LRCB

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Screening for breast cancer Experiences from the Netherlands

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Nijmegen, The Netherlands

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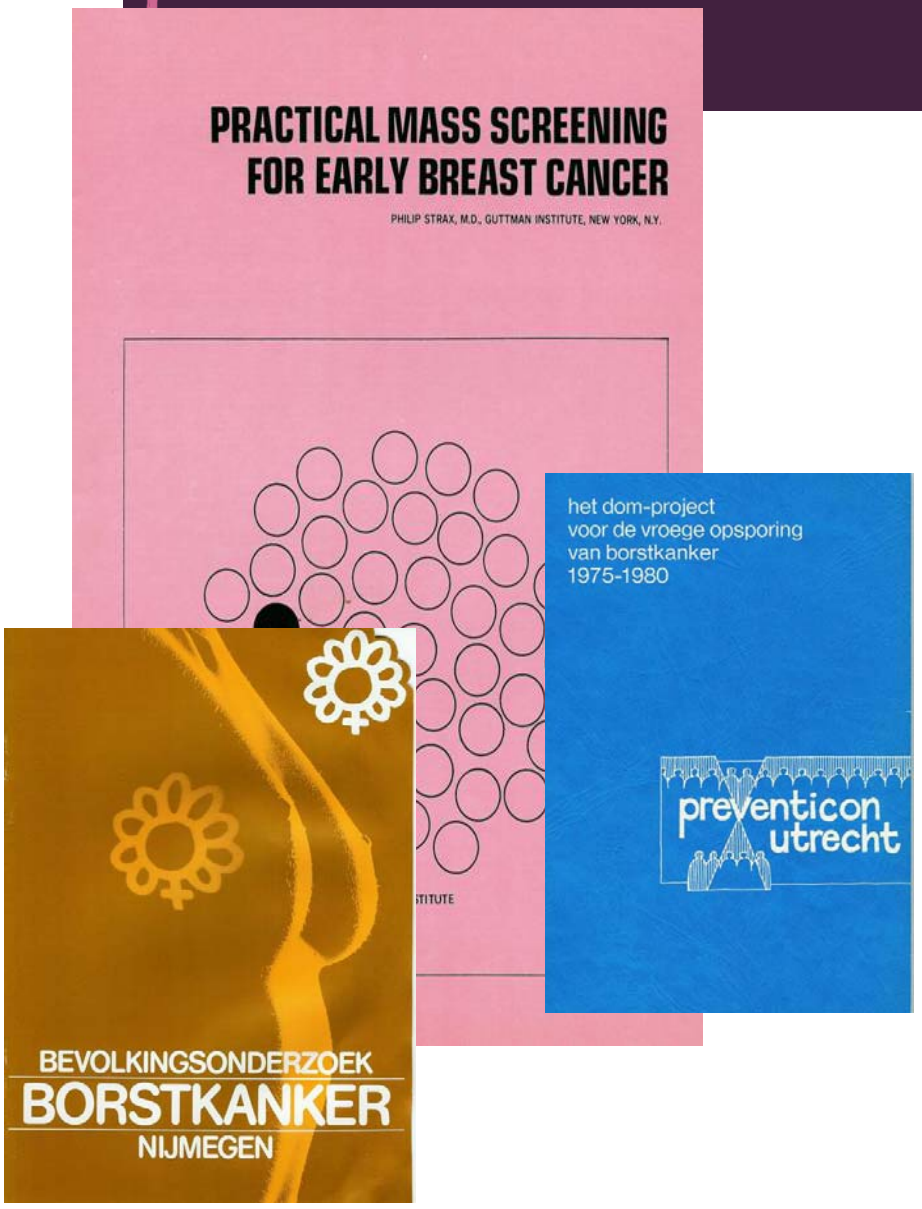
Experiences from the Netherlands

- **History**
- Organisation
- Screening outcomes
- + / - Dutch programme
- The next step
- Future challenges



1971 New York

1975 Nijmegen / Utrecht

1982 PhD Thesis Jan Hendriks †

1984 Lancet

1989 start Dutch program 50-69

1997 Dutch program implemented

1998 Extension to 70-74

2008 Digital screening

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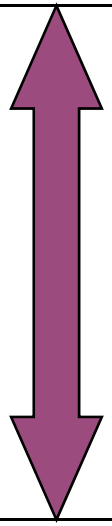
1989 start Dutch program 50-69

128 000 referrals

57 500 imaging alone

70 500 biopsy



1997 Dutch program implemented

1998 Extension to 70-74

50 000 breast cancers

2008 Digital screening

Dutch health council

15 June 1987

Mammography screening at this moment is the only cost effective screening for breast cancer, **if we can meet certain criteria on organization and financing.**

We expect that **500** deaths will be saved per year because of this programme

Start: 50-69

Interval: 2 years

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Target population

- 2 000 000 women
- 1 000 000 per year
- Compliance > 80%
- Screened population > 900 000

