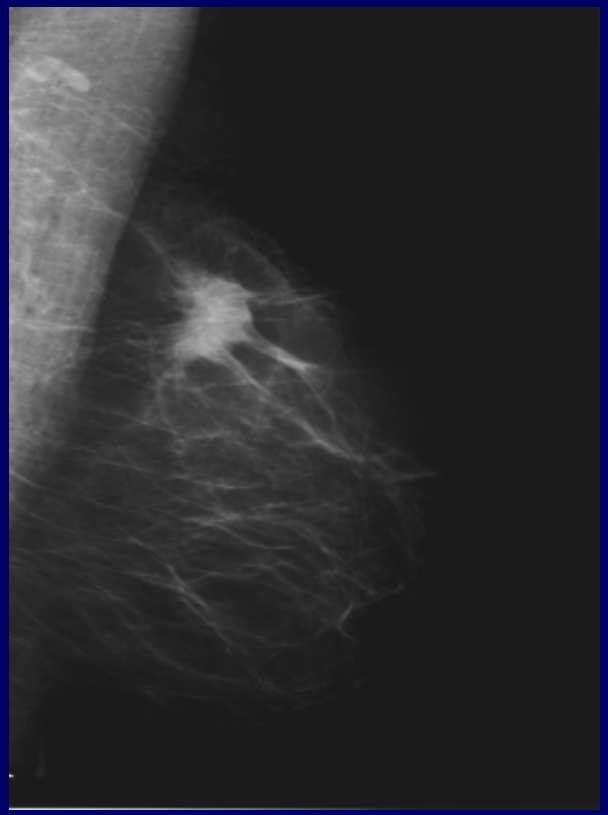
DBCG´s 30års jubilæums møde

Mammografiscreening i DK

Før, nu og i fremtiden



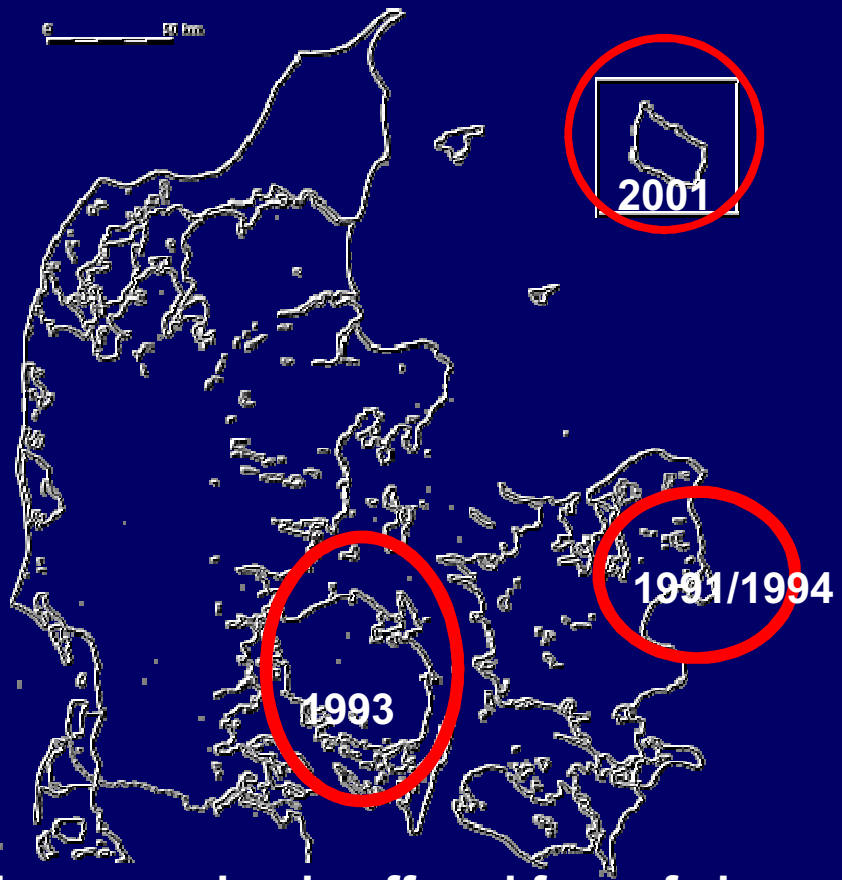
Ilse Vejborg
Mammografiscreeningen i Region Hovedstaden

Mammography Screening in Denmark

Denmark is one of the countries in Europe with a high risk of breast cancer.
With an age standardised mortality rate of **29 per 100,000** Denmark is one of the countries in the world with the highest mortality rate.

Reduction of mortality is the end point of success of a screening programme. Until mortality data are available a detailed recording of data is necessary to monitor the programme.

