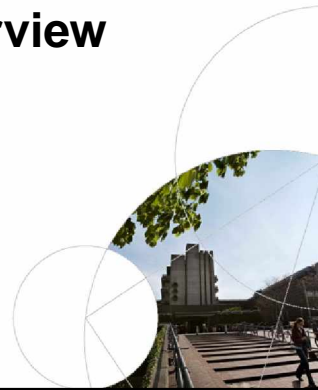




Cross-border cooperation in the future  
Breast health is an example  
Flensburg, 24 November 2010

## Breast cancer - an overview

Elsebeth Lyng  
[elsebeth@pubhealth.ku.dk](mailto:elsebeth@pubhealth.ku.dk)  
University of Copenhagen



## BREAST CANCER

2007: Women 2777  
Men: 22



2008: Women 1039  
Men: 10

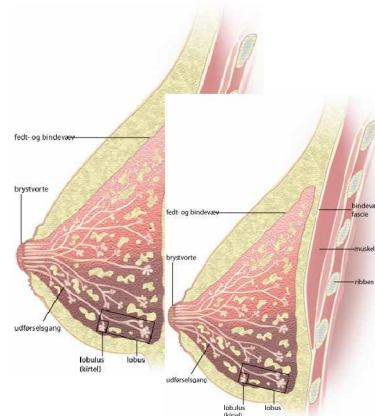


<http://www.krebsregister-sh.de/berichte/kish2007.pdf>

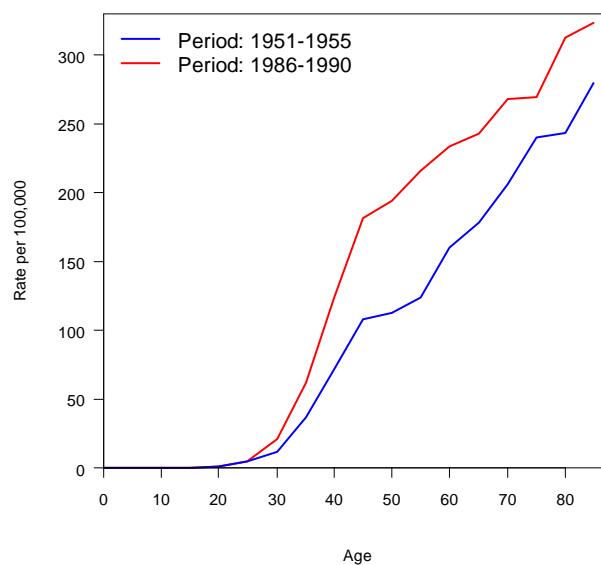
<http://www.sst.dk/Indberetning%20og%20statistik/Sundhedsdata/Kraeft/RDS7.aspx>

## WHAT I WILL TALK ABOUT

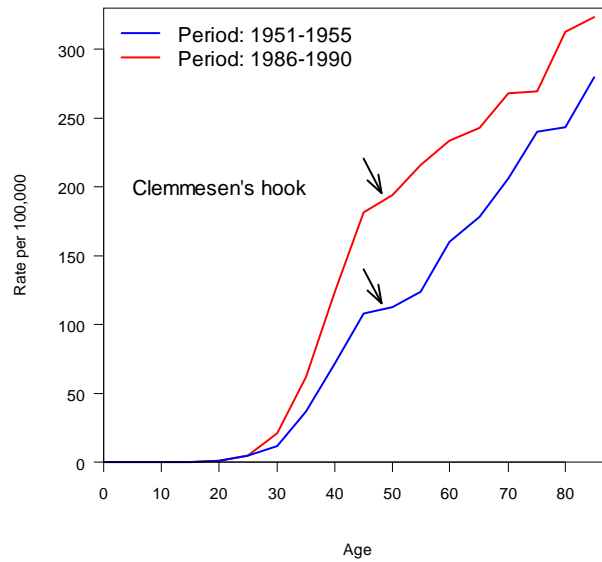
- Trends in breast cancer incidence
- Trends in breast cancer incidence by "stage"
- Breast cancer risk factors
- Prognosis of breast cancer
- Breast cancer screening