Organisation

- National co-ordination
- National evaluation
- National quality assurance

Organisation

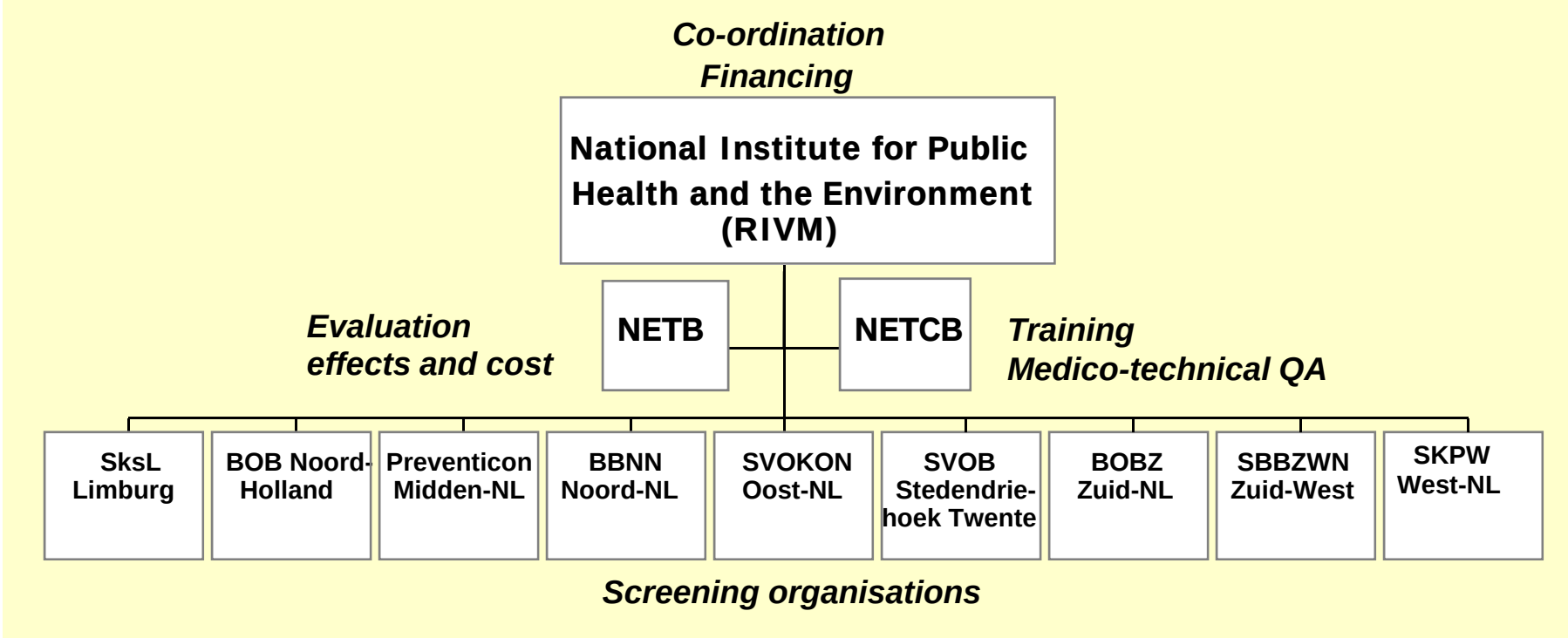
9 regional foundations

execution of screening

Characteristics Dutch programme

- 50-74 year old women (N=2.2 million)
- biennial screening mammography (13 rounds)
- personal invitation (with reminder)
- 2-view mammography initial round
- 1-view mammography subsequent rounds (2-view on indication)
- double reading
- referral to general practitioner (no recall!)

Organisation Dutch programme



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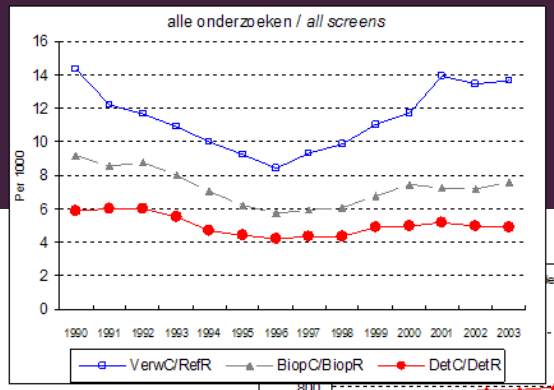
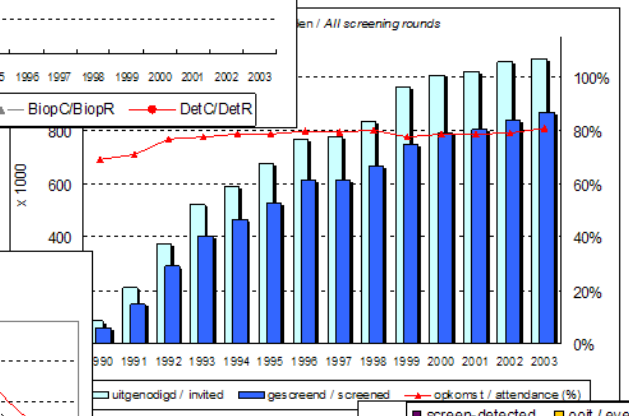
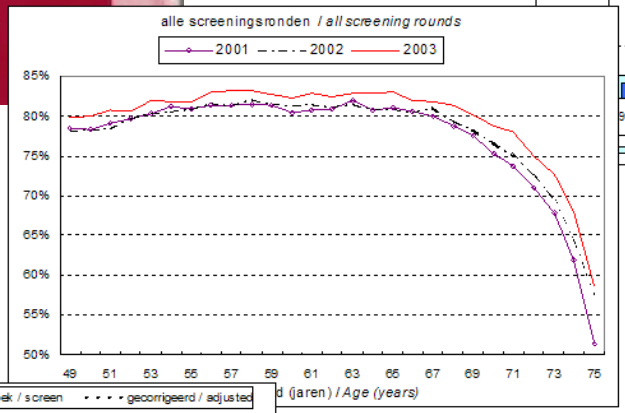
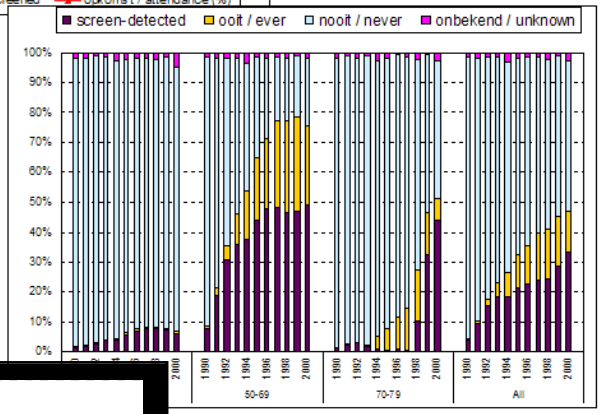
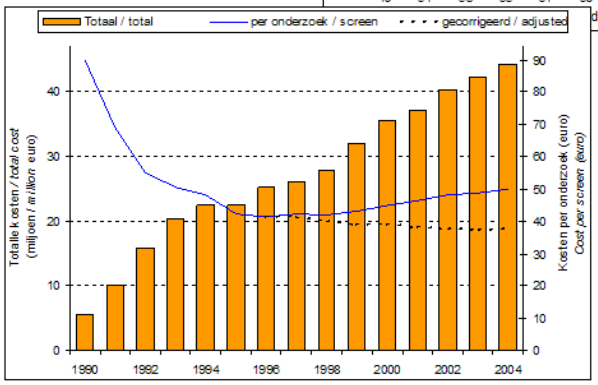
LETB

