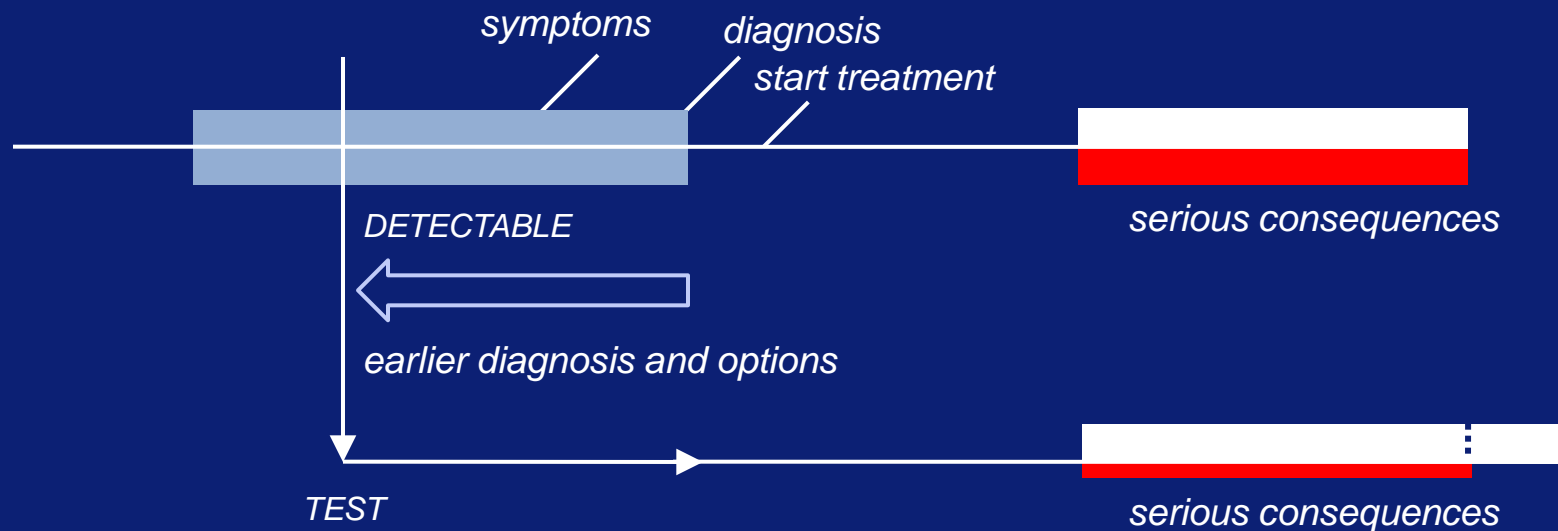


Screening in oncology - discussant

Harry J. de Koning, MD PhD
Professor of Public Health & Screening Evaluation
Department of Public health
Erasmus MC, Rotterdam, the Netherlands

Screening

- Detection and treatment of a disease, condition, abnormality or stunted development at a stage in which no symptoms have yet appeared.
- The purpose of early detection is to halt or delay the adverse progression of the disease and thereby improve public health, or to offer treatment options in an earlier stage than usual.



Population versus individual



Side-effects

- False positives
- Earlier knowledge of diagnosis
- Earlier (and during a longer time frame) side-effects of treatment
- Early detection, but no benefit
- Extra detection (overdiagnosis), and overtreatment
- Risks of screening and assessment, and unintended detection of other diseases
- Possible false-reassurance

Side-effects

- False positives
- Earlier (knowledge of) diagnosis
- Earlier (and during a longer time frame) side-effects of treatment
- Early detection, but no benefit
- Extra detection (overdiagnosis), and overtreatment
- Risks of screening and assessment, and unintended detection of other diseases
- Possible false-reassurance
- Possible licence to live on unhealthy

Implementation depends on the evaluation

1. to quantify any positive effects of screening on public health
2. to quantify the disadvantages
3. to assess cost-effectiveness of a range of scenarios, and recommend the more cost-effective ones

High quality evaluation!

Outrage over mammogram screening unwarranted

Best age for mammograms still debated

Panel declines to urge mammograms for women in 40s

Panel won't endorse early mammograms

Needed: Mammograms for Women

Skip mammograms, women in 40s told

Decision on breast tests sets off critics

MAMMOGRAMS for 40-Somethings?