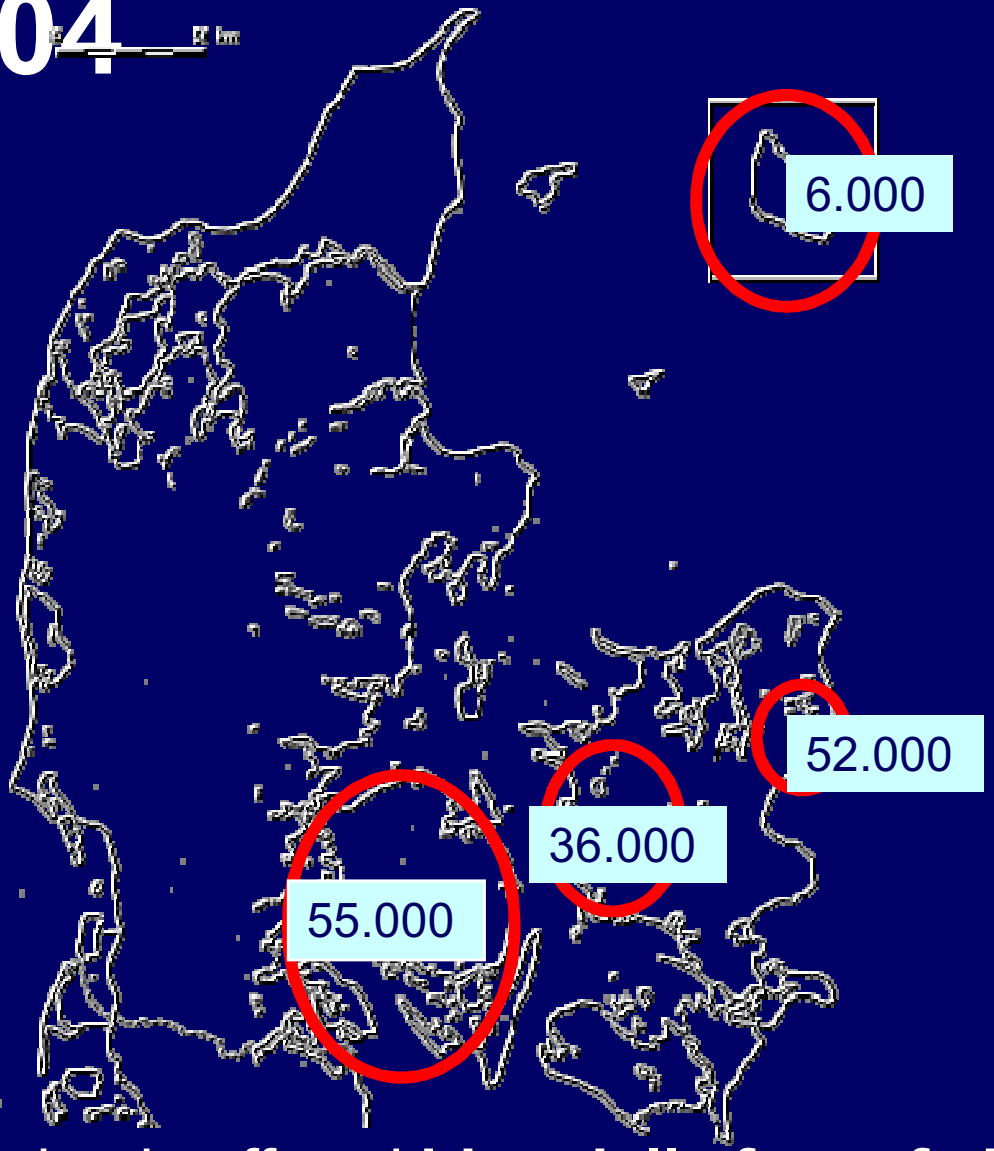
Mammography Screening in Denmark 2001



Organised mammography screening is offered free of charge to women aged 50-69 years every second year in 4 out of 16 regions; Fyn, Copenhagen, Frederiksberg and Bornholm.

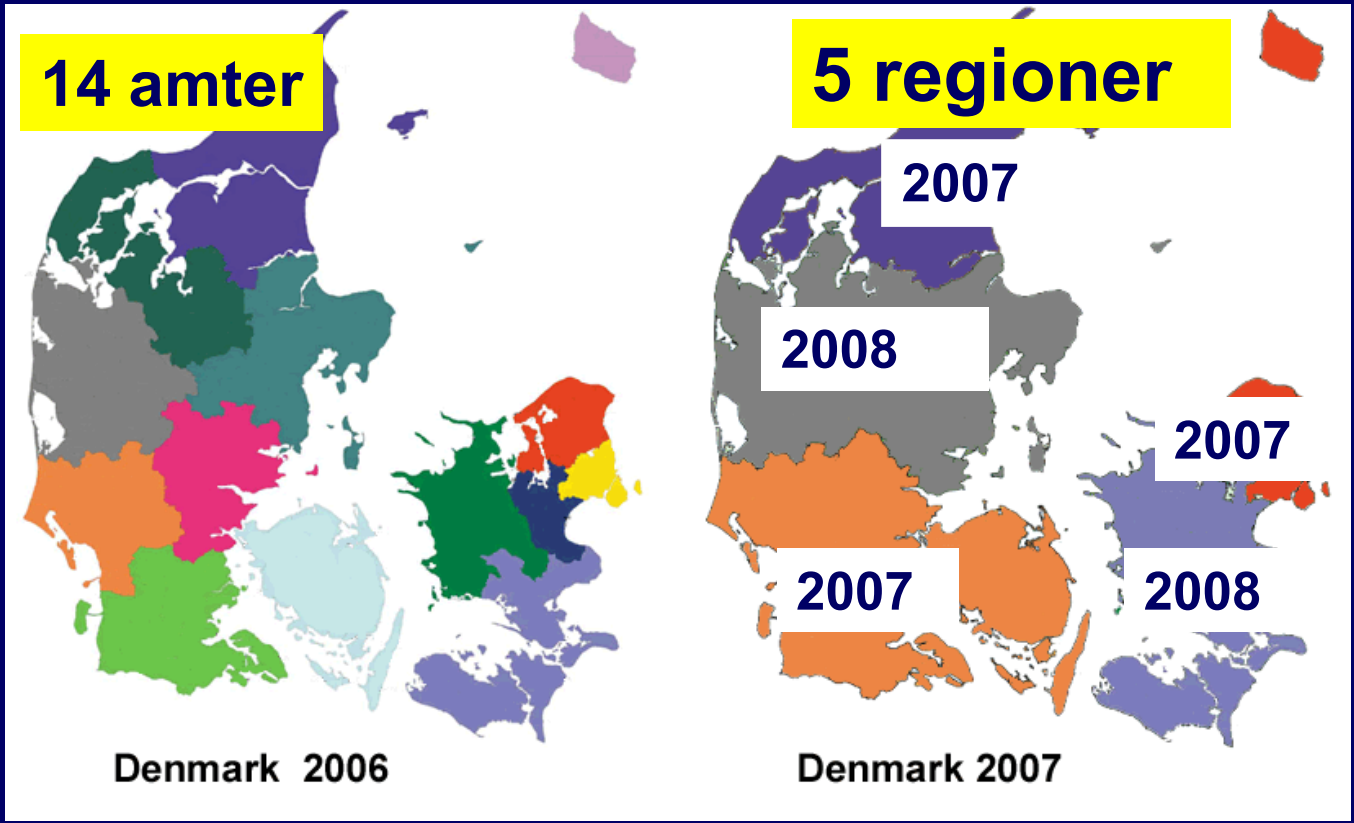
The programmes cover around 20 % of the target population