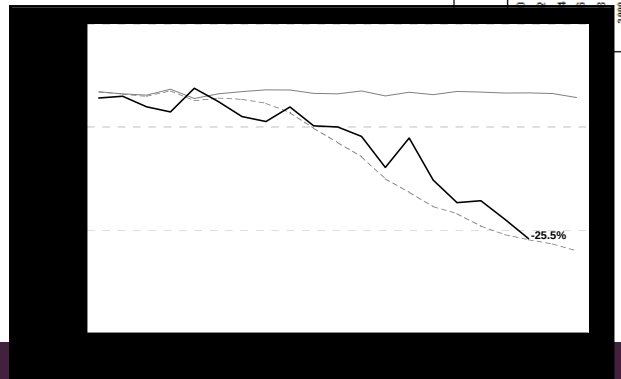








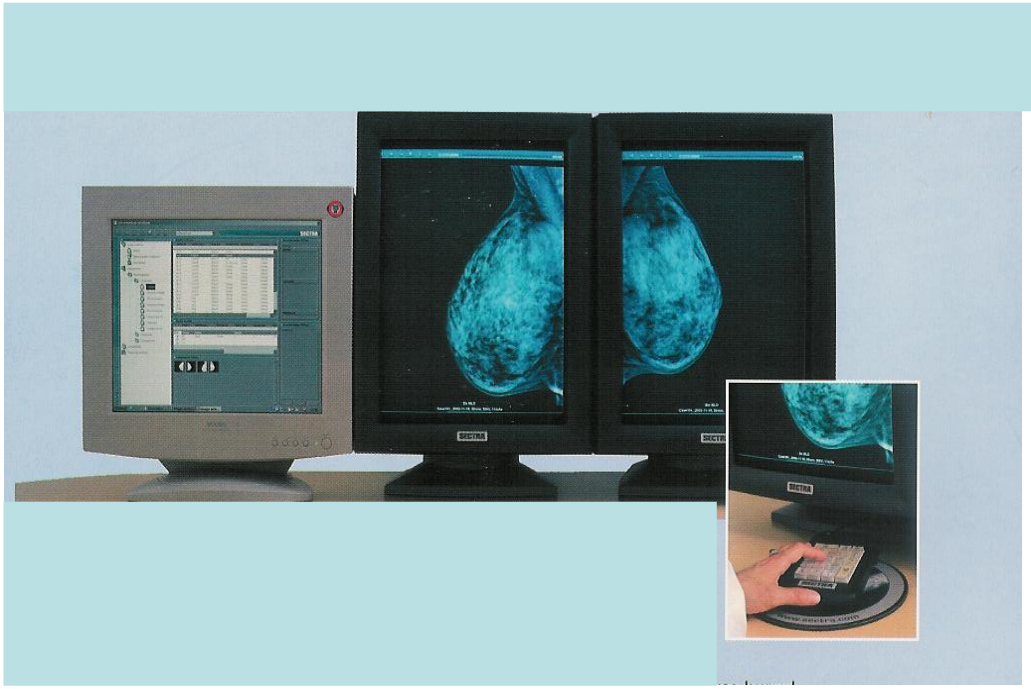




National Expert and Training Centre for Breast Cancer Screening

- Medical and technical audit – site visits
- Training radiographers, radiologists
- Innovation, research and advice
- Digitization

Daily Quality Control



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Experiences from the Netherlands

- History
- Breast cancer incidence
- Organisation
- **Screening outcomes**
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Aggregate outcomes

	1990-1997
Screened	3.1 million
Referral	9.9 per 1000
Biopsy	6.8 per 1000
Breast cancer	4.8 per 1000
Interval cancer	1.0 per 1000

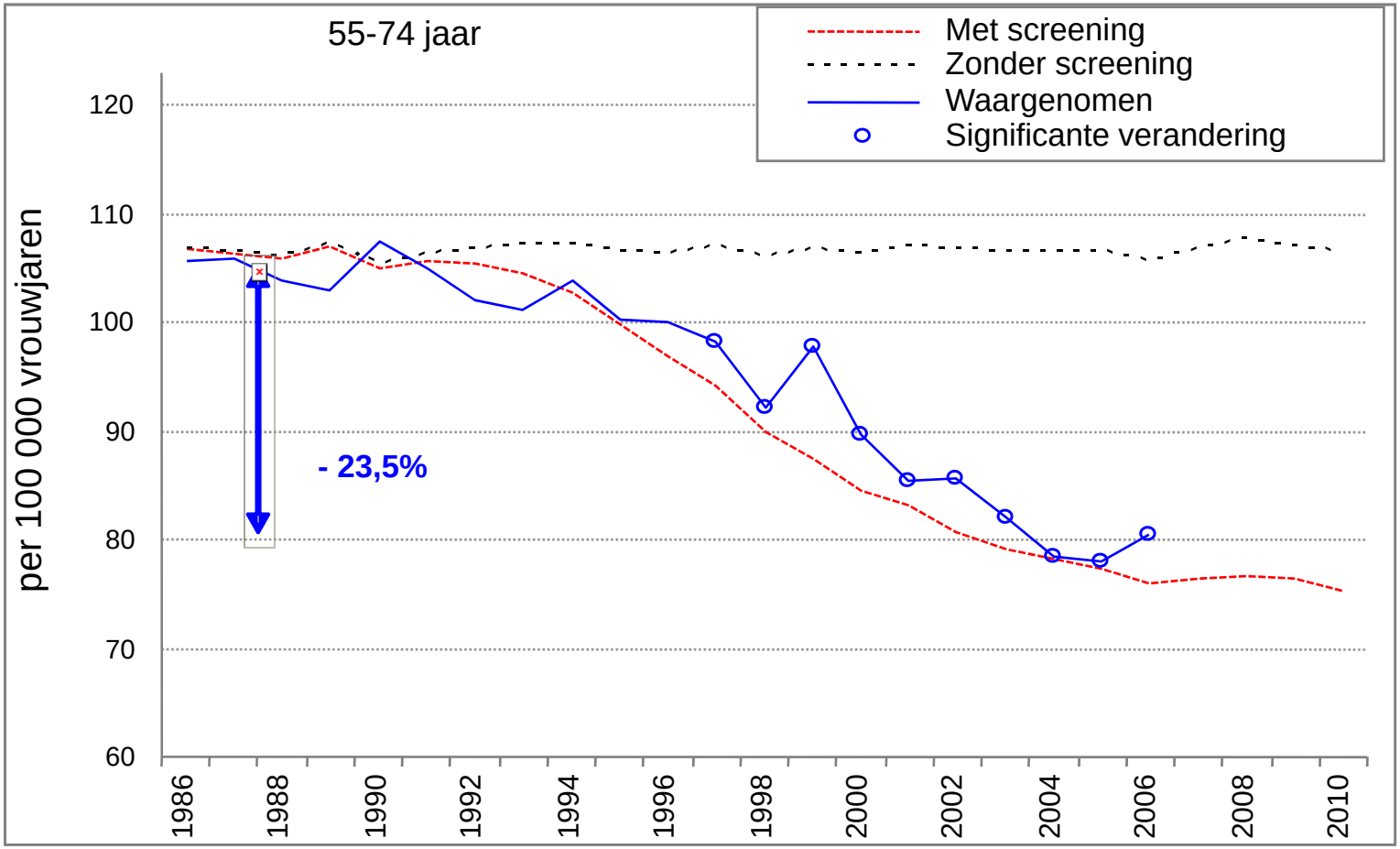
LETB / *NETB* 2008

Aggregate outcomes

	1990-1997	2007
Screened	3.1 million	0.9 million
Referral	9.9 per 1000	18.0 per 1000
Biopsy	6.8 per 1000	8.2 per 1000
Breast cancer	4.8 per 1000	5.5 per 1000
Interval cancer	1.0 per 1000	1.0 per 1000

