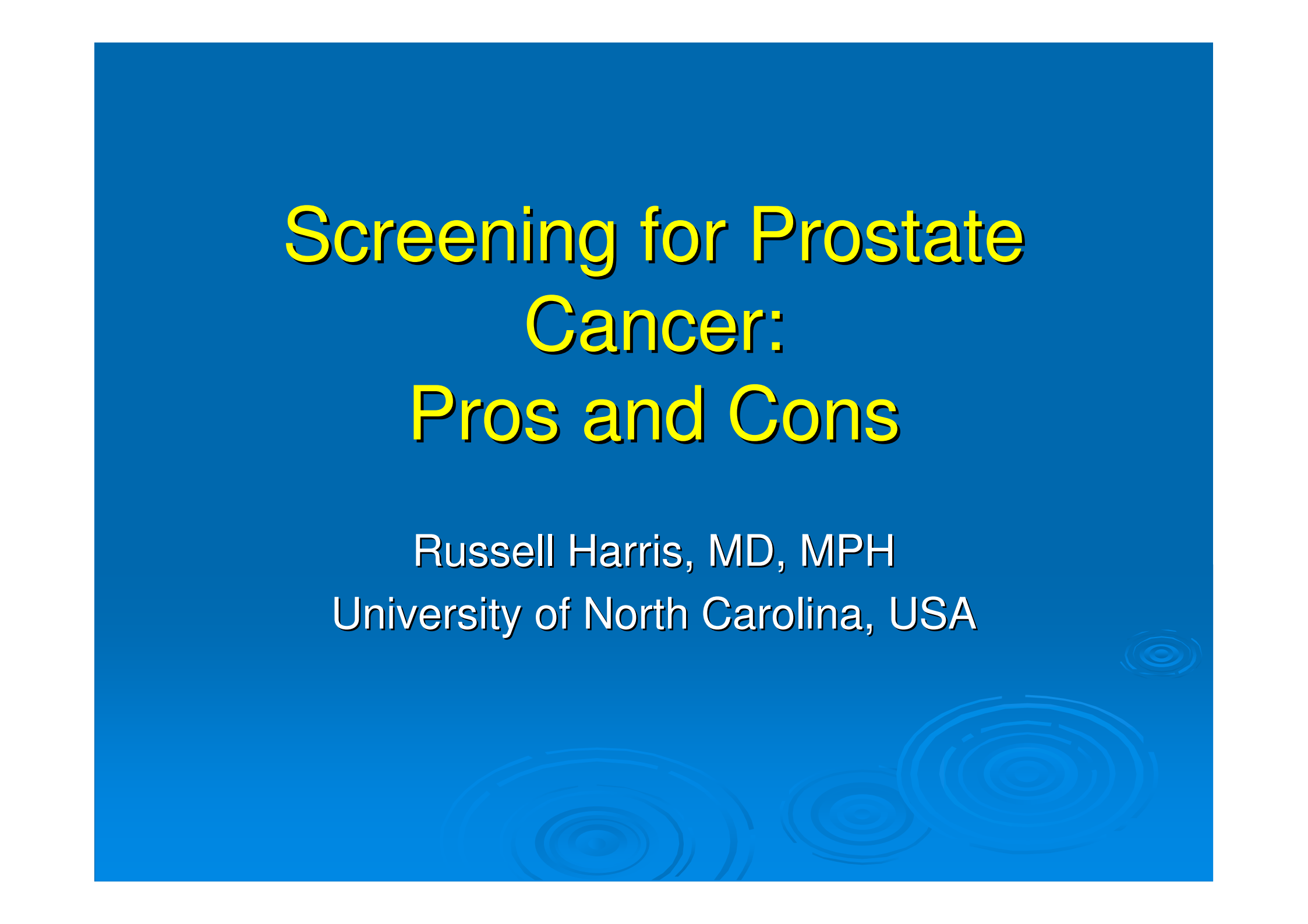



Screening for Prostate Cancer: Pros and Cons

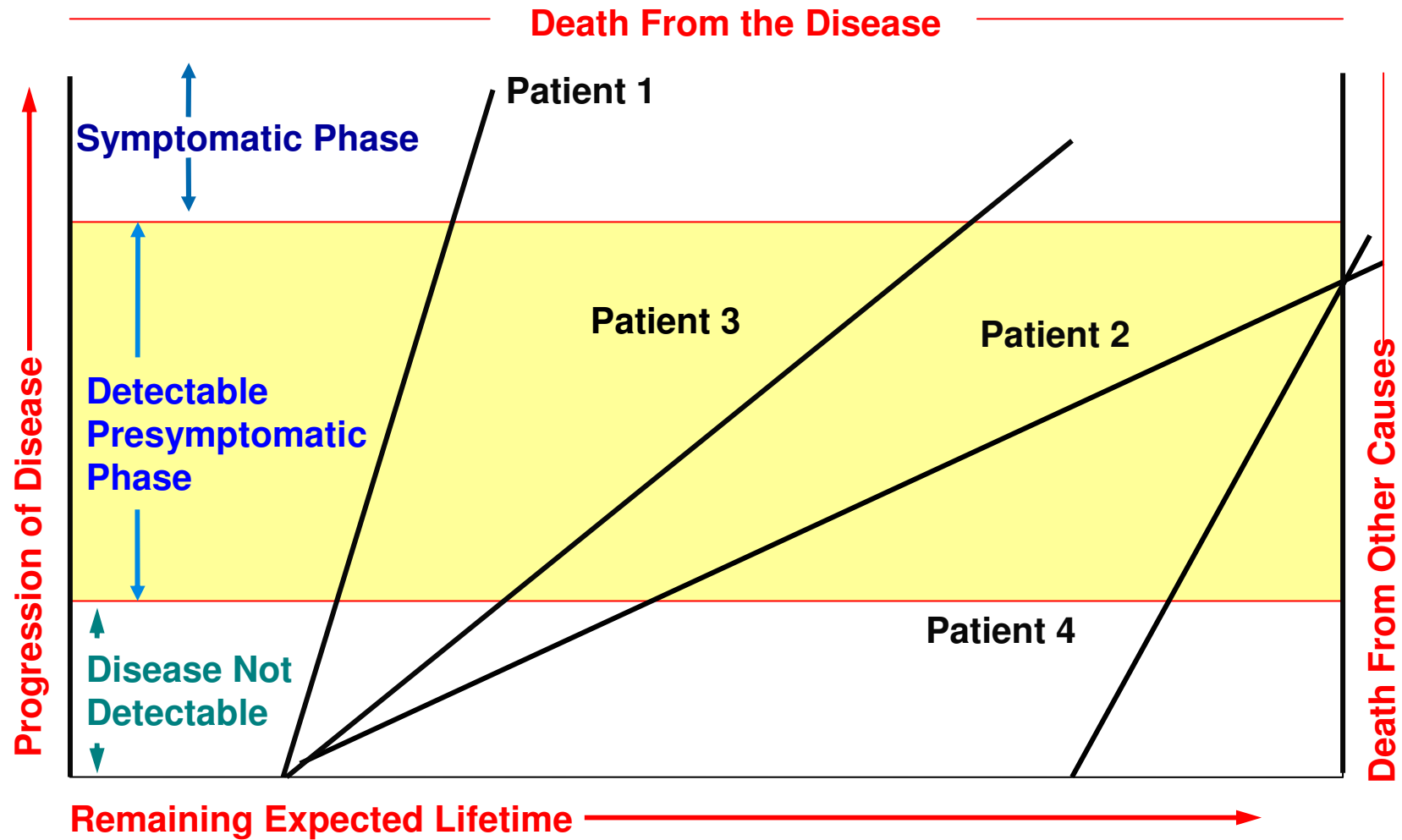
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General Issues in Screening

- Intuitive appeal
 - Actually, can cause benefits and harms
 - Need to analyze the magnitude of benefits and weigh against the magnitude of harms
 - Costs are also a concern
- 

Heterogeneity of Disease: A Problem in Screening



A General Rule in Screening

- The goal is not simply detection; it is to help people live better or longer.
- The key issue is not how much disease you find; the critical issue is what kind of disease you find.
- The disease we want to find is disease that is better treated earlier than later.

Today's Presentation: Prostate Cancer Screening

- (1) The potential harms
- (2) The potential benefits
- (3) Weighing the benefits against the harms
- (4) Suggestions on what we should do

The Potential Harms

- (1) False positives
- (2) Harms of treatment
- (3) Over-diagnosis

1,000 Asymptomatic Men Ages 60-69
Screened Annually for 10 years

Repeated negative tests ? 750

At least one positive test ? 250

Work-up (biopsy)

60 Prostate cancer

190 False positives

If screening reduces mortality by 20%: 4 would die (1 life extended)

Die of prostate cancer: 5

Not die of prostate cancer: 55

Minimum with impotence or incontinence: 28

Over-Diagnosis

- Defined: The % of men diagnosed with prostate cancer by screening who would never have been diagnosed without screening during their lifetimes.
- Modeling study: 23% to 42%
- Estimate from ERSPC (underestimate): 45%

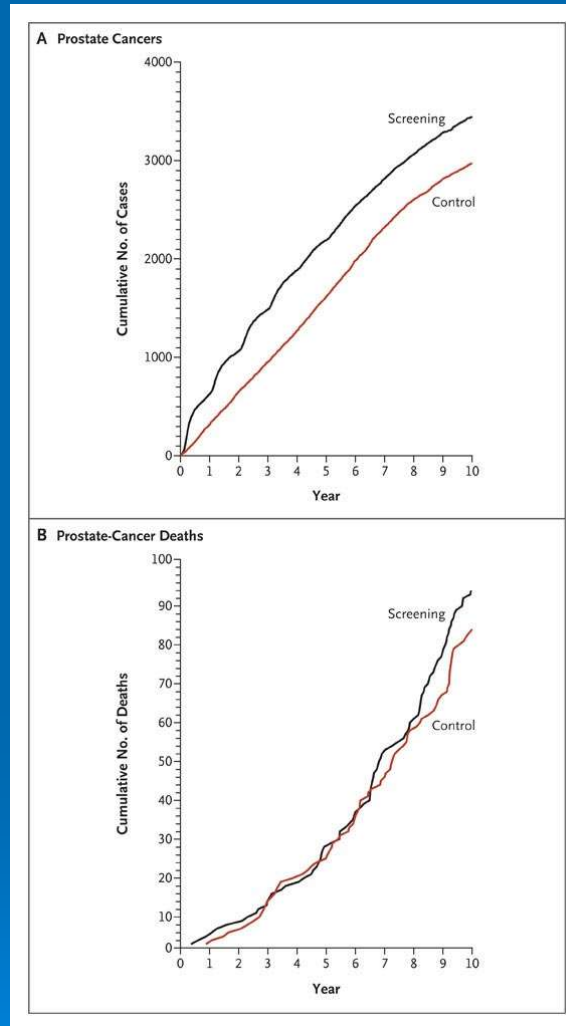
Another Over-diagnosis Category

- Men diagnosed with prostate cancer who are not destined to die from prostate cancer
- % still uncertain, but $> 50\%$ of cancers detected by screening

The Potential Benefits

- PLCO: no benefit (lower power due to contamination in control group)
- ERSPC: RR of death from prostate cancer 0.80 (95% CI 0.65-0.98) [NNS = 1410]
- Note difference with ecological studies

PLCO: Number of Diagnoses of All Prostate Cancers (Panel A) and Number of Prostate-Cancer Deaths (Panel B)

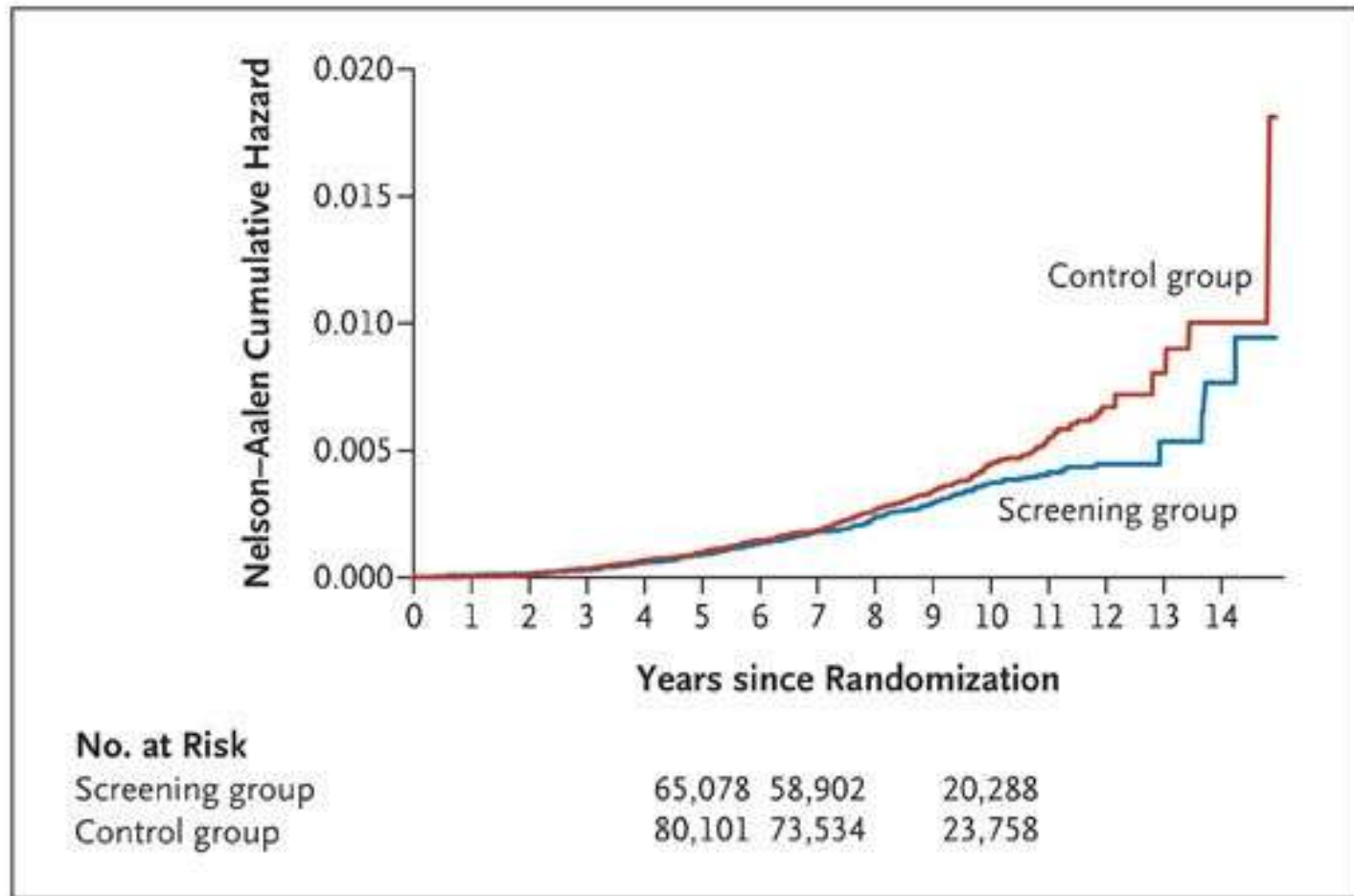


Andriole GL et al. N Engl J Med 2009;360:1310-1319



The NEW ENGLAND
JOURNAL of MEDICINE

ERSPC: Cumulative Risk of Death from Prostate Cancer



Schroder FH et al. N Engl J Med 2009;360:1320-1328

What To Do: Weighing Benefits and Harms

- (1) Any benefit in absolute terms is small.
- (2) Harms (and costs) are substantial.
- (3) We should stop routine screening.
Discuss once with each patient. Repeat the discussion if patient requests.

From an Individual's Point of View

- Doubles (at least) my chances of being diagnosed with prostate cancer
- NNT with radical prostatectomy to prevent one death over 10 years = 48 (from ERSPC)
- Probability of substantial, long-lasting harm from radical prostatectomy is at least 50%
- Median age of death from prostate cancer is 80 years (gain seems small)

Thank you



Heterogeneity of Prostate Cancer