Public health

Is screening for breast cancer with mammography justifiable?

Peter C Gøtzsche, Ole Olsen

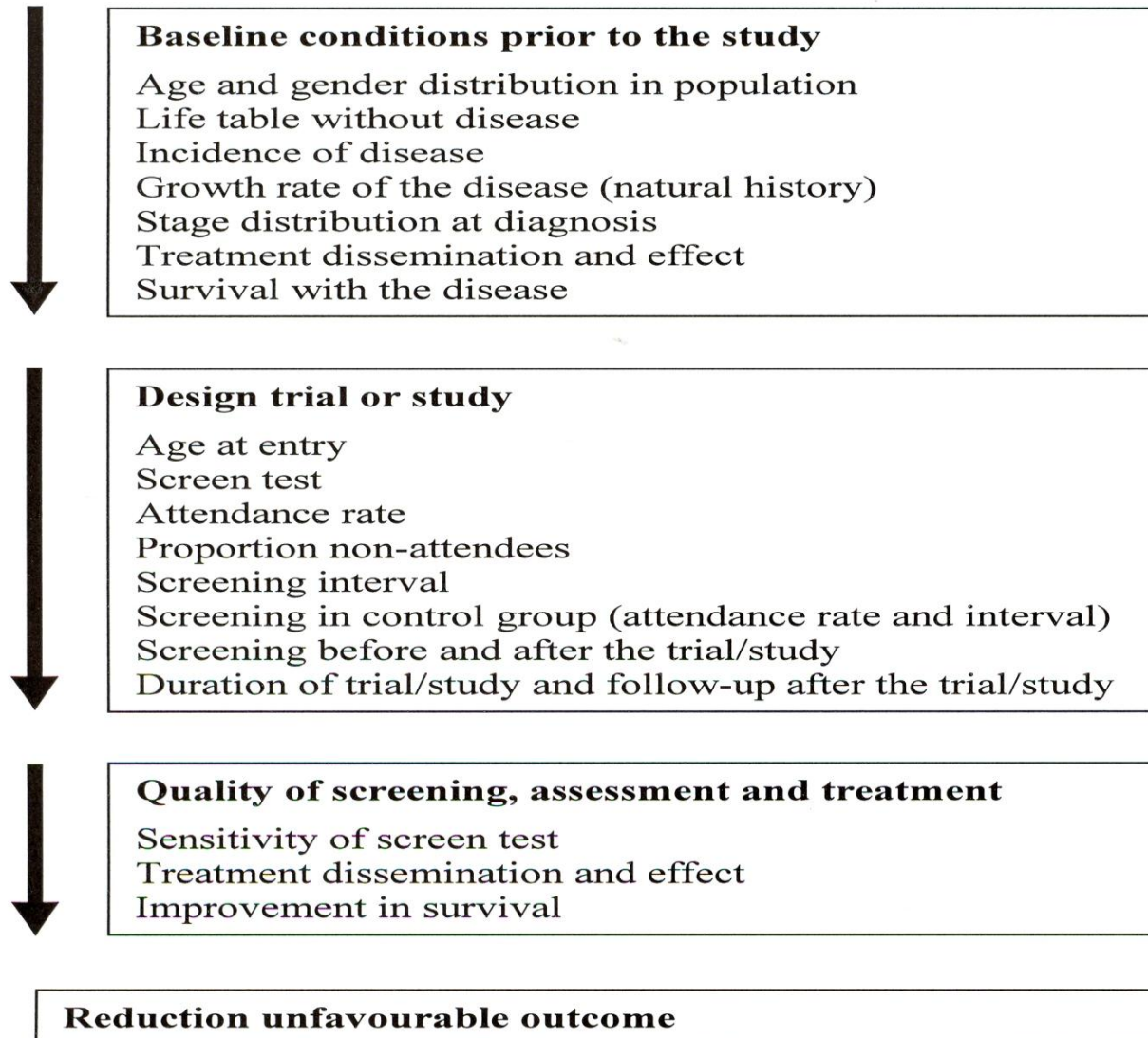