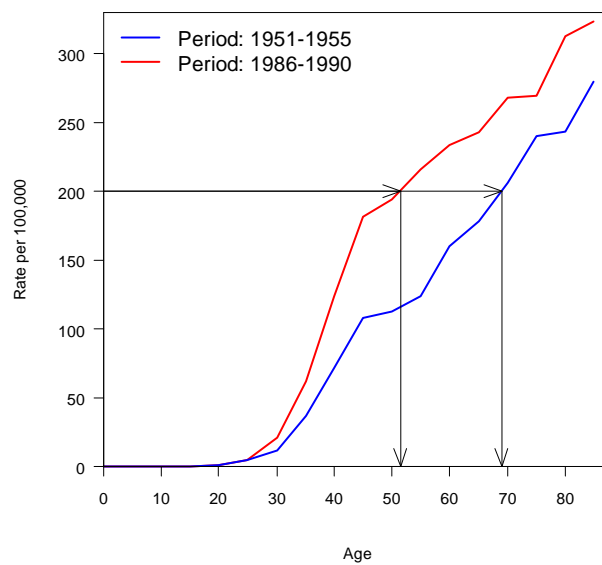
## BREAST CANCER INCIDENCE DENMARK



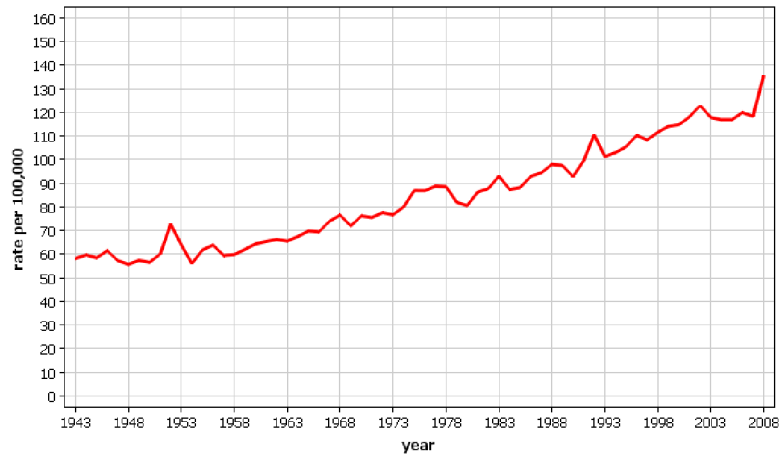
## BREAST CANCER INCIDENCE DENMARK



## BREAST CANCER INCIDENCE DENMARK

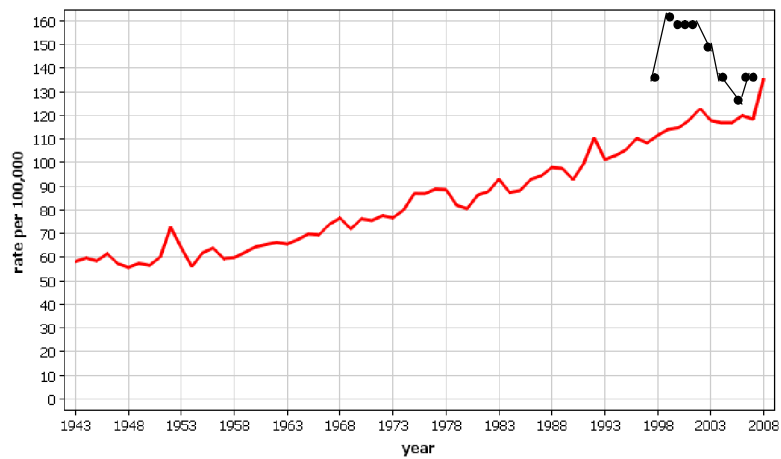


Denmark  
Breast  
Incidence: ASR (European), Female age (0-85+)



NORDCAN © Association of the Nordic Cancer Registries (18.11.2010)

Denmark  
Breast  
Incidence: ASR (European), Female age (0-85+)



Schleswig-Holstein

NORDCAN © Association of the Nordic Cancer Registries (18.11.2010)