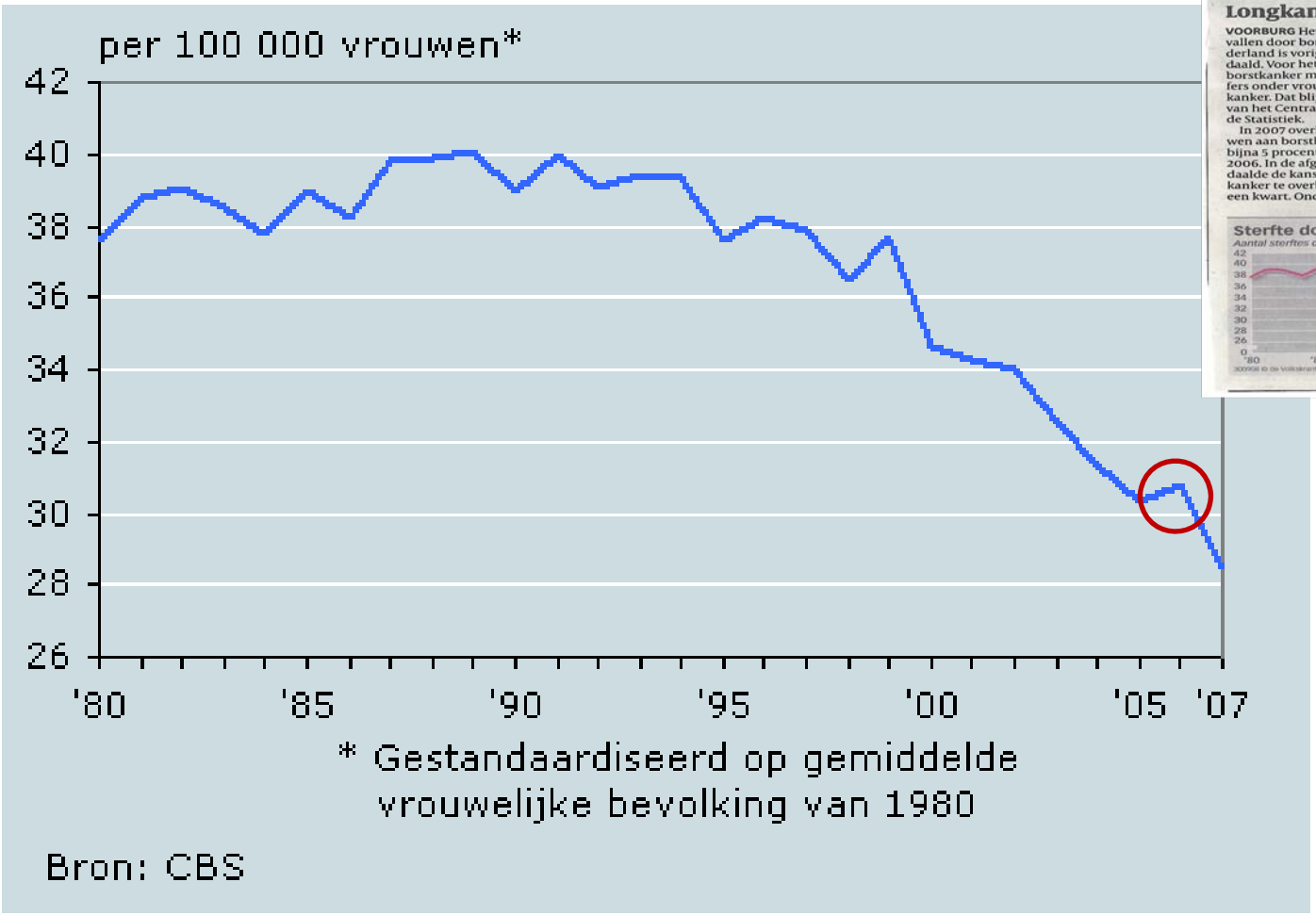
LETB / *NETB* 2008

Breast cancer mortality



LETB / *NETB* 2007

Breast cancer mortality



Longkanker overtreft borstkanker

VOORBURG Het aantal sterfgevallen door borstkanker in Nederland is vorig jaar verder gedaald. Voor het eerst maakte borstkanker minder slachtoffers onder vrouwen dan longkanker. Dat blijkt uit gegevens van het Centraal Bureau voor de Statistiek.

In 2007 overleden 3.180 vrouwen aan borstkanker. Dat is bijna 5 procent minder dan in 2006. In de afgelopen tien jaar daalde de kans om aan borstkanker te overlijden met ruim een kwart. Onder vrouwen van 30 tot 50 jaar is de ziekte echter nog wel de belangrijkste doodsoorzaak. Eén op de zes sterfgevallen onder vrouwen van deze leeftijd, is het gevolg van borstkanker.

De ziekte komt overigens onder niet-westerse allochtone vrouwen veel minder vaak voor dan onder autochtone vrouwen. Turkse en Marokkaanse vrouwen lopen naar verhouding het laagste risico. Dit geldt vooral voor de eerste, in het buitenland geboren generatie. ANP

Sterfte door borstkanker neemt gestaag af

*Aantal sterftes door borstkanker, per 100.000 vrouwen**

*Gestandaardiseerd op gemiddelde vrouwelijke bevolking van 1980

2007

- 28.7%

LETB / *NETB* 2007

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Experiences from the Netherlands