EDITORIAL

THE LANCET • Vol 355 • January 8, 2000

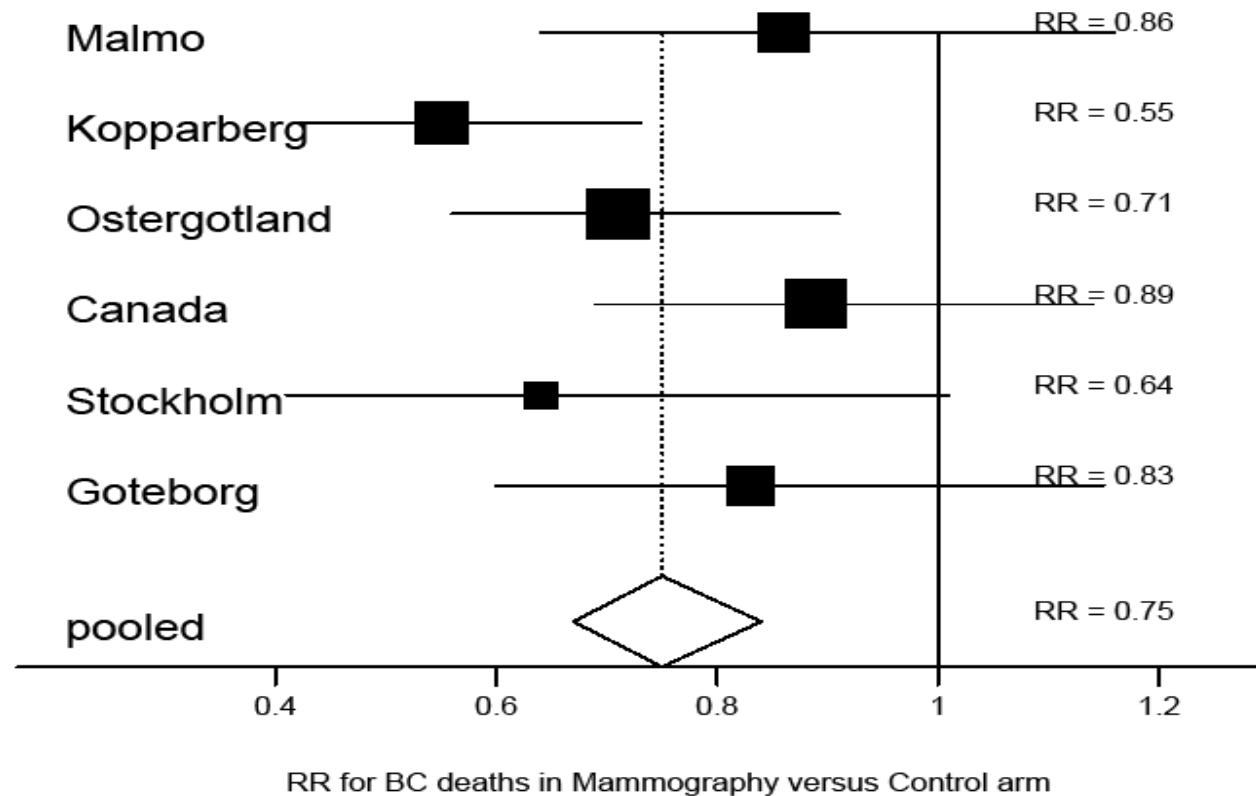
Mammographic Screening: No Longer Controversial