Mammography Screening in Denmark 2004



Mammography screening is offered **biennially free of charge**

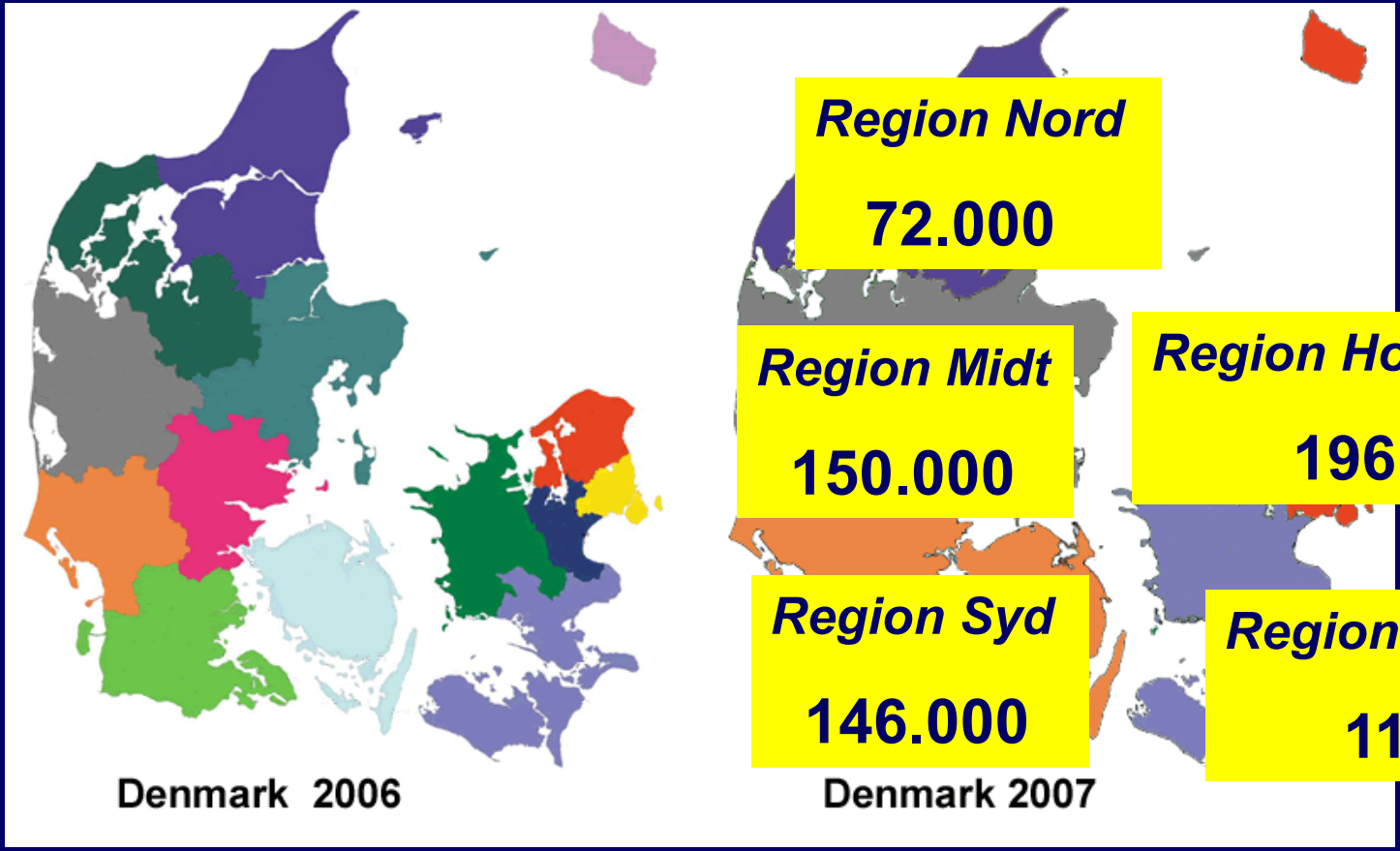
Mammography Screening in Denmark



All regions will be started in 2008

Targetpopultation

Women aged 50-69 years



Region Nord

72.000

Region Midt

150.000

Region Hovedstaden

196.000

Region Syd

146.000

Region Sjælland

110.000

Organisation and Results

Reduktion in breast cancer mortality is the
end point of succes
…but
detailed recording to **monitor** proces and Impact
is necessary during the first 8 to 10 years until
mortality data is available

Participation rate in the biennial mammography screening in Copenhagen municipality 1991-1999

	Number in	Participants in percent of		
Invitation Round	Target Population	Target Population	Invited Women	"Regularly Screened"
1	43092	71%	71%	71%
2	40156	65%	69%	83%
3	39845	63%	70%	90%
4	40875	62%	70%	91%
2005			***75%***	

I Vejborg et al ; J Med Screen: 2002 ; 9 : 115-9.

