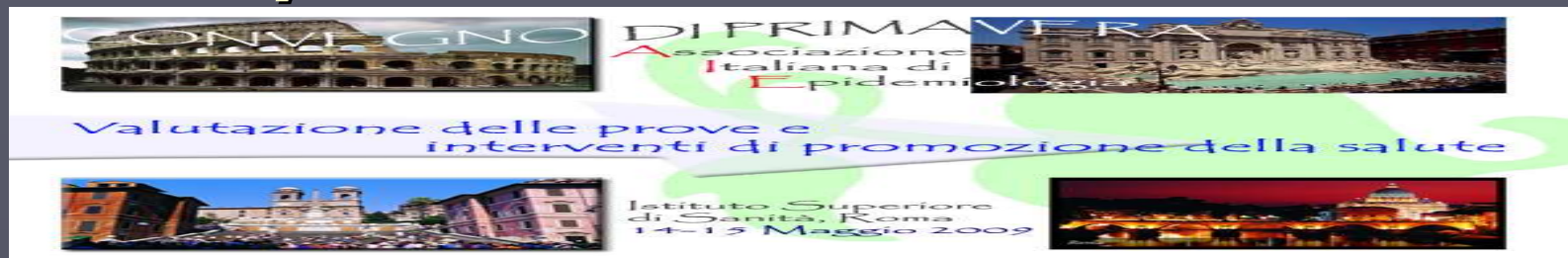


# Associazione Italiana di Epidemiologia Convegno di Primavera

## *"Valutazione delle prove e interventi di promozione della salute"*



Il modello degli screening oncologici  
Come cambia la patologia oncologica: l'impatto degli  
screening oncologici e delle nuove tecnologie.

Eugenio Paci

**14 - 15 maggio 2009**

La storia dell'introduzione della diagnosi precoce :  
due storie assai diverse

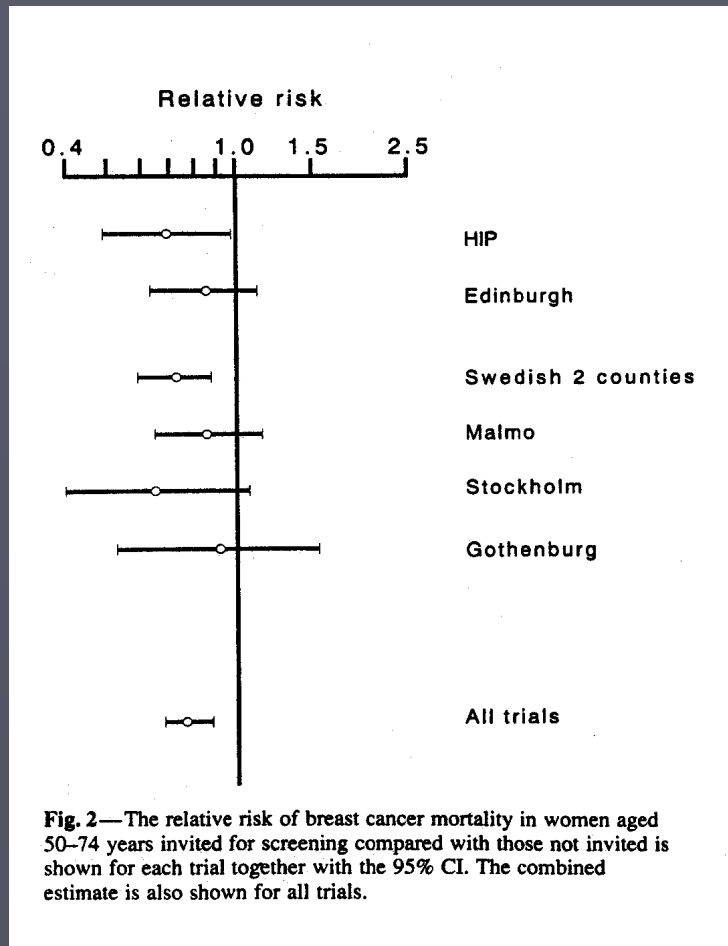
► **Tumore della mammella  
(Mammografia)**

Dai trial randomizzati di popolazione (anni 70/80) ai programmi di screening (anni 90),  
alla valutazione di impatto (anni 2000)

► **Tumore della prostata (PSA)**

Dalla diffusione del test di screening (anni 80 ) all'impatto epidemiologico di  
popolazione (anni 90), ai risultati dei trial  
clinici randomizzati (anni 2000)