Blake Cady, MD and Maureen Chung, MD, PhD

Trajectory of a screening outcome



Pooled meta-analysis RR BC mortality



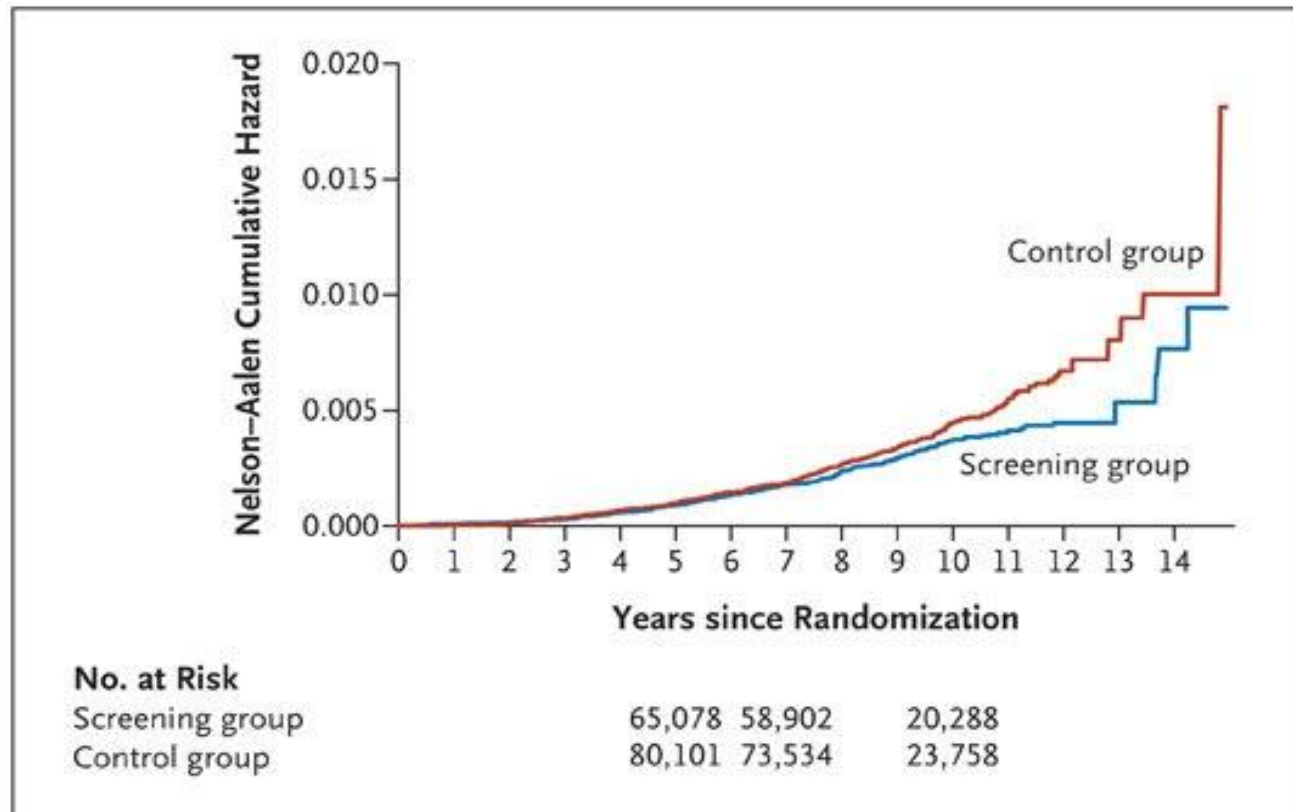
Case control analyses Breast Screening Europe - supplement Journal Medical Screening 2012 -

			Cases	Controls	RR
UK	Fielder	2004	419	717	0.75
UK	East Anglia	2008	284	568	0.52
Iceland	Gabe	2007	226	902	0.65
Italy	Puliti	2008	657	2772	0.55
Netherlands	Otto	2011	755	3739	0.51

Colorectal cancer screening

- Recommendation European Union as 3° programme
 - FOBT-test preferred 1° test
 - Cost-effectiveness analyses to debate other alternatives/combination of tests
 - High prevalence of disease
 - Both genders
 - Easy tests – cost-effective: large benefits: 30% reductions
-
- **Ferrat: importance of referral and compliance**

Cumulative risk prostate cancer death

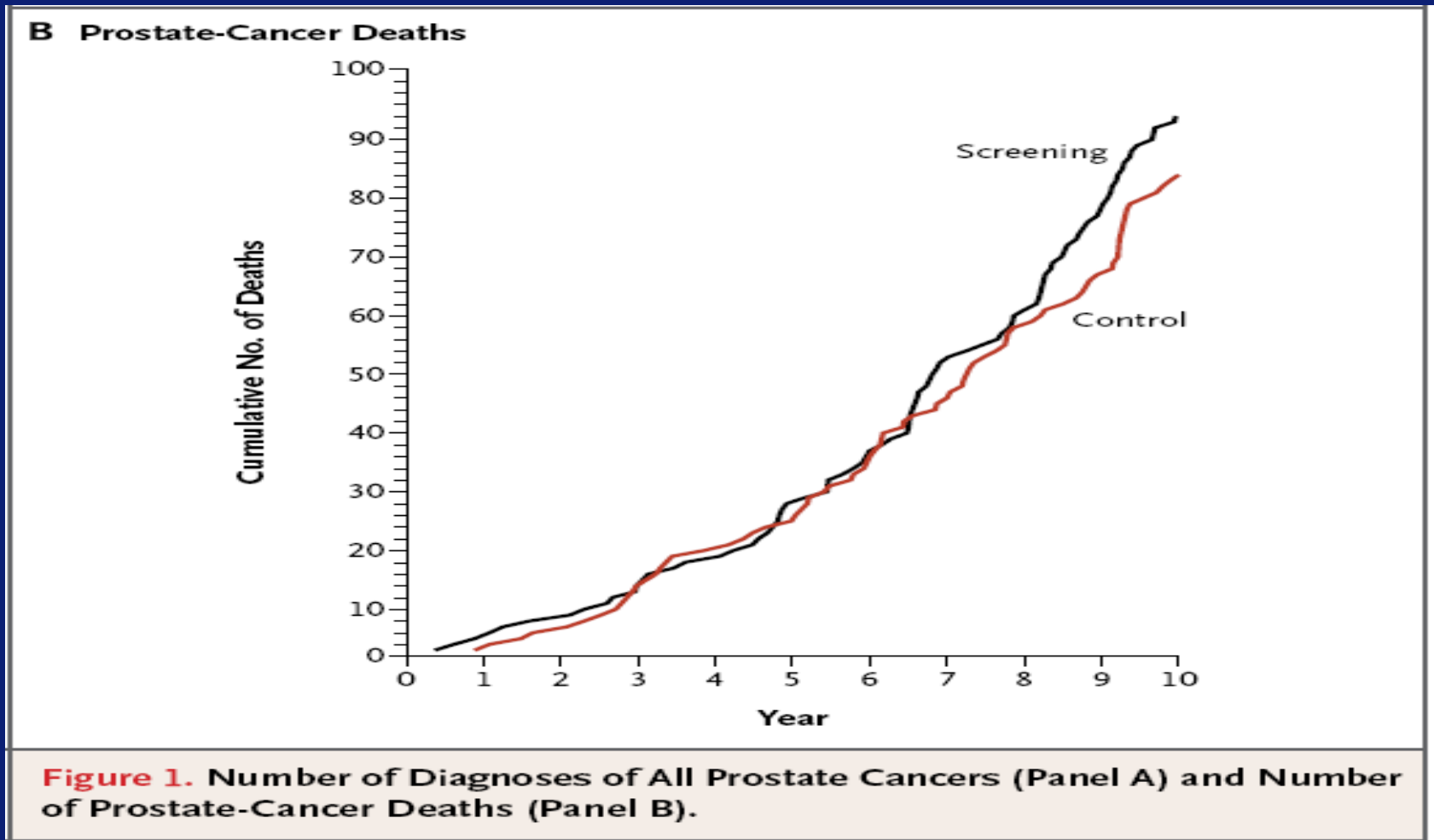


Schröder F et al. N Engl J Med 2009



The NEW ENGLAND
JOURNAL of MEDICINE

NO difference in PLCO-trial (USA)



Much less biopsies, although advised (Wever et al., JNCI 2010)

Model 1 (blue line):

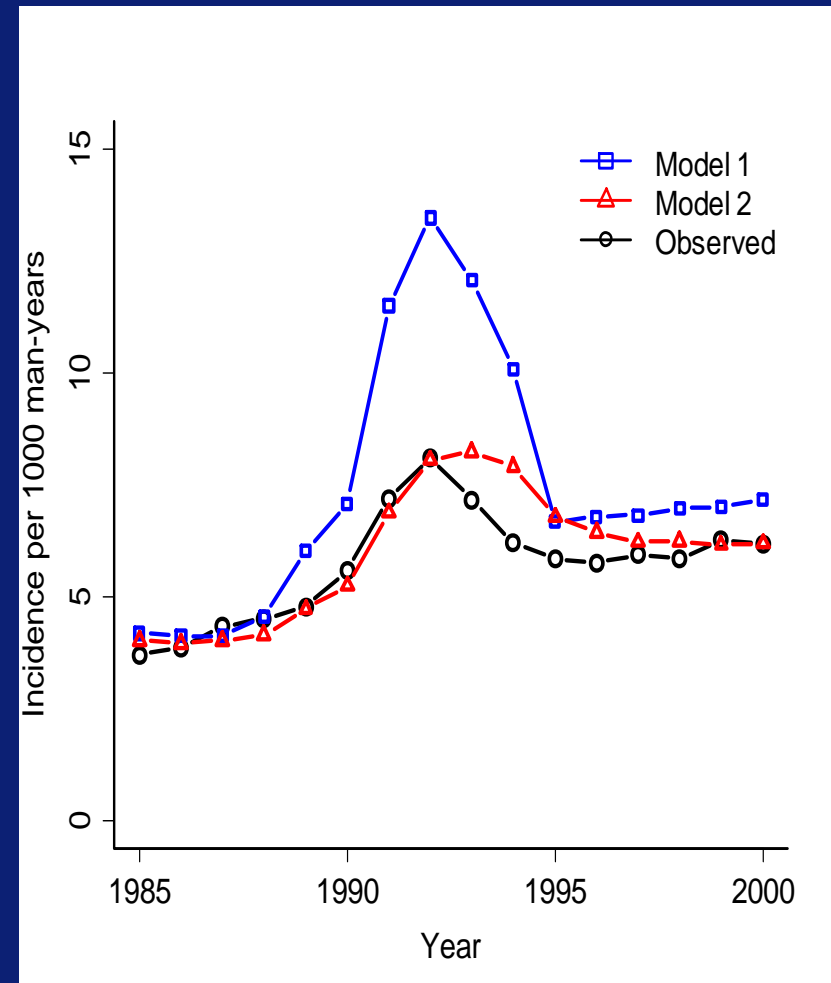
Frequency PSA testing as in US
Population and mortality as in US
Natural history prostate cancer
Europe