Participation rates in percent of target in the county of Fyn 1993-1999

84% (1 and second invitation round)

82% (3 invitation round)

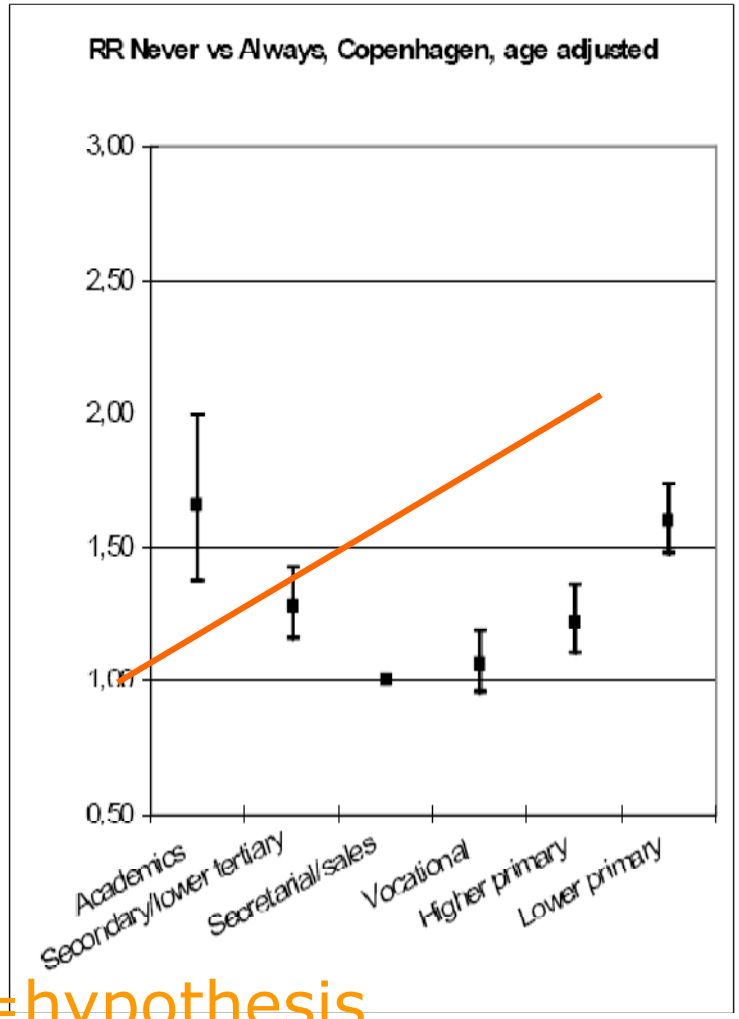
Sisse Njor et al, APMIS ; 2003 : vol. 111:1-33

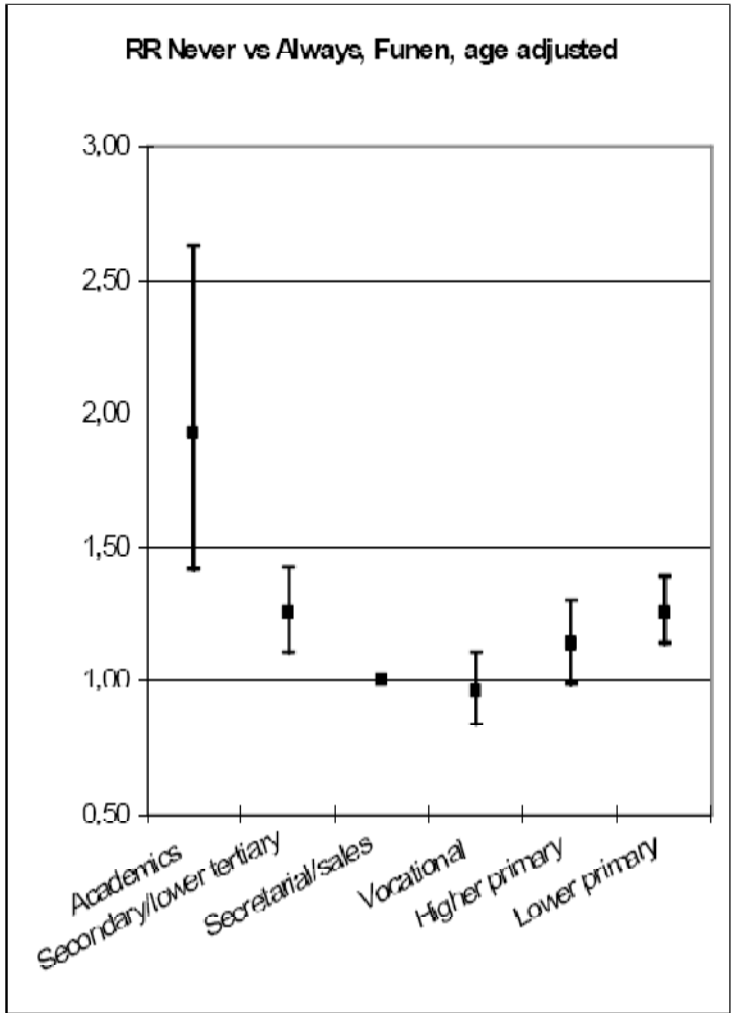
97 % in percent of invited 2004-2005 *(6th round)*

Walter Schwartz , personal communication

Participation rate

”Never users” in accordance to educational level



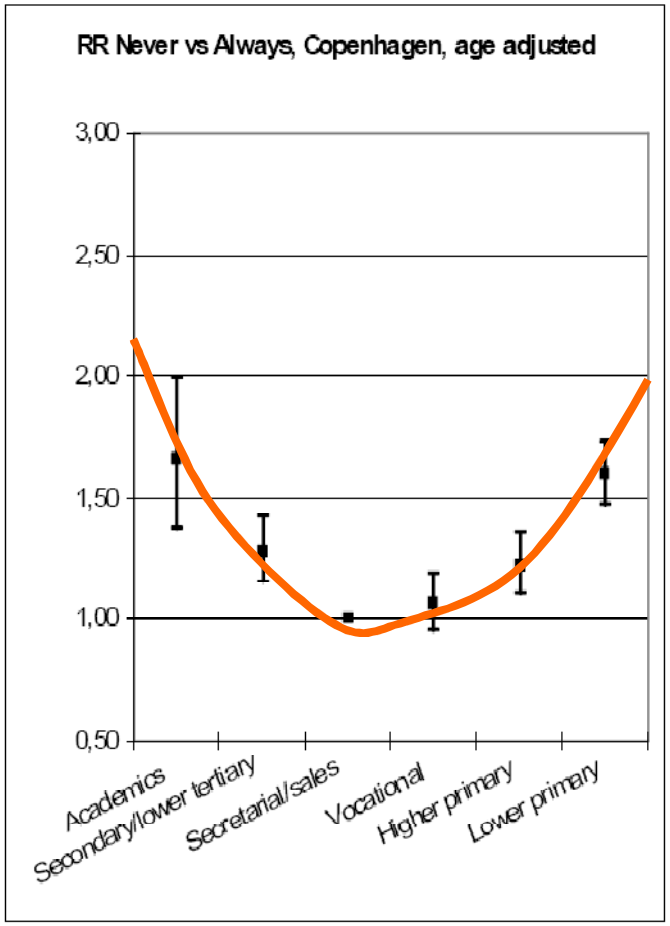


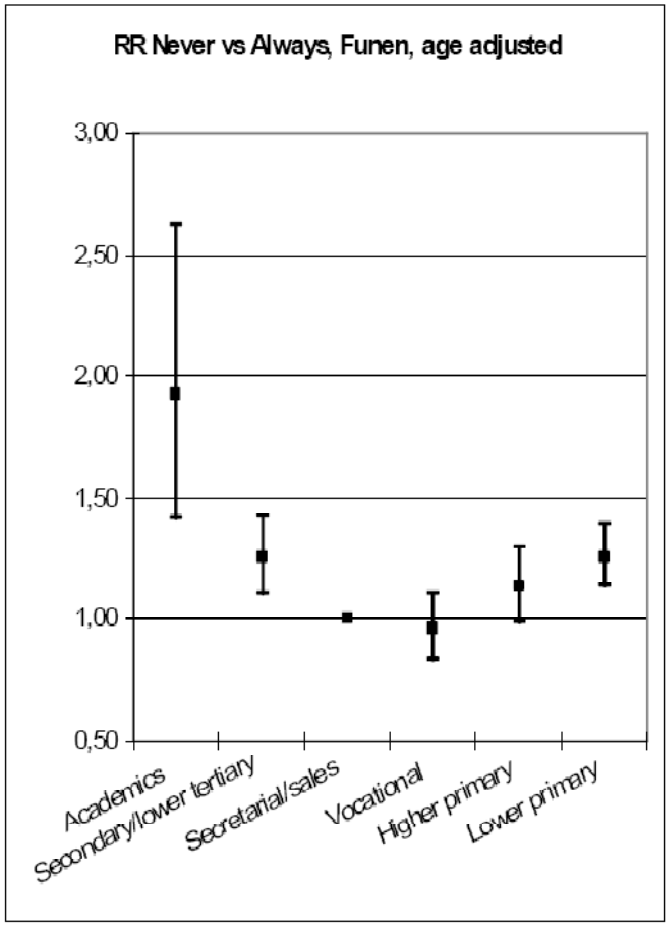
=hypothesis

My von Euler-Chelpin et. al 2007

Participation rate

”Never users” in accordance to educational level





My von Euler-Chelpin et. Al. Eur J Cancer Prev (2008)

Detection rates of invasive breast cancers or DCIS in the biennial mammography screening in Copenhagen municipality 1991-1999. Detected cases per 1000 participants.