- History
- Organisation
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- **+ / - Dutch programme**
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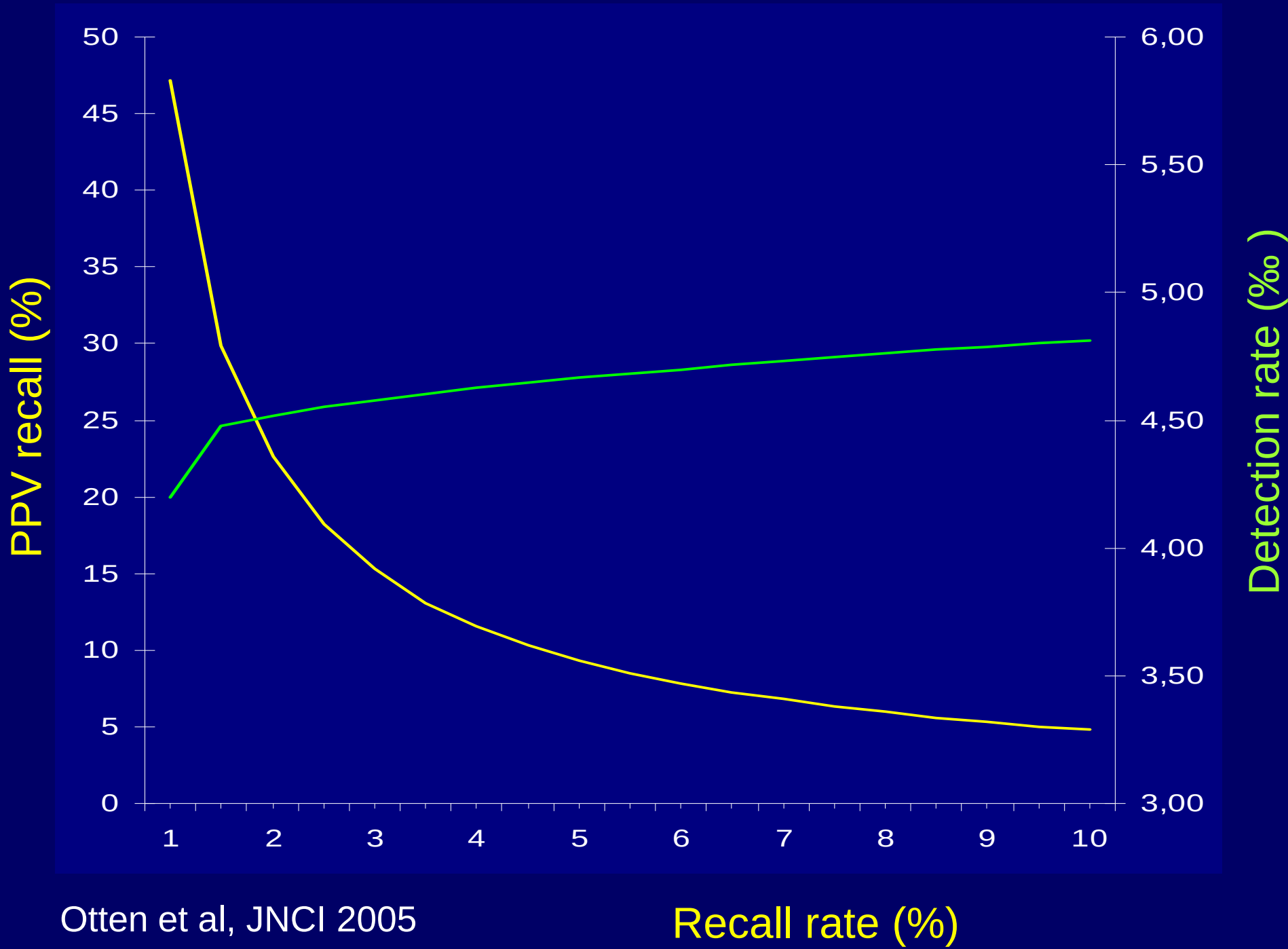
+ / - Dutch screening

+ Phased implementation
+ Extra budgetary source of financing
+ Organisation: centralised quality control, quality assurance, evaluation, training
+ Evaluation at aggregated level is simple and effective
+ Low referral rate; trends in breast cancer incidence and mortality as expected

+ / - Dutch screening

- Assessment is not a part of the screening process
- No individual data; limited data set; lack of clinical data
- Room for improvement
  - Increased referral
  - Increased detection



Otten et al, JNCI 2005

Lessons learned

- Need for continuous assessment of the effect of the programme
- Intensive quality and outcome control are worth the effort
- Screening programme has stimulated the spread of quality care in diagnosis and treatment of breast cancer

Van der Maas PJ. Breast 2001;10:12-14

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The Dutch
screening
goes digital
20 mijl
20 km

From analogue to digital screening

- Planned transformation – 2008 / 2009
- Major logistic operation

- 2004: three pilot digital studies
  - Gain experience
  - Assess effect on performance indicators
  - Help guide organisation and implementation

- Referral – analogue: 16
- Referral – digital: 23

- Detection – analogue: 5,1
- Detection – digital: 6,5

Bevolkingsonderzoek Borstkanker Nederland

Centrale IMS (Database)
- Eindhoven 1
- Eindhoven 2

Centrale Eenheid
- Filmscanner
- Server

Beoordelingseenheid
- Viewing Station

Vaste Eenheid
- Mammograaf
- Viewing Station

Mobiele Mammo-unit
- Mammograaf
- Viewing Station

Project DigiBOB

PHILIPS

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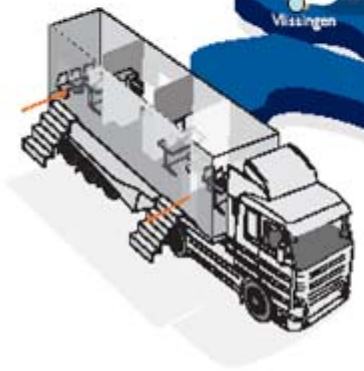