Model 2 (red line):

Also a lower sensitivity PSA
testing and biopsy in US !

Conclusion

The efficacy of PSA screening in detecting prostate cancer was lower in the US than in ERSPC–Rotterdam



Ferrat colorectal cancer screening

- 87% compliance is high
- Important factors for non-compliance:
 - 1° screening test (OR=1.6)
 - Screening test received at home (OR=1.9)
 - Most deprived areas (OR=2.3)
 - 1° contact with screening information is important !!
 - informed choice before testing is important !!
- How to incorporate GPs ?? – first a letter by GP ?
- GP-signatures proven to increase attendance rates in general
- Other means: **specific gender-information??** internet/area-information

Screening for unfitness in geriatric oncological care

- Innovative field
- Netherlands: screening for malnutrition at hospital admissions proved to be highly effective
- **Essence is uniform testing of all individuals involved**
- Netherlands:
 - -screening for language delays in all 2 year's of age children:
 - 30% reduction in special education at year 8 (v Agt , Ped. 2007)
 - -screening for child abuse at emergency departments of all children:
 - 5 times more detection of child abuse (Louwers, Ped. 2012)

Terret – unfitness screening

- G8 scale, mean age 81 years
- **Positive: 67%**
- Sensitivity 68%
- Specificity 74%
- There is NO GOLD standard for correct cut-offs
- DEPENDS ON THE CONSEQUENCES FOR FALSE-POSITIVES AND FALSE-NEGATIVES
- **Importance of goal !?**
- **Nutritional aspects most prominent ?**

Lung cancer and asbestosis

- Enormously important in impact, prevalence, morbidity and mortality
- RCT lung cancer screening CT found effective (NLST):
20% LC reduction
- 6 RCTs in Europe still active (NELSON-trial largest)
- Some US guidelines for CT-screening
- Europe: position statement is to await European RCT-results, to estimate possible overdiagnosis and cost-effectiveness
- Analyses are ongoing together with US-trialists
- **Asbestos exposure important risk factor to include in future?**

Seki - asbestosis

- Rare evidence in present-day CT screening on asbestosis risk
- 9,810 subjects, mean age 57 years
- 28.5% occupational exposure
- Selection?
- Questionnaire? (NELSON-trial found the same %)
- OR for pleural plaques 3.9 OR for lung cancer 4.2
- However, detection rate LC very low: 0.3% versus 0.1%
- Most CT-trials about 1% or more
- Smoking status/other characteristics/age cohort ??

The new criteria for implementation of screening

Substantial positive health outcomes

- life-years gained
- improvements to cognitive, motor and/or sociol-emotional development
- significant increase in management or treatment options

Effects established with certainty, preferably in RCTs

Limited adverse side-effects

- extent of early detection, overdiagnosis and side-effects estimated
- quality-adjusted life-years gained

Anticipated balance clarified prior to participation

Reasonable ratio between costs and benefits

Implementation will not lead to substantial unintended effects

Other developments do not change this ratio in the short run