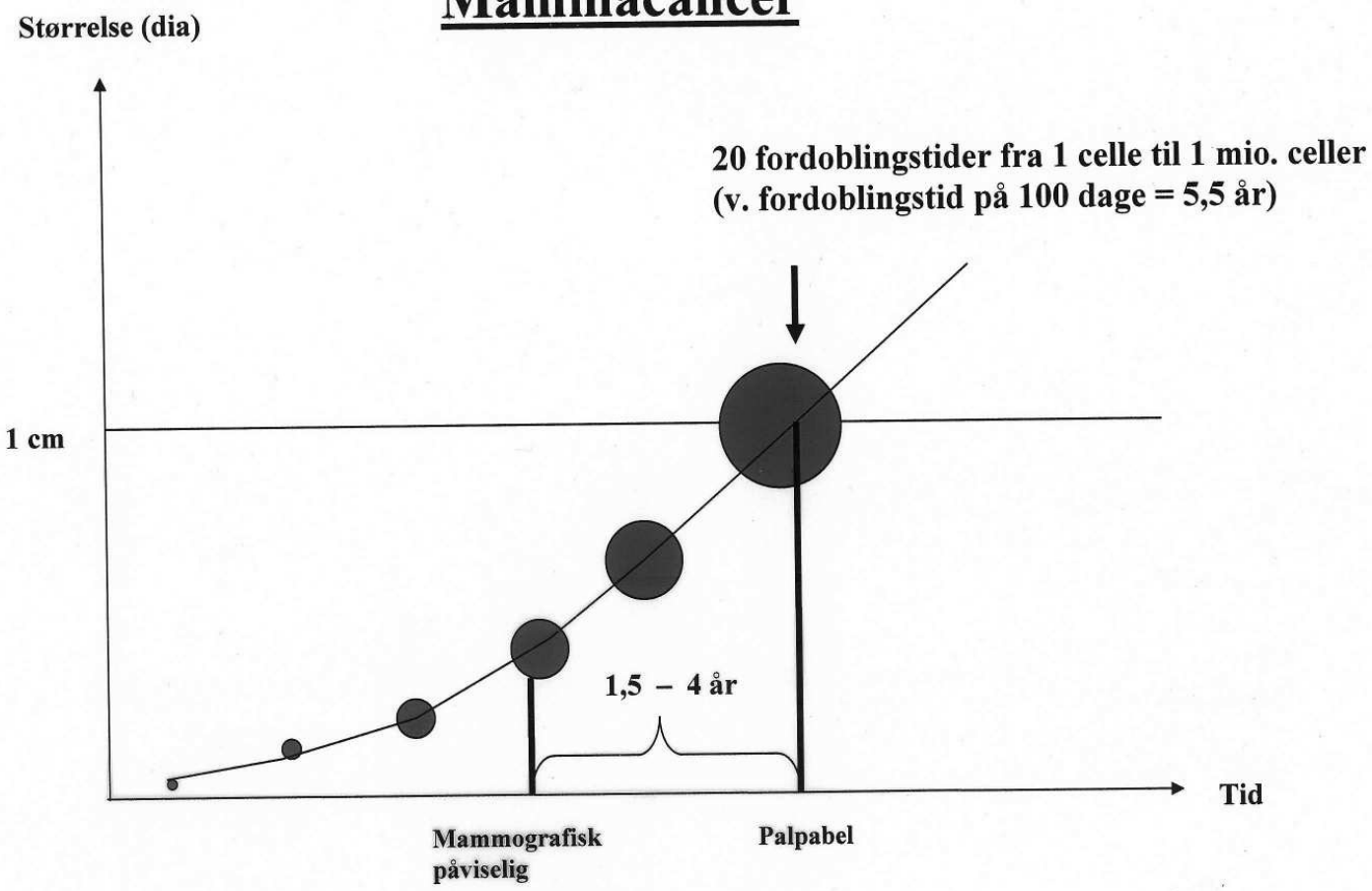
Invitation	Screen number				
Round	1	2	3	4	Total
1	11.9	-	-	-	11.9
2	6.7	6.1	-	-	6.3
3	6.3	6.5	6.0	-	6.1
4	4.5	3.1	5.4	6.4	5.4
Total	10.0	5.8	5.9	6.4	7.6
Per cent DCIS	12.5	8.1	13.7	12.8	10.9

Year 2005

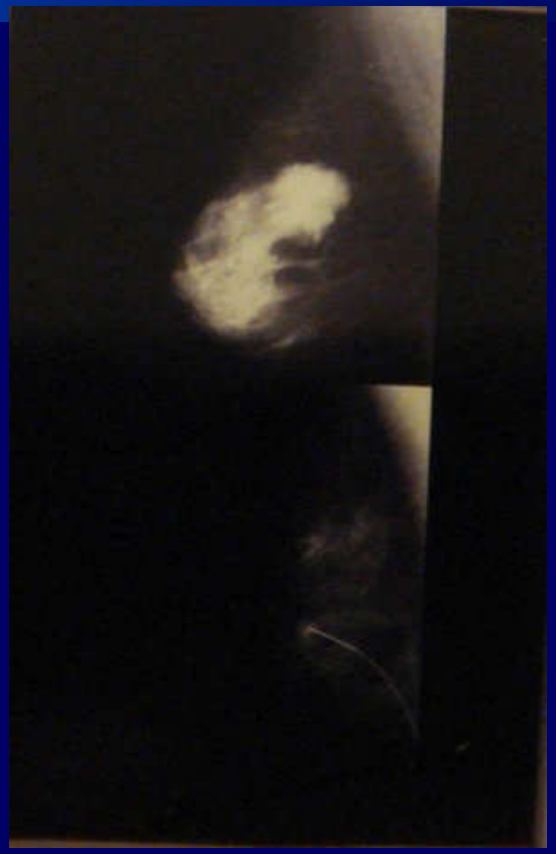
0,9% (IC+DCIS)

I Vejborg et al ; J Med Screen ; 2002 : 9:115-9

Mammacancer



Fordoblingstid af tumor: 100 – 180 dage (hurtigst hos unge ♀)



Tumour characteristics of detected invasive breast cancer in the biennial mammography screening in Copenhagen municipality 1991-1999

	Screen number					2005	European Guidelines
	1	2	3	4	Total		
Screen detected invasive + DCIS	448	173	117	86	824	151	
Invasive only	392	159	101	75	727	123	
Data on lymph nodes	365	146	93	70	674		< 30% (1.screen)
% positive	23%	23%	18%	21%	22%	9%	<25%
Data on diameter	372	148	97	71	688	76	≥ 25% (1.screen)
% ≤10mm	36%	44%	44%	37%	39%	62%	≥ 30%
Data on grade	295	111	71	57	534		
% grade 1	54%	56%	52%	56%	54%		
Data on operation	377	152	97	72	698		
% lumpectomy	50%	44%	47%	47%	48%	75%	

I Vejborg et al; J Med Screen 2002; 9 : 115-9

Detection rates and prognostic characteristics in the county of **Fyn** 1993-1999

Detection rates of invasive breast cancer + DCIS:

1 % (first invitation round)

0,5 % (second and third round)

0,6 % 6th round (2004-2005)

Invasive carcinoma ≤ 10 mm :

38% (1 invitation round)

31 % (2 invitation round)

32 % (3 invitation round)

35% 6th round

(Walter Schwartz , personal communication

Node positive invasive cancers:

32% (1 invitation round)

26%(2 invitation round)

27%(3 invitation round)

Sisse Njor et al: APMIS; 2003:vol.111: 1-33

DCIS in percent of IBC + DCIS

Fyn:

14% DCIS (1 invitation round)

11% DCIS *(* Subsequent rounds)

Copenhagen:

Overall 11 % DCIS *(1.-4. invitation round)*

This reflects an deliberative conservative attitude towards supposedly benign micro calcifications in order to avoid over diagnose and over treatment of benign lesions and low grade DCIS