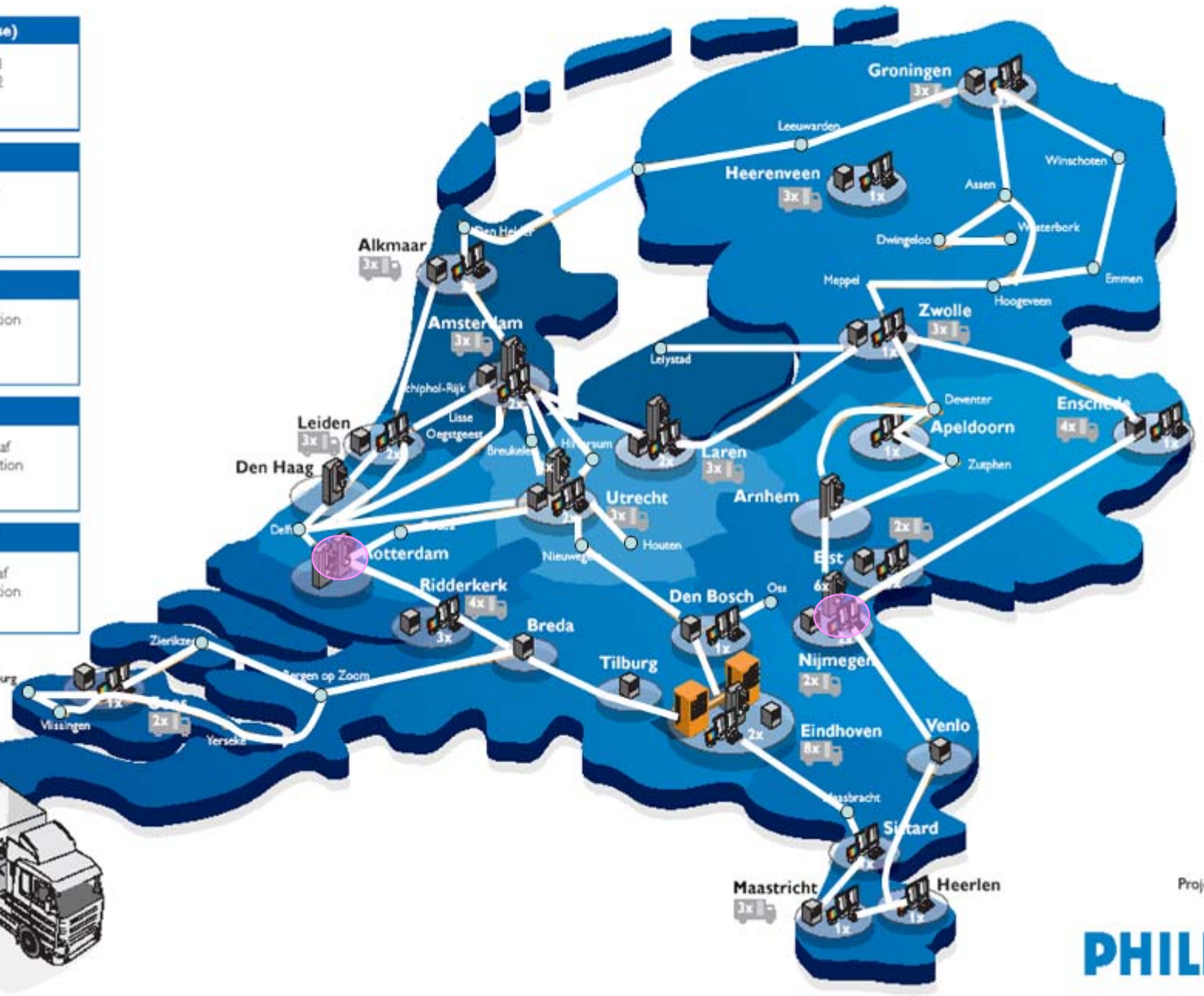

Project DigiBOB

PHILIPS

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Experiences from the Netherlands

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- **Future challenges**

Future challenges

British Medical Journal 2008

ANALYSIS

Maximising benefit and minimising harm of screening

Gordon Brown has pledged to increase screening services in the NHS. **Muir Gray, Julietta Patnick,** and **Roger Blanks** show how experience with the UK breast screening programme can help ensure that they are effective

All screening programmes do harm; some do good as well, and, of these, some do more good than harm at reasonable cost. The first task of any public health service is to identify beneficial programmes by appraising the evidence. However, evidence of a favourable balance of benefit to harm in a research setting does not guarantee that a similar balance will be reproduced in practice, so screening programmes need to be introduced in a way that allows their quality to be measured and continuously improved.

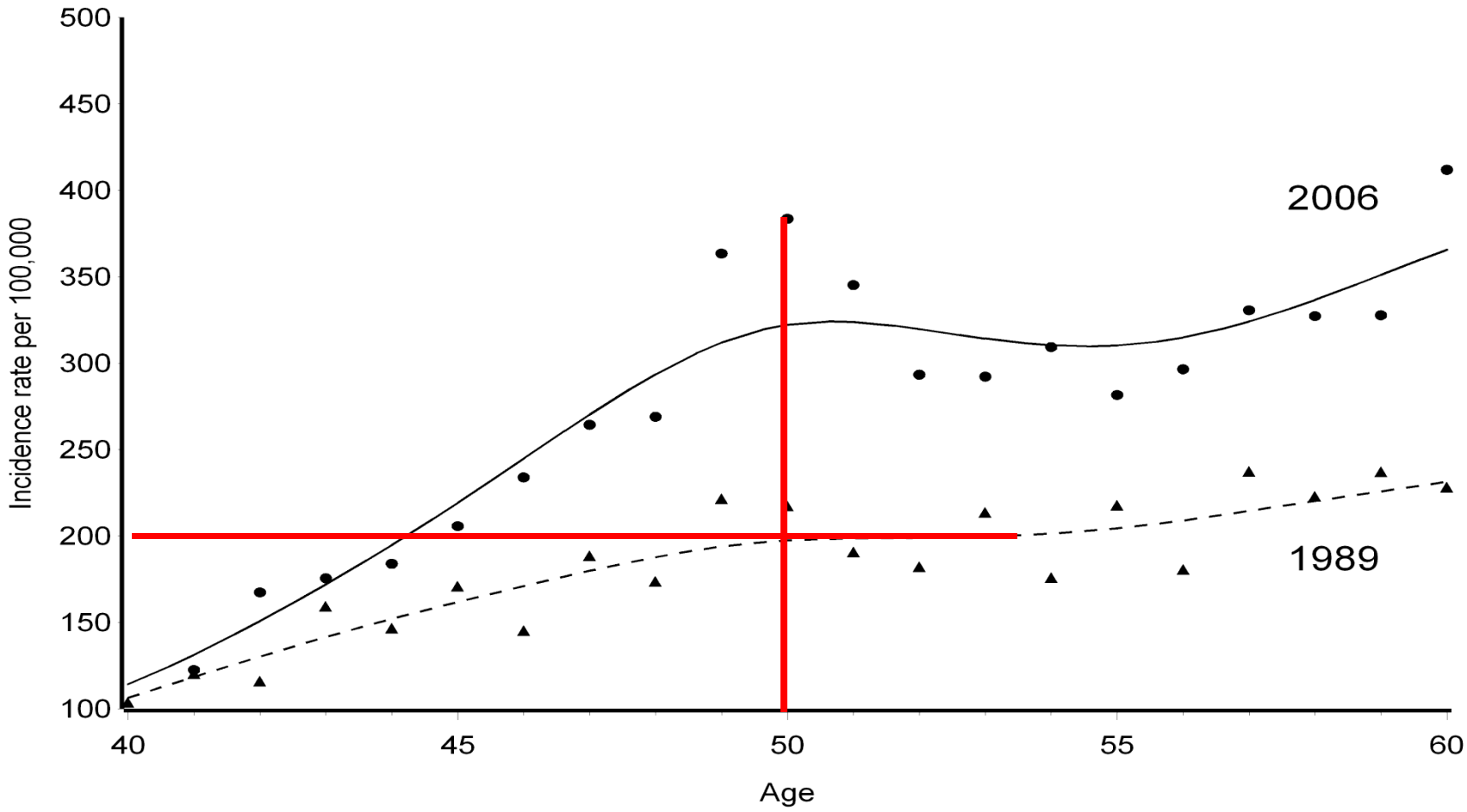
J A Muir Gray director, National Knowledge Service, Oxford OX3 7LG
J Patnick director, NHS Cancer Screening Programmes, Sheffield
R G Blanks epidemiologist, Institute of Cancer Research, Sutton, Surrey
Correspondence to: J A Muir Gray muir.gray@medknox.net
Accepted: 13 September 2007

The policy decision

the professions and the women to be offered screening, to deliver the programme within a specific time and budget and to set out performance standards. To achieve its objectives the implementation team was given a discrete budget sufficient to fund the programme; authority to centralise certain aspects of screening, notably the multidisciplinary assessment of women with abnormal mammography results; and separate funds to set up four training centres, procure an information system, and prepare clear information for the women offered screening.

Each of the 14 regional authorities then in Eng-

Breast cancer incidence



DMIST-trial: women < 50

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Diagnostic Performance of Digital versus Film Mammography for Breast-Cancer Screening

Etta D. Pisano, M.D., Constantine Gatsonis, Ph.D., Edward Hendrick, Ph.D., Martin Yaffe, Ph.D., Janet K. Baum, M.D., Suddhasatta Acharyya, Ph.D., Emily F. Conant, M.D., Laurie L. Fajardo, M.D., Lawrence Bassett, M.D., Carl D'Orsi, M.D., Roberta Jong, M.D., and Murray Rebner, M.D., for the Digital Mammographic Imaging Screening Trial (DMIST) Investigators Group*

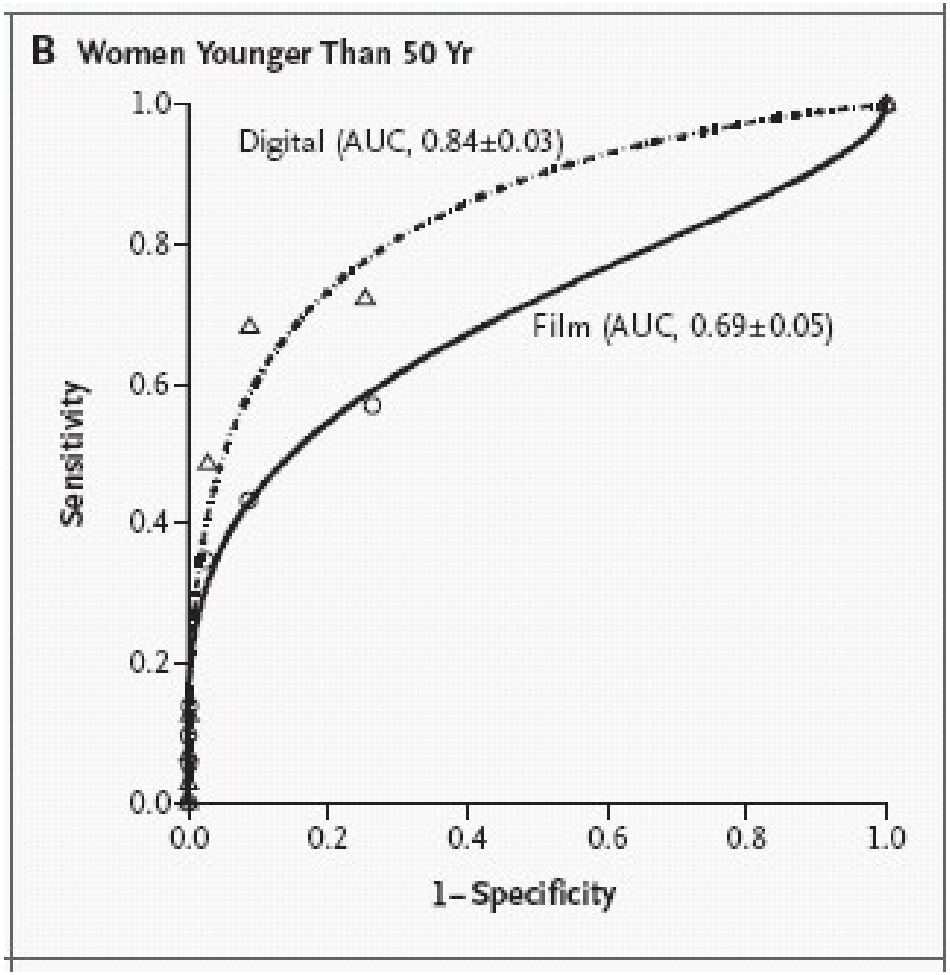
ABSTRACT

BACKGROUND

Film mammography has limited sensitivity for the detection of breast cancer in women with radiographically dense breasts. We assessed whether the use of digital mammography would avoid some of these limitations.

From the Departments of Radiology and Biomedical Engineering, the Biomedical Research Imaging Center, and the Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill (E.D.P.); the Center for

DMIST-trial: women < 50



Screening under < 50

Guideline: screening and diagnosis of breast cancer (April 2007)

When digitization of the Dutch screening has been completed, a study should be performed to investigate the opportunities and consequences of introducing annual screening for women aged 45 to 49.