# Evidence of Efficacy : history, controversies



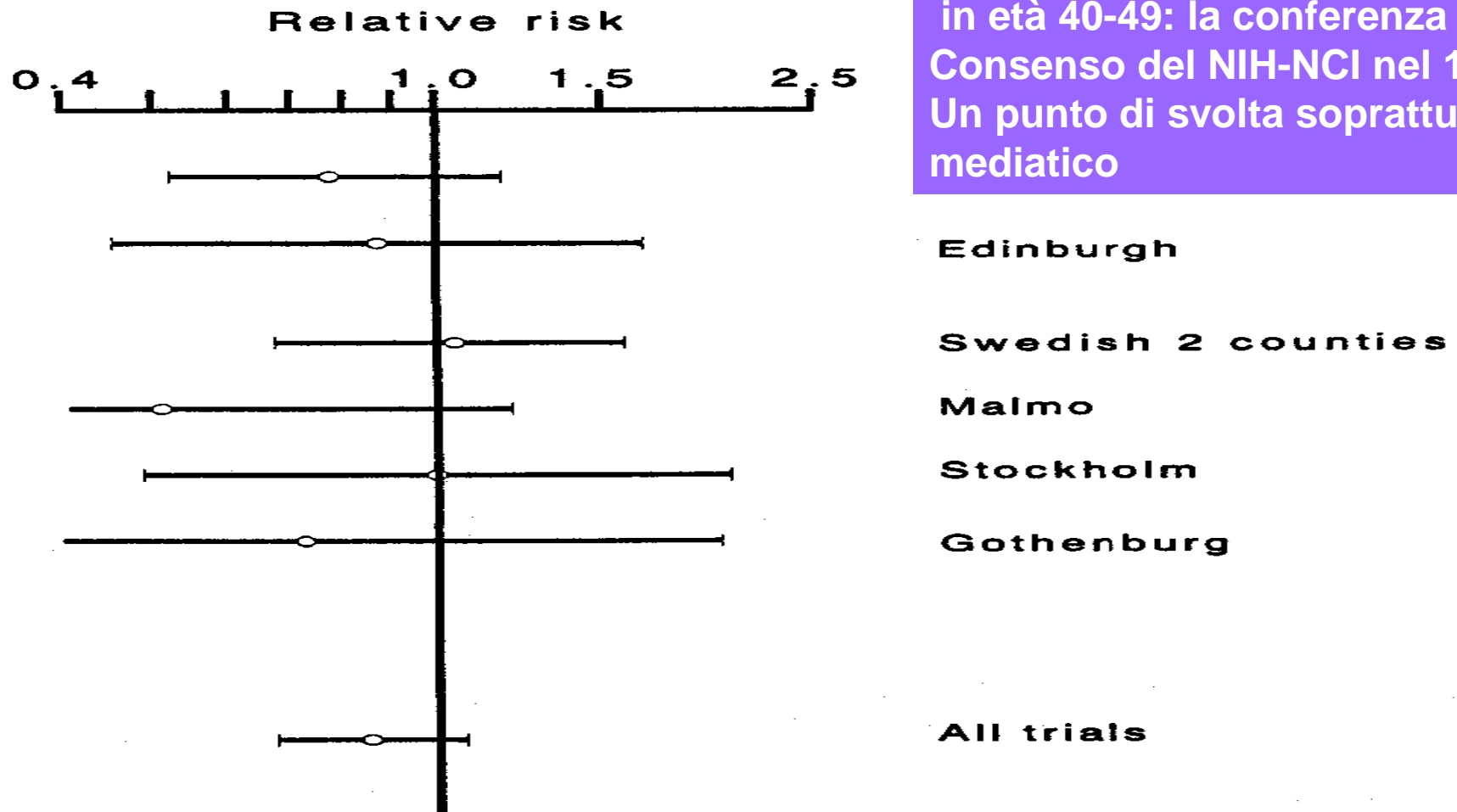
Wald NJ, Chamberlain J, Hackshaw A.

European Society of Mastology.  
Consensus Conference on Breast  
Cancer Screening.

Paris, 4-5 February, 1993. Report of  
the Evaluation Committee. Bull  
Cancer. 1994 Oct;81(10):825-34.

**Il Consensus di Parigi concludeva  
La stagione dei RCT e apriva l'avvio  
Dei programmi di screening  
population based in Europa. (in UK  
1988)**