European Guidelines: 10-20%

Prognostic characteristics

Before and after
Mammography screening in Copenhagen

	Before (1989-1991)	Invitation rounds 1-4 (1991- 1999)
Tumour diameter ≤ 10 mm	16 %	39 %
Node positive	40 %	22 %
Malignancy grade % grade 1	40 %	54 %

IV 2004

Mammography Screening in Copenhagen

Lumpectomy : **75 % (2005)**

compared with 16 % prior to screening

Lumpectomy Fyn 2004-2005 : 75%

Recall rates in Copenhagen

Copenhagen	6.8 %	1. invitation round **(1991)**
	3.2 %	2.3.4.invitation rounds
	2%	**2005** **(cancer: 0,9%)**

Recall Rates in Fyn

Fyn	2.8 % 1. invitation round
	1.3 -1,4 % subsequent rounds

False positive screening test

i.e. a woman recalled for assessment who is found not to have breast cancer

- More than 90 % of the false positives are sorted out at assessment

Proportion of women with false positive test undergoing surgery before the suspicion of malignancy could be ruled out in the biennial mammography screening in Copenhagen 1991-1999

Invitation	Screen number				
Round	1	2	3	4	Total
1	13.8%	-	-	-	13.8%
2	7.6%	5.9%	-	-	6.4%
3	11.5%	4.5%	6.7%	-	8.2%
4	6.8%	4.1%	8.3%	6.9%	6.7%
Total	12.0%	5.6%	6.9%	6.9%	9.9%

7.Runde:
(2003-2005)
6%

I Vejborg et al ; J Med Screen 2002 ; 9: 115-9

Copenhagen 2003-2005

(7 th invitations round)

Benign / Malignant Operations

92% Malignant

230 malignant /252 operated women

(papillomas and patients demand included)

Benign versus malignant

Acceptable: ≤ 50% benign ***Desirable: ≤ 25% benign***

European Guidelines 2006

IV 2008

Fyn 2004-2005

(6th invitation round)

Benign / Malignant Operations

80% Malignant

(299 malignant /374 operated)

Walter Schwartz , personal communication

Proportional interval cancer rate after first screening round:

(i.e. number of invasive cancers detected in the two year period after the woman tested negative compared with the expected number of cancers)

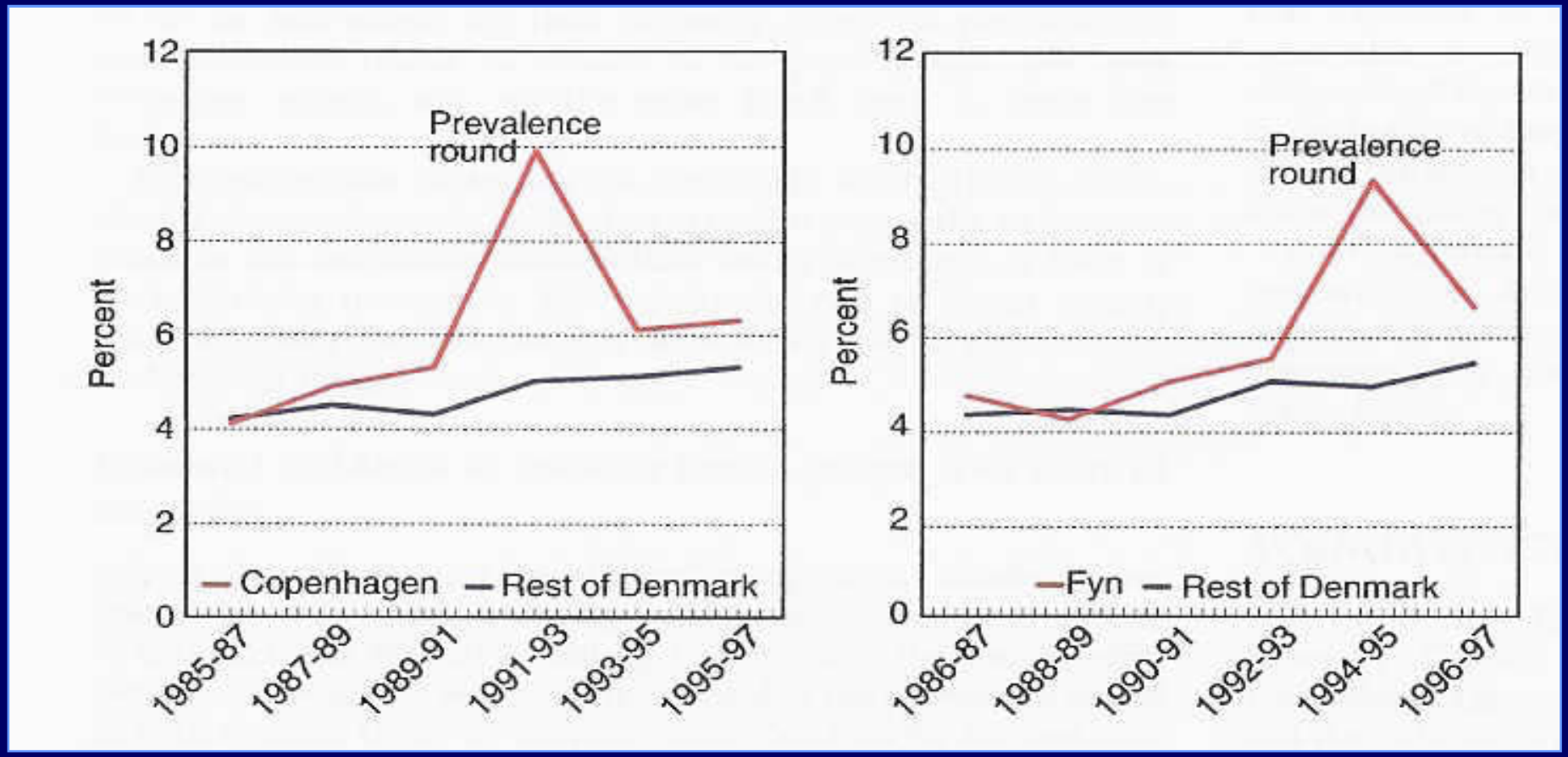
Copenhagen : 0.34 (52 intervalcancere / 152 forventede)

