European Prostate Cancer Awareness Day

17 November 2020

Results of prostate cancer screening trials

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Rationale

BMJ LONDON, SATURDAY 13 FEBRUARY 1993

Prostate cancer: to screen or not to screen?

It's happening, but the case has not been made

Written in 1993

About 50-60% of all cases of prostate cancer in the European Community present with obvious metastases or are locally too advanced for potentially curative management. Of those cancers that seem to be limited to the prostate clinically, 25-35% will have lymph node metastases.[2] Of the remainder, another 25-35% will be too advanced for curative treatment and will turn out to be unresectable if surgery is attempted.[3]

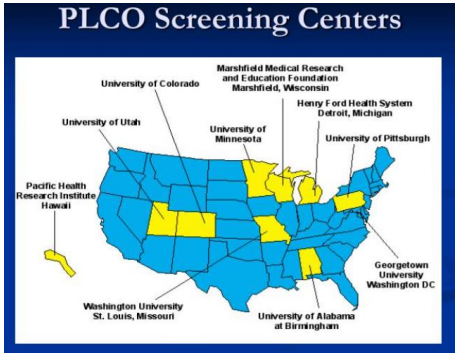
This data will be hardly different in 2021 and onwards if we do not act…….

PCa randomized screening trials

NATIONAL CANCER INSTITUTE
PLCO
Prostate, Lung, Colorectal & Ovarian
CANCER SCREENING TRIAL

Compliance and Contamination

- Screening before entry (screening/control)
  - PSA test — DRE
    - Once: 34.6/34.3 — 32.8/31/9
    - Two or more: 9.4/9.8 — 22.2/22.0
- Compliance
  - PSA 85%; DRE 86%
- Testing in the control group
  - PSA: 40% in first year to 52% in sixth year
  - DRE: Range from 41 to 46%



10 centers

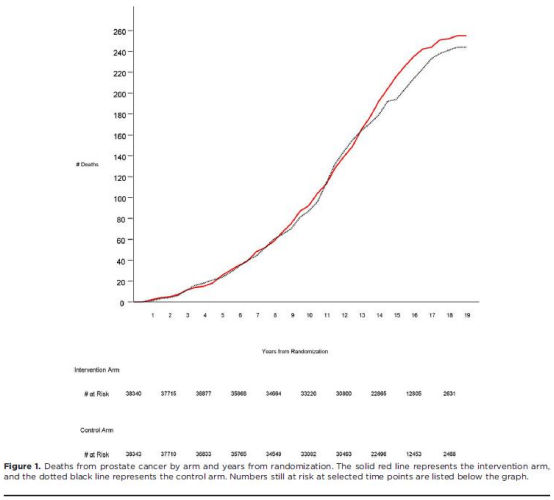


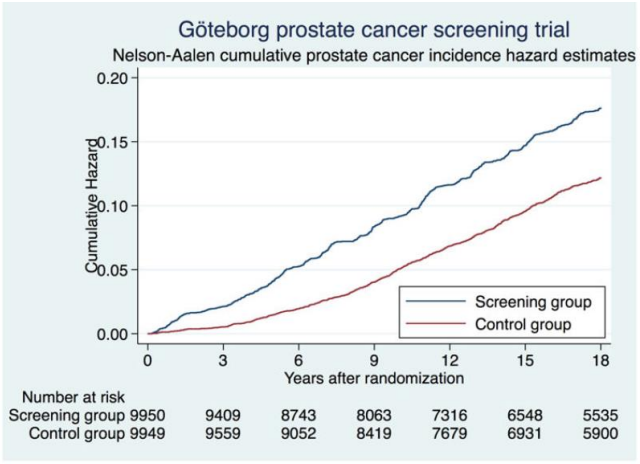
Figure 1. Deaths from prostate cancer by arm and years from randomization. The solid red line represents the intervention arm, and the dotted black line represents the control arm. Numbers still at risk at selected time points are listed below the graph.