## STAGE SPECIFIC TREND

Denmark 1978-1994

	All cases	Diameter known	Lymph node status known <sup>a</sup>
1978	2596	1488	1205
1979	2438	1825	1579
1980	2363	1782	1591
1981	2538	1930	1723
1982	2639	1935	1766
1983	2738	1962	1861
1984	2667	1892	1795
1985	2670	1884	1804
1986	2802	2021	1911
1987	2852	2135	2064
1988	3000	2238	2141
1989	2974	2229	2108
1990	2876	2207	2141
1991	3071	2405	2347
1992	3406	2741	2669
1993	3133	2556	2467
1994	3203	2654	2554
Total	47 966	35 884	33 726

Probably best long-term data available:

Linkage of data from  
\***Danish Cancer Register**, nationwide from 1943 and

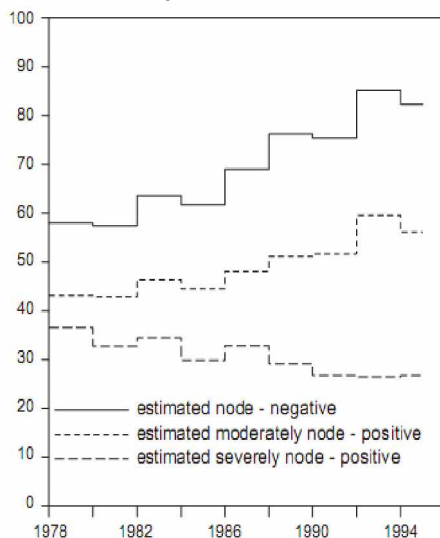
\***Danish Breast Cancer Cooperative Group**, nationwide from 1978

No mammography screening (the few screened women excluded from the analysis)

Rostgaard et al., 2006

## STAGE SPECIFIC TREND

Incidence rate per 100,000



Explaining the trend:

\***Faster detection** (measured by smaller tumor diameter) explained 48-54% of trend in severely node-positive and 90% of trend in node-positive

\***Unknown time trend** favouring node-negative tumours

Definition: Severely node-positive = at least half of excised lymph nodes positive

Rostgaard et al, 2010

## BREAST CANCER RISK FACTORS

	Strength		Strength
Gender	++++	Age at first full term pregnancy	+++
Age	++++	Age at other pregnancies	+
Ethnic group	+++	Parity overall	++
Family history	+++	Pregnancy timing	+
Specific genes	++++	Lactation	+
Cancer on other breast	+++	Abortion	0
Height	++	Oral contraceptive use	+
Postmenopausal obesity	++	Hormone replacement	++
Birth weight	+	Plant foods and olive oil	+
Having been breast fed	0	Saturated fat	+
Growth in early life	+	Physical activity	+
Atypical hyperplasia	+++	Ethanol intake	+
Mammographic density	+++	Ionizing radiation	+
Age at menarch	++	Magnetic fields	0
Age at menopause	++	Organochlorides	0
Type of menopause	++		

Trichopoulos et al, 2008

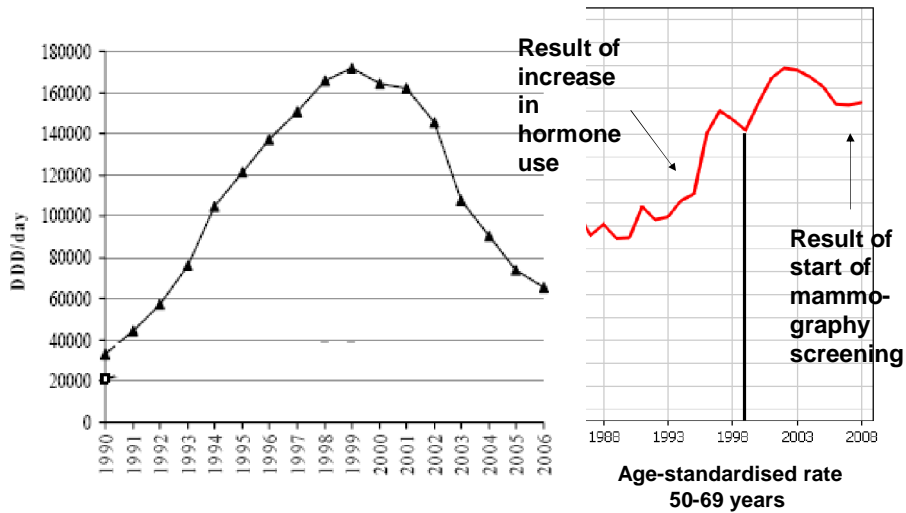
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Age at menopause	++	Organochlorides	0
Type of menopause	++		