Building on digital framework

Maximize

- High-risk groups

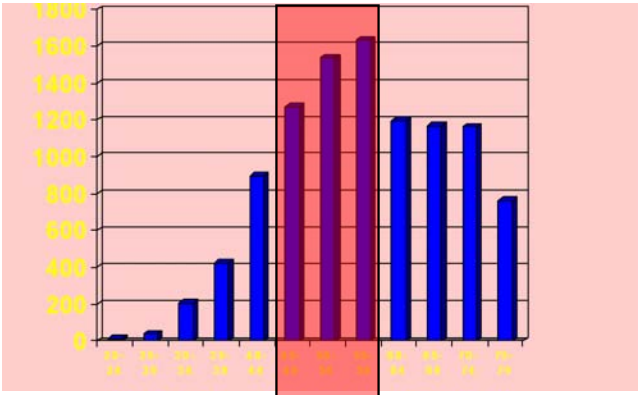
Minimize

- Low-risk groups

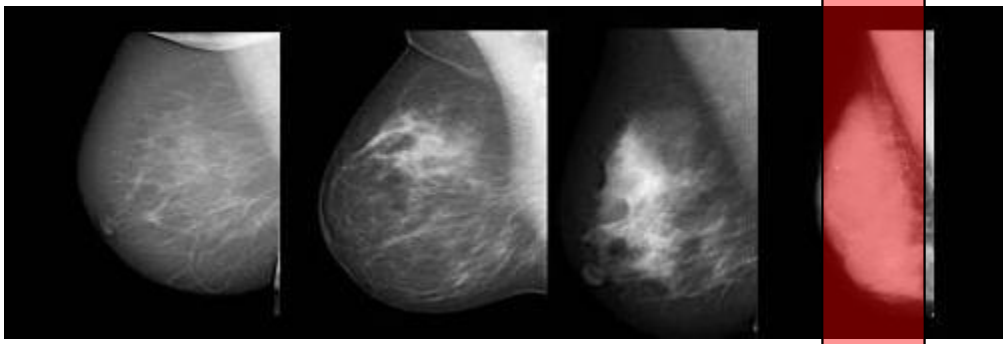
Building on digital framework

- Maximize

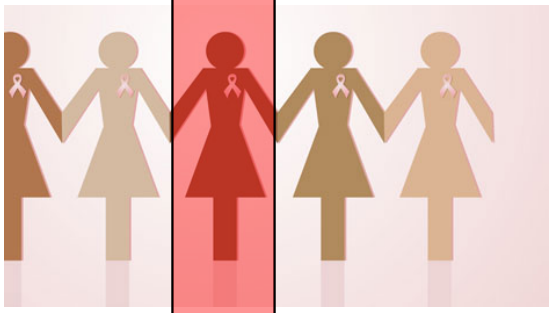
High-risk groups



Age



Breast density

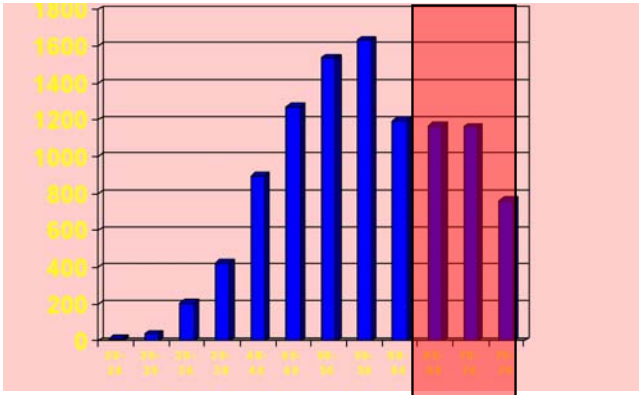


Family

Building on digital framework

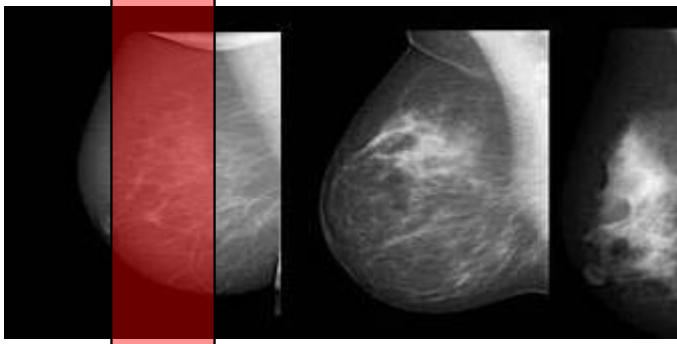
- Minimize

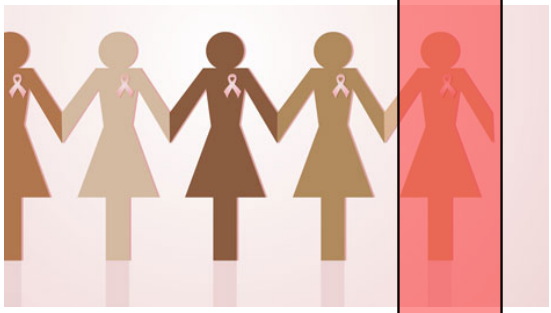
Low-risk groups



Age

Breast density





Family

Countering increased referral

The New York Times
nytimes.com

April 10, 2008

In Shift to Digital, More Repeat Mammograms

By DENISE GRADY

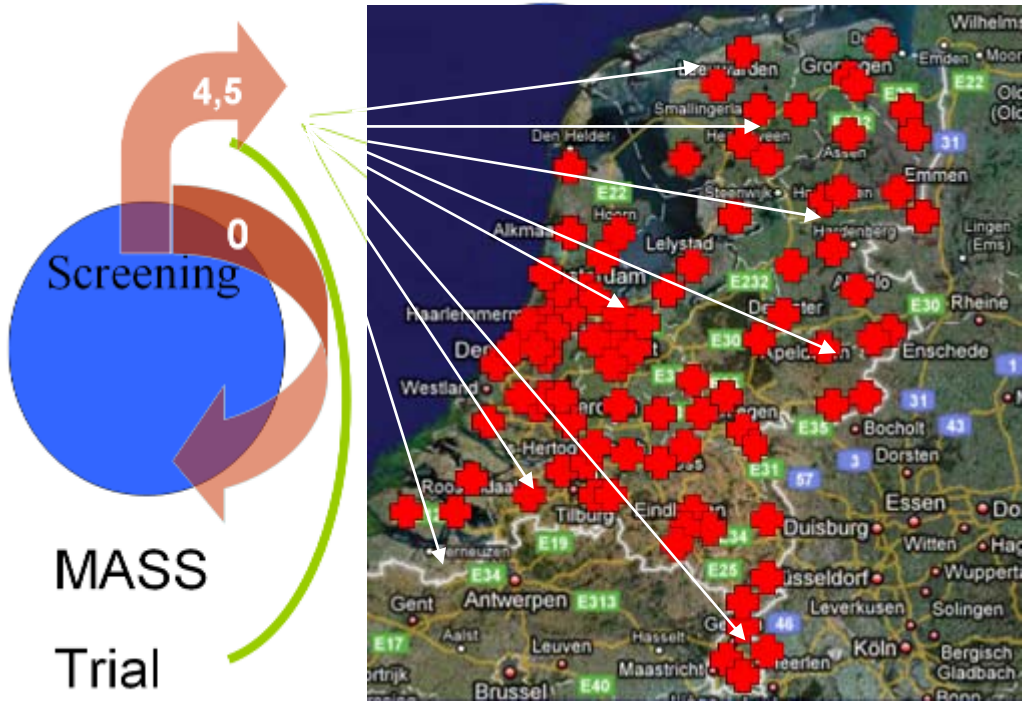
It is a phone call that women dread. Something is not quite right on the mammog
wind up normal.

Still, most women know someone who has breast cancer, and even the calmest, n

Building on digital framework

- Minimize

Risk stratification of referred women



Onzekerheid over biopsie is stressvol

Digital breast screening programme

Biomarker database: Breast Density, Genomics, Proteomics, DCIS Biobank, etc.

Web-based questionnaires : breast cancer risk factors

1. **CBS - Statistics Netherlands**
2. **IKC - Comprehensive Cancer Centres**
3. **IBOB - Screening Information System**
4. **GBA – Basic Information Municipalities**
5. **PALGA – Pathology Reports**

National Electronic Patient File **125 hospitals**

Research infrastructure ?

In the race for quality,

there is no finish line.

David T. Kearns