15 yrs of FU, RR 1.04 (0.87-1.24) p=0.67

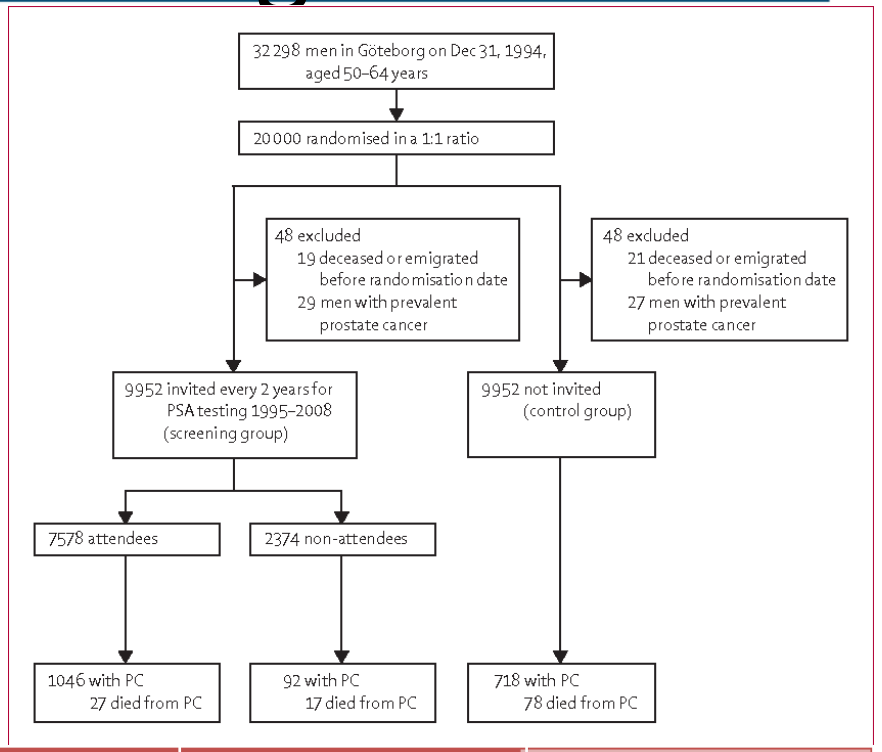
PLCO		
76,693 men		
Age 55-74		
No difference in PCa mortality		
Upfront: 34% contamination During trial: 52% contamination		

PCa randomized screening trials

The Goteborg screening trial
Sahlgrenska University, Goteborg, Sweden



18 yrs of FU, RR 0.65 (0.49-0.87) p< 0.001



PLCO	Goteborg	
76,693 men	20,000 men	
Age 55-74	Age 50-64	
No difference in PCa mortality	**35%** PCa mortality **reduction**	
Upfront: 34% contamination During trial: 52% contamination	To avoid one death: Screen 231 men Extra diagnoses: 10 men	

PCa randomized screening trials

PLCO	Goteborg	ERSPC
76,693 men	20,000 men	182,160 men
Age 55-74	Age 50-64	Age 55-70
No difference in PCa mortality	**35%** PCa mortality **reduction**	**20%** PCa mortality **reduction**
Upfront: 34% contamination During trial: 52% contamination	To avoid one man dying and suffering from Prostate cancer	To avoid one man dying and suffering from Prostate cancer
Underpowered trial	Screen: 231 Extra diagnose: 10	Screen: 570 Extra diagnose: 18

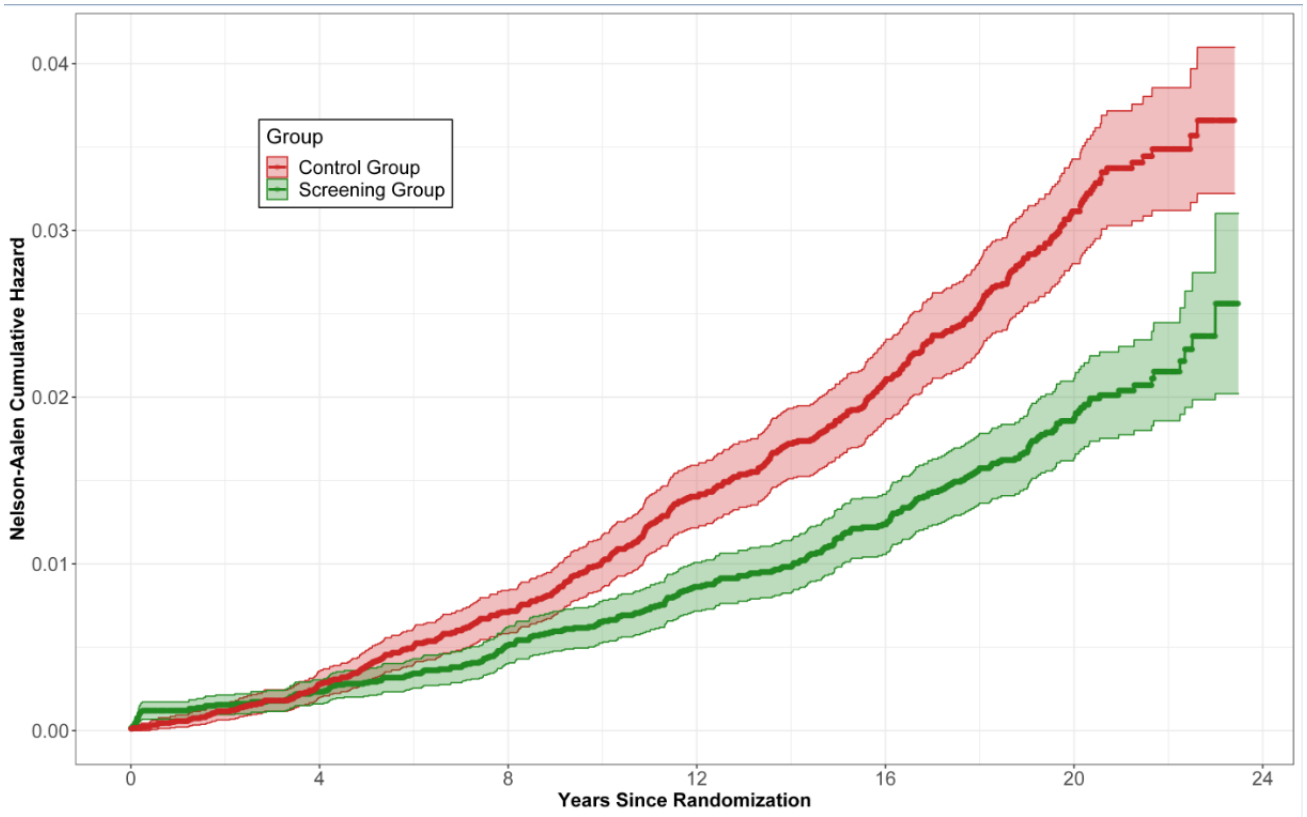
ERSPC Rotterdam

1993-ongoing

- Complete follow up on screening history, treatment(s), progression, metastases and (PCa) mortality in both arms
- Data on PSA testing and prostate biopsy outside the study available at an individual level
- From 1991 – 1993 there were 5 pilot studies
- Pilot 1 1991/1992: N= 1,134

ERSPC Rotterdam

N= 42,376 men



Median follow-up 18-year

42% reduction in men diagnosed with metastatic disease

Screening versus no screening

Platinum Priority – Prostate Cancer
Editorial by Chris Metcalfe on pp. 337–338 of this issue

Prostate-specific Antigen–Based Prostate Cancer Screening: Reduction of Prostate Cancer Mortality After Correction for Nonattendance and Contamination in the Rotterdam Section of the European Randomized Study of Screening for Prostate Cancer

Leonard P. Bokhorst [a,], Chris H. Bangma [a], Geert J.L.H. van Leenders [b], Jan J. Lous [c], Sue M. Moss [d], Fritz H. Schröder [a], Monique J. Roobol [a]*