Fyn : 0.42

***E.Lynge* et al.: APMIS 1998; 106 : 1-44**

***Sisse Njor* et al.: APMIS 2003; 88 : 362-5**

Risk of incident invasive breast cancer for women aged 50-69 in Copenhagen and Fyn compared with the rest of Denmark (excluding Frederiksberg)



AH Olsen et al. B J Cancer 2003; 88: 362-5

In conclusion

- Denmark has a **high incidence** of breast cancer and one of the **highest mortality rates** in the world
- The screening programmes in Denmark has a **high detection rate**
- The proportion of cancers are well above the recommended
- **A great number** of screen detected cancers are **≤ 1 cm** & relatively **few are node positive**
- A considerable improvement in **prognostic** characteristics of screen detected cancers is seen
- It seems that there is **no over diagnosis** or over treatment of importance

=>

Then, does it work on mortality?

Breast Cancer Mortality in Copenhagen after 10 years of Mammography Screening

- Women invited for screening:
- **25%** reduction
- Women participating in screening:
- **37%** reduction

AH Olsen et al. BMJ, January 2005

National screening

Hvordan sikrer vi kvaliteten af et screeningsprogram ?

Kvalitetssikring i opstartsfasen

- Benytte erfaring og resultater fra eksisterende screeningsprogrammer
- European Guidelines
- Nationale guidelines
- Organisation
- Oplæring

DKMS

Dansk Kvalitetsdatabase for mammografiscreening

Nedsat af Sundhedsstyrelsen og Danske Regioner

Styregruppens opgaver

- **Udarbejdelse af kvalitetsindikatorer** ***(udført)***
- **Udarbejdelse af kliniske retningslinjer** ***(udført)***
- **Udvikling og drift af databasen** ***(igangværende)***

Nationale kliniske retningslinjer

Organisatoriske krav

- **Personlige invitationer** baseret på opdaterede befolkningsdata **(CPR)**
- **Information** om mammografiscreening samt spørgeskema medsendes invitationen.
- Alle kvinder i målgruppen 50-69 år **inviteres hvert andet år**
- Alle får **skriftligt svar** på mammografiundersøgelsen
- Kvinderne kan til enhver tid **fra - og tilmelde** sig **tilbuddet** om mammografiscreening

Nationale kliniske retningslinjer

Organisatoriske krav (fortsat)

- 2 **standardiserede optagelser** af hvert bryst
- Hver screeningsorganisation udfører som minimum **5.000** screeninger pr. år i en målgruppe på **20.000 kvinder**
- Screeningsorganisationen **opfylder de organisatoriske krav**
- **Dobbeltgranskning** uafhængigt af 2 personer, hvoraf mindst den ene er uddannet screeningsradiolog, der som minimum vurderer 5000 screeninger pr. år
- Udpeget **styregruppe med bred repræsentation** og udpeget **leder**
- **Centraliseret fysisk-teknisk kvalitetskontrol** som følger de fysisk-tekniske rekommandationer opstillet i European Guidelines for Quality Assurance (11)
- **Arkiverer** røntgenbillederne, **opsamler data** og benytter disse til at **monitorere** programmet

Nationale kliniske retningslinjer

Organisatoriske krav til et referencecenter udover ovenstående

- Udfører mindst 10.000 screeninger pr. år
- Tilbyder uddannelsesprogrammer med evaluering af performance og et undervisningsmateriale, der inkluderer intervalcancere
- Har en fysiker fast tilknyttet programmet
- Indgår i et integreret team med specialuddannede radiologer, patologer, kirurger og onkologer
- Evaluerer og indberetter resultater regelmæssigt
- Har epidemiologisk/statistisk støtte til opgørelser og monitorering

Nationale kliniske retningslinjer

Krav til fotograferende personale

- **> 97%** af undersøgelserne skal være **perfekte eller gode bedømt** ud fra international standard **-> Audit / feed back fra radiolog**
- **< 3%** af kvinderne skal have **gentaget en eller flere optagelser** -> Omtagninger registreres
- **> 97%** af kvinderne skal **være tilfredse** med screeningsbesøget **-> Spørgeskema us.**
- **100%** af kvinderne skal være **informeret** om metoden og om forventet svar på us.

DKMS

Nationale kvalitetsindikatorer

Indikatorer for proces og impact monitoreres centralt ud fra indberetninger til LPR og DKMS

1. **Stråledosis :** PMMA tykkelse 4,5 cm **< 2,0 mGy**
2. **Deltagelse :** **>75%** af inviterede
3. **Screeningsinterval:** **2 år** (+/- 3 mdr.)
4. **Genindkaldelsesprocent:** 1.runde **< 5%** efterfølgende **< 3%**
5. **Intervalcancerrate**
6. **DCIS kontra DCIS+IC:** **10-20%**
7. **Node negative:** 1.runde **> 70%** efterfølgende **>75%**
8. **Små cancere:** 1.runde **≥ 25 %** efterfølgende **≥ 30%**
9. **Benign kontra malign operation:** **≤ 1:4**
10. **BCS kontra mastektomi:** 1.runde **> 50%** efterfølgende **>60%**
11. **Svartid:** **≤ 10 arbejdsdage**

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Ultimative kvalitetsindikatorer

(≥ 8- 10 års opfølgning)

Effekt på

Morbiditet

&

Dødelighed

af brystkræft

IV 2008