Trichopoulos et al, 2008

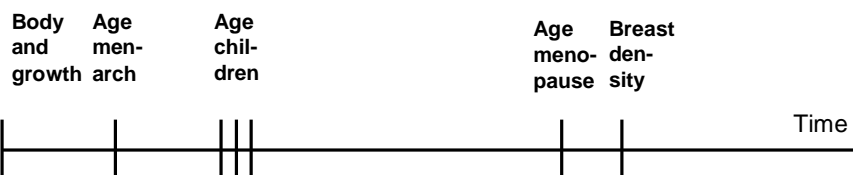
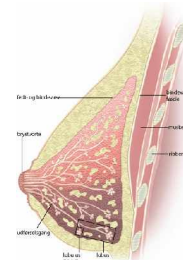
## AN EXAMPLE

### Hormone use and breast cancer incidence in Norway



## LIFE and BREAST CANCER RISK

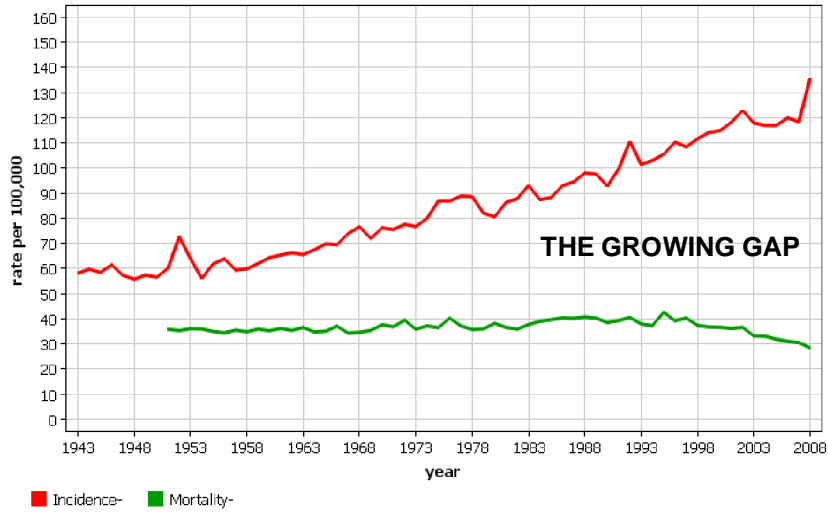
- Number of stem cells
- Terminal differentiation
- Hormonal exposure



- Breast cancer is at present not a disease for which we have an effective primary prevention

Trichopoulos et al, 2005

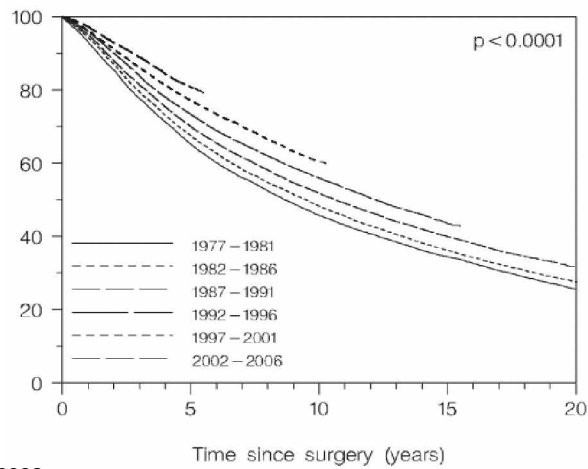
Denmark  
Breast  
ASR (European), Female age (0-85+)



NORDCAN © Association of the Nordic Cancer Registries (18.11.2010)

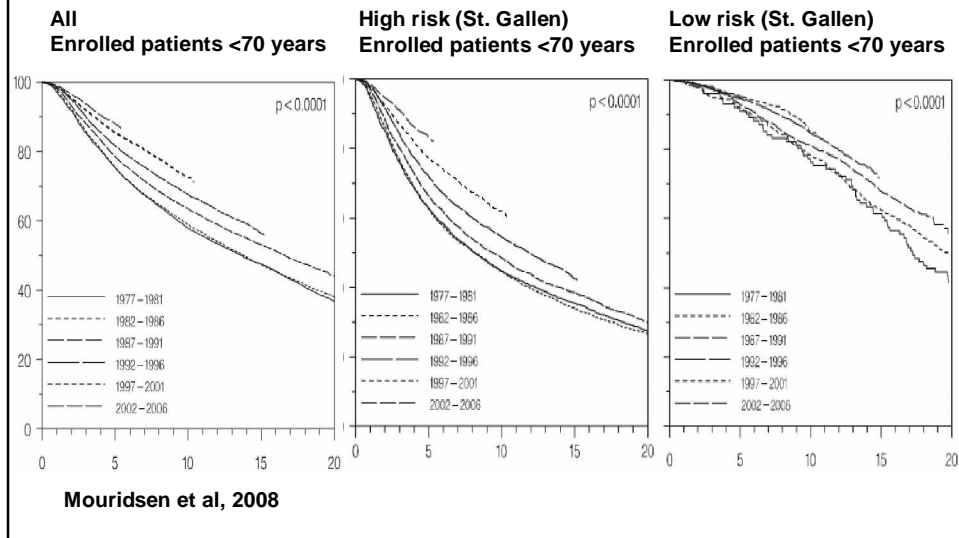
## THE GROWING GAP IS REFLECTED in better survival

Percent overall survival  
Enrolled and non-enrolled DBCG patients

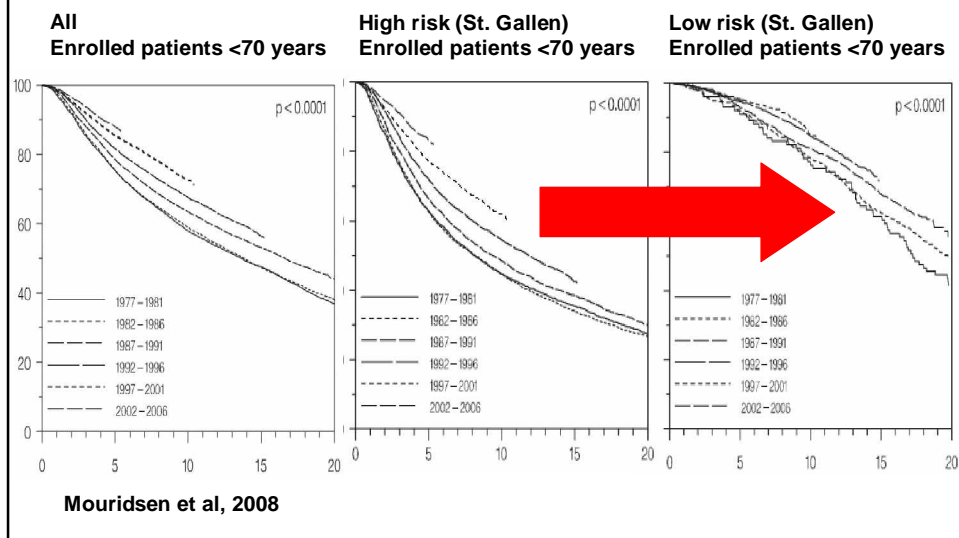


Mouridsen et al, 2008

## STAGE SPECIFIC SURVIVAL TREND



## STATE SPECIFIC SURVIVAL TREND



# MAMMOGRAPHY SCREENING



A woman is shown from the waist up, wearing black shorts, with a man embracing her from behind. To the left, a pink heart is followed by the word "You" in a white, handwritten-style font. To the right is a red can of CULT Cola with a crown logo and the text "WORLD'S STRONGEST COLA". At the bottom right, a small banner reads: "Du støtter kampen mod brystkræft med 0,25 kr. hver gang du kober en CULT™ Cola".

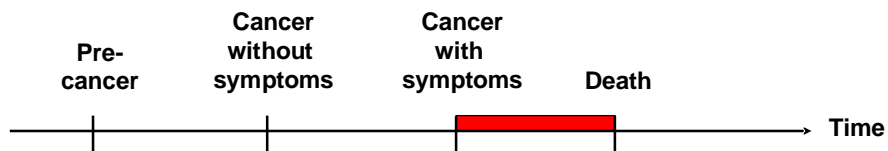
Brystkræft er den hyppigste kræftsygdom hos kvinder og rammer cirka 1 ud af 10. Der påvises cirka 4.000 nye tilfælde hvert år i Danmark.

Støt CULT fonden!  
Besøg [www.cult-fonden.dk](http://www.cult-fonden.dk) og giv dit bidrag.  
Der er ingen administrationsomkostninger og ALLE penge går ubeskåret til kampen mod brystkræft.

[www.cult-fonden.dk](http://www.cult-fonden.dk)

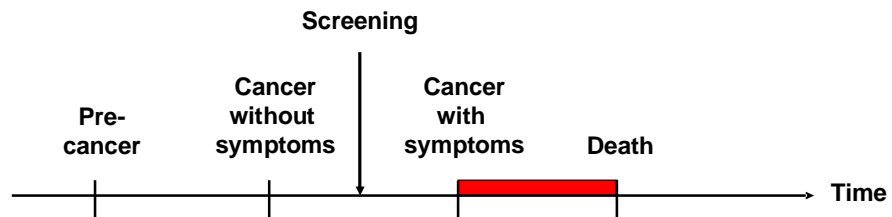
## WHAT IS SCREENING?

- **Cancer without screening**



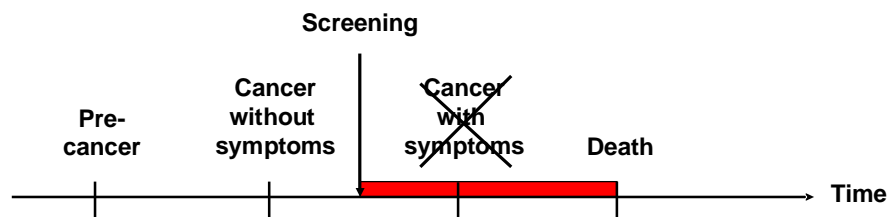
## WHAT IS SCREENING?

- Cancer with screening



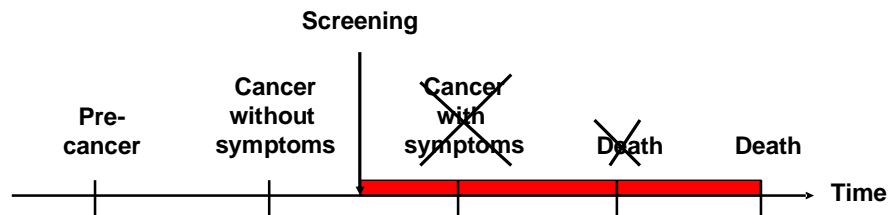
## WHAT IS SCREENING?

- Cancer with screening



## WHAT IS SCREENING?

- **Cancer with screening**



**EFFECT: Reduced mortality from breast cancer**

## MAMMOGRAPHY SCREENING

Evidence for effect from randomised controlled trials

- **International Agency for Research on Cancer, 2002:**
- **There is sufficient evidence for the efficacy of screening women aged 50-69 years by mammography as the sole screening modality in reducing mortality from breast cancer.**
- **Reduction about 25% for all women, and about 35% for participating women.**