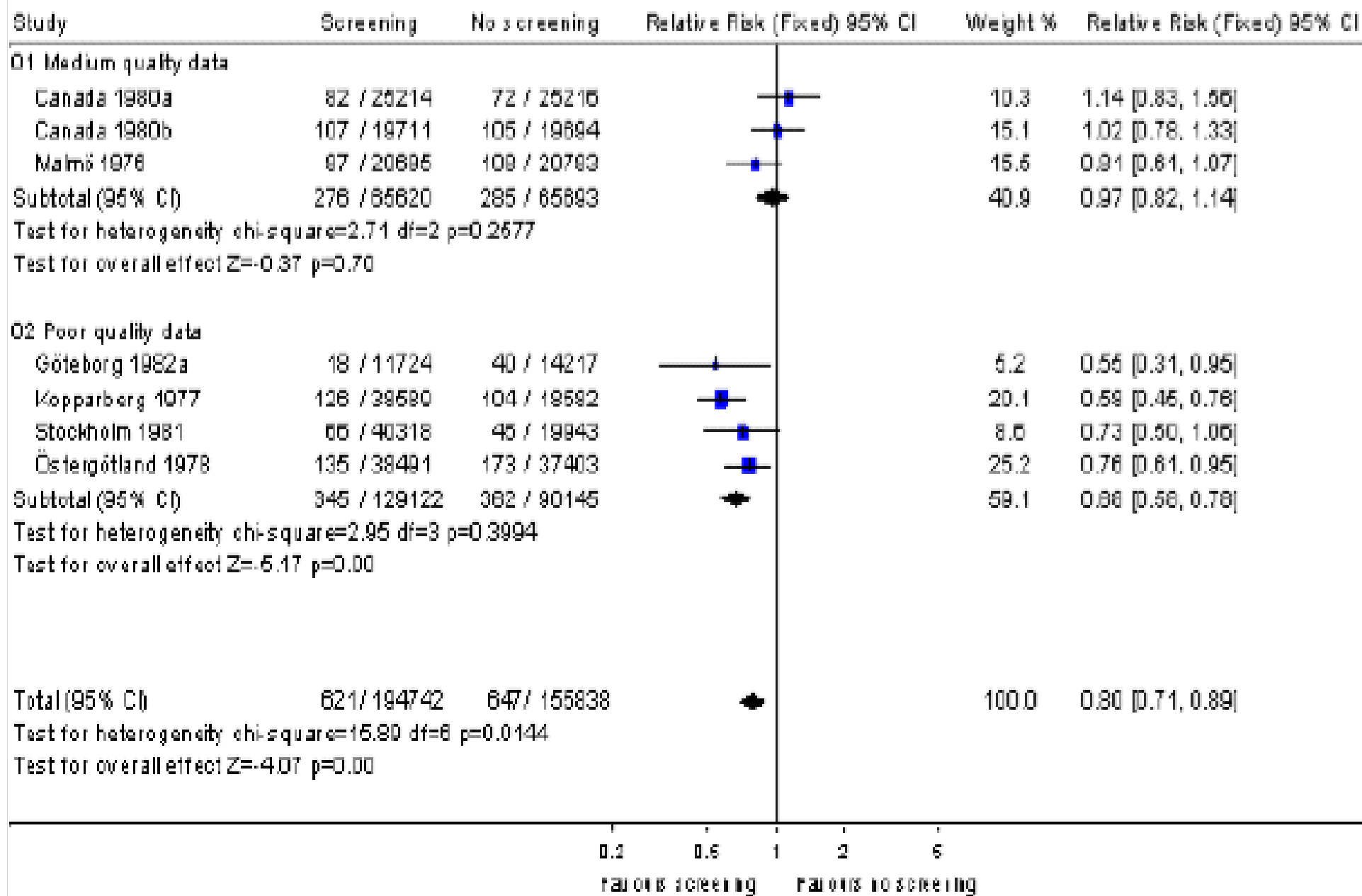
La questione delle donne  
in età 40-49: la conferenza di  
Consenso del NIH-NCI nel 1997  
Un punto di svolta soprattutto  
mediatico



**Fig. 3**—The relative risk of breast cancer mortality in women aged 40–49 years invited for screening compared with those not invited is shown for each trial together with the 95% CI. The combined estimate is also shown for all trials.

Review: Screening for breast cancer with mammography  
 Comparison: 01 Screening with mammography versus no screening  
 Outcome: 09 Deaths ascribed to breast cancer, 13 years follow-up

**GOTZSCHE&OLSEN 2001**  
**Cochrane systematic review**



## Articles

## Long-term effects of mammography screening: updated overview of the Swedish randomised trials

Lennarth Nyström, Ingvar Andersson, Niils Bjurström, Jan Friisell, Gö Nordin, Kjeld, Lars Erik Rutqvist

### Summary

**Background** There has been much debate about the value of screening mammography. Here we update the overview of the Swedish randomised controlled trials on mammography screening up to and including 1996. The Kopparberg part of the Two-County trial was not available for the overview, but the continuation of the Malmö trial (MMST II) has been added. The article also contains basic data from the trials that have not been presented before.

**Methods** The trials ( $n=247\ 010$ , invited group 129 750, control group 117 260) have been followed up by record linkage to the Swedish Cancer and Cause of Death Registers. The relative risks (RR) for breast cancer death and mortality were calculated for the invited and the control groups. The trial-specific as well as the age-specific effects were analysed. RRs were calculated by the density method, with total person-time experience of the cohort by time interval of follow-up as a basis for estimating mortality rates. We calculated weighted RRs and 95% