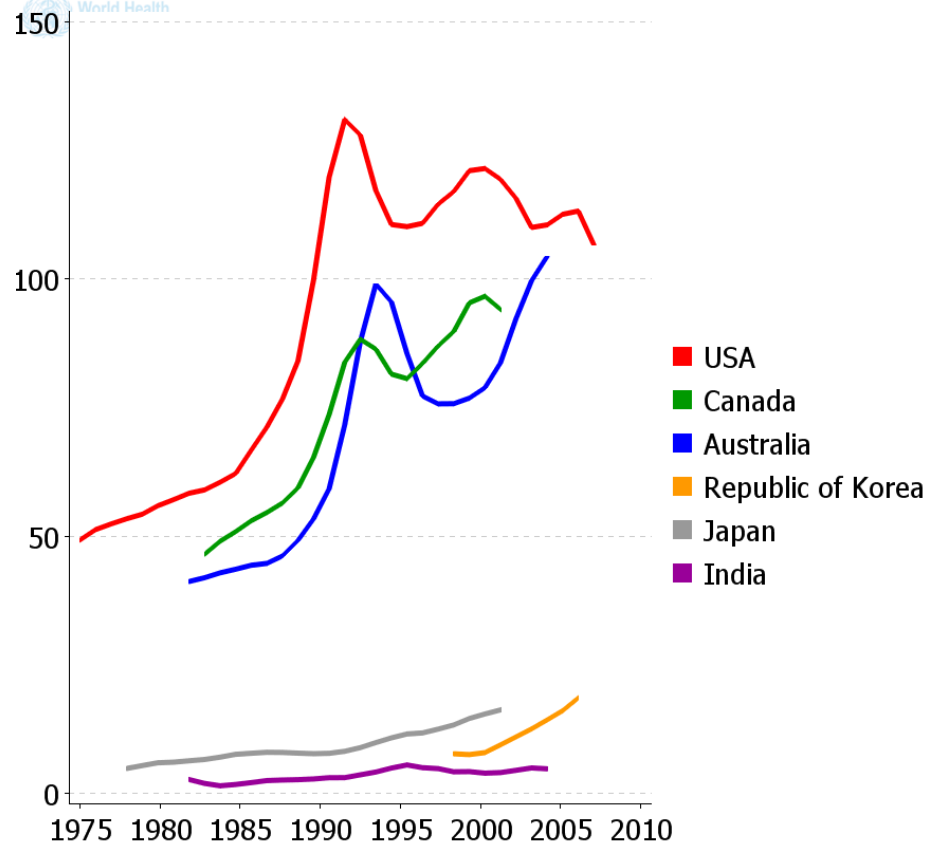
20% reduction in mortality at 8.8 years





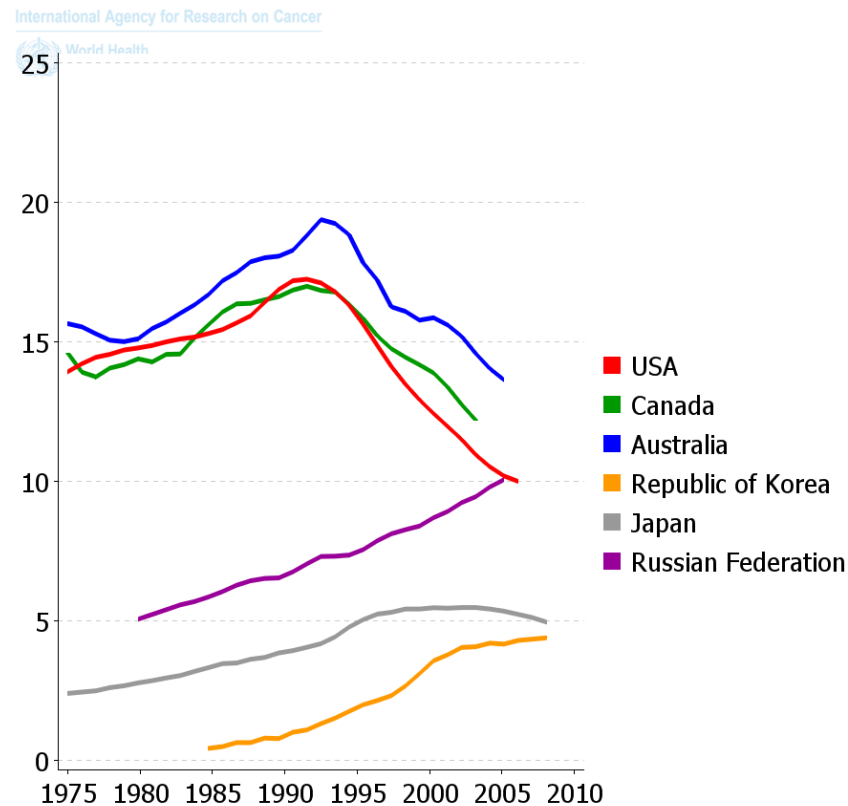
International Agency for Research on Cancer

World Health



Worldwide Mortality

- ▶ NZ mortality falling since 2000





Screening Studies

- ▶ Screening reduces mortality
- ▶ Concerns exist for – overdiagnosis
 - treatment injury
- ▶ So – who to screen, how to screen?

Current recommendations?

- ▶ Urological Society of Australasia
 - monitor those over age–median

		40–9	50–9
Baltimore LSA	3.5 risk	>0.6	>0.7
Malmo PMS	2.5 risk	0.5–1	