- Randomised
- controlled trials



- Recommendations



- Service screening

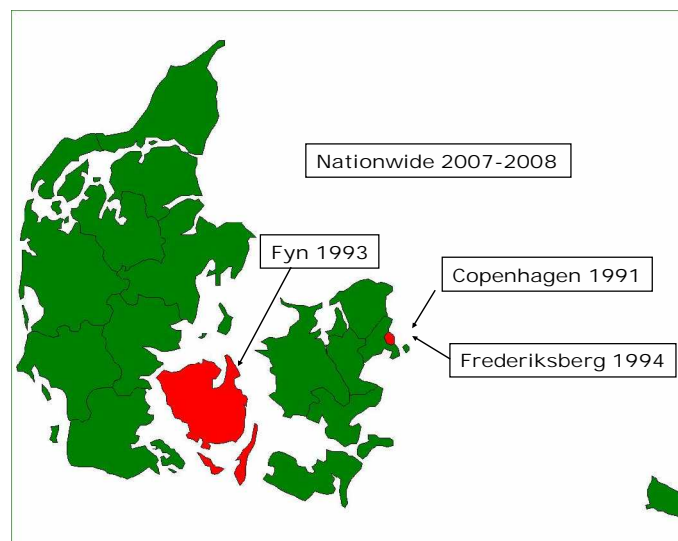


- Quality assurance/  
monitoring

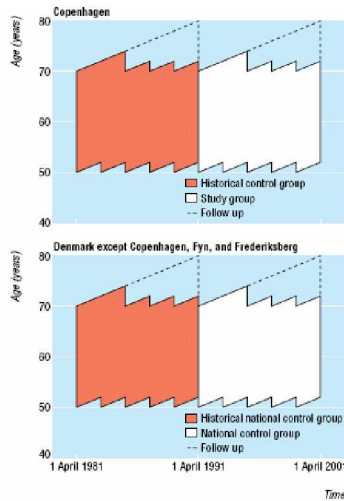
### 3 control groups design Evaluation of service screening

Screening historical control	Screening
Non-screening historical control	Non-screening

## EVALUATION OF SERVICE SCREENING



 **Denmark as example**



**1991 Copenhagen screening start  
2008 Nationwide screening**

**Copenhagen 1991-2001/  
Copenhagen 1981-1991**

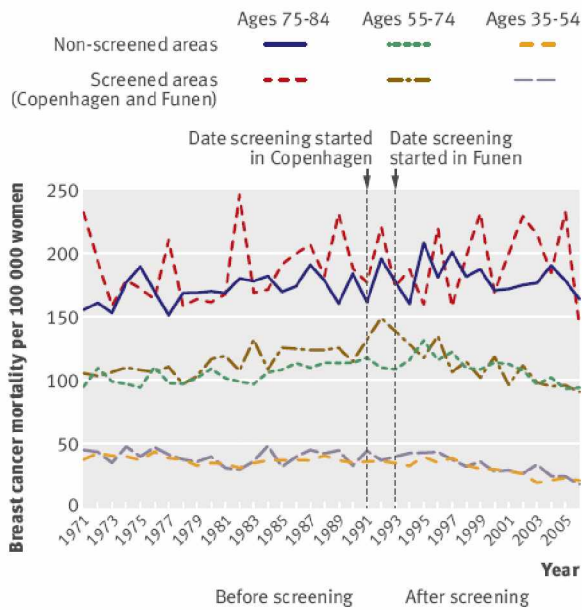
**Rest of DK 1991-2001/  
Rest of DK 1981-1991**

**Change from no screening to screening  
in Copenhagen, controlled for change  
during the same period in the rest of  
Denmark**

**RR 0.75 (95% CI 0.63-0.89)**

**Olsen et al, 2005**

 **Denmark as example**

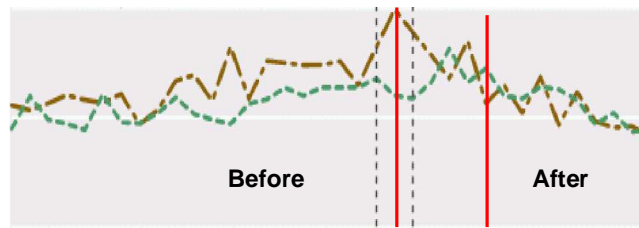
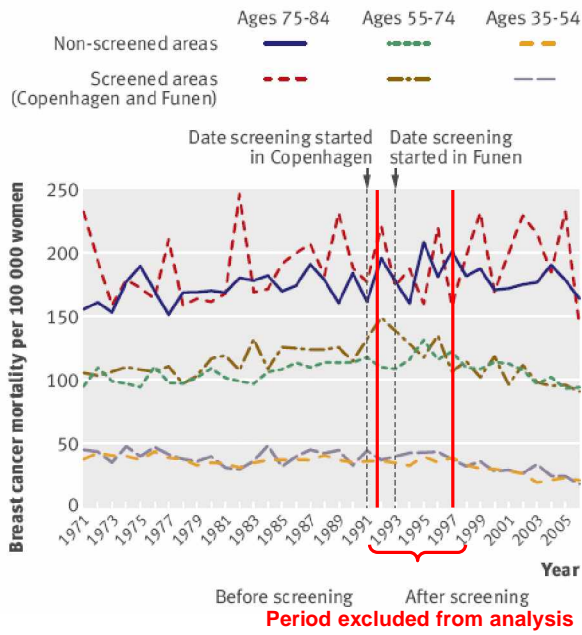


**Jørgensen et al, 2010**

## Denmark as example



Jørgensen et al, 2010

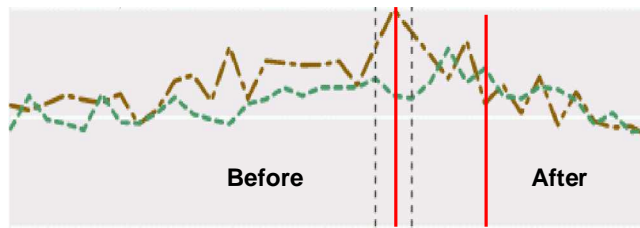


Jørgensen et al, 2010: Analysed the *slope* of the lines:

	Before	After
Screening (olive line)	+ 1%	- 1 %
Non-screening (green line)	+ 2%	- 2 %

Jørgensen et al, 2010: Concluded:

"We were unable to find an effect of the Danish screening programme on breast cancer mortality".



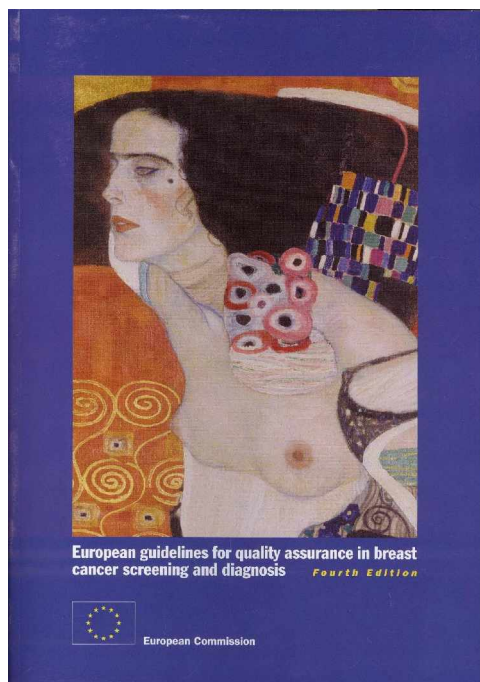
Olsen et al, 2010: When you leave out the transition period, you should look at the *level* of the line not the slope

Age group	RR (95% CI)
35-54 years	1.00 (0.86-1.17)
55-74 years	0.87 (0.79-0.95)
75-84 years	0.97 (0.87-1.09)

Olsen et al, 2010: Concluded: The effect of screening can be seen even on the very crude data used by Jørgensen et al.

**Decision on screening should be based on knowledge on both benefits and harms**

**Quality should be monitored**



## **CONCLUSION**

- **Breast cancer is a considerable health problem**
- **Incidence has been increasing**
- **Node-negative tumours increased most**
- **Risk factors related to body constitution**
- **Primary prevention difficult**
- **Treatment has improved prognosis**
- **Low risk tumour best prognosis**
- **Screening aims at moving tumours to low risk**
- **Breast cancer mortality can be reduced by screening**
- **All effects of screening should be closely monitored**

**THANK YOU FOR YOUR ATTENTION**



**University of Copenhagen, Old Municipality Hospital**