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In a screening trial:

Non-attendance: men do not show up for PSA testing or prostate biopsy

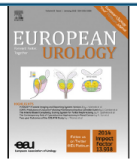
Contamination: men are screened while in control arm or during the interval period while in screening arm

	PCa mortality reduction
Intention to screen analysis	32%
Correction for non-attendance	33%
Correction for contamination	47%

Pilot study

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology



Brief Correspondence

Results of Prostate Cancer Screening in a Unique Cohort at 19 yr of Follow-up

Daniël F. Osses[a,b,*], *Sebastiaan Remmers*[a], *Fritz H. Schröder*[a], *Theo van der Kwast*[c,d], *Monique J. Roobol*[a]

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- 63% of cohort initially screened in 1991/1992 has died by now
- Contamination up to now: 4.5%
- 53% PCa mortality reduction
- 58% reduction of metastatic disease

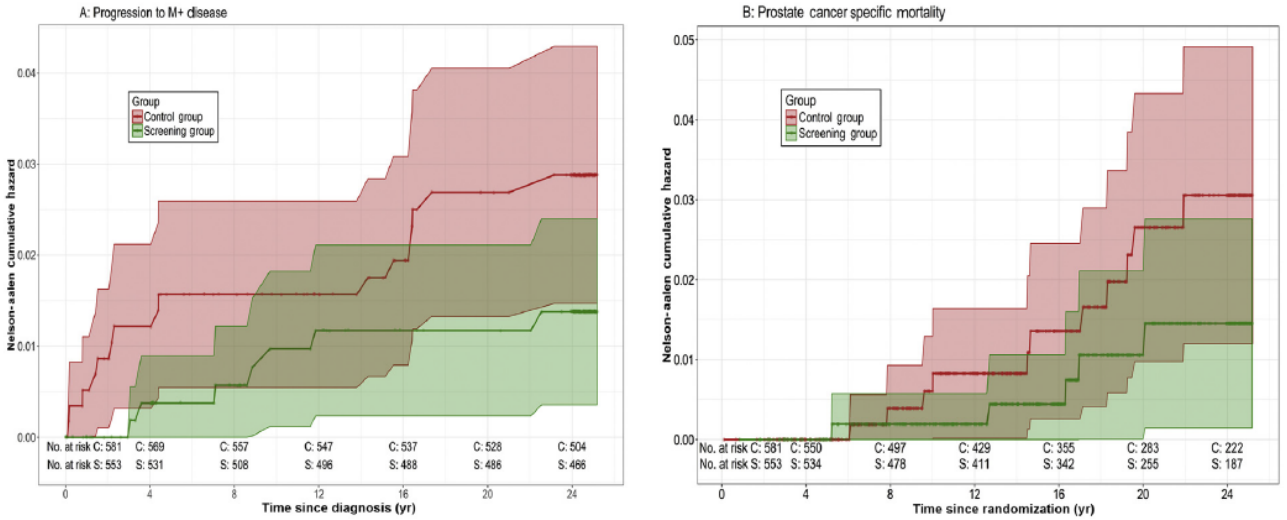

Fig. 1 – (A) Nelson-Aalen estimates of cumulative progression to metastatic disease (including 95% confidence intervals) for the men randomized with a PSA level <10.0 ng/ml. (B) Nelson-Aalen estimates of cumulative prostate cancer-specific mortality (including 95% confidence intervals) for the men randomized with a PSA level <10.0 ng/ml.
C-arm = control arm; M+ disease = metastatic disease; PSA = prostate-specific antigen; S-arm = screening arm.

Conclusions

- Data from pre-PSA era show that PCa is a disease often related to a lot of suffering over a considerable period
- 2 out of 3 men diagnosed with PCa died of their disease
- We now know that:
- Organized screening with the use of the PSA test reduces suffering and dying from PCa
- Potential harms (unnecessary testing /over diagnosis and over treatment) can be largely avoided

It is time to organize all relevant stakeholders and start implementing our knowledge to avoid further suffering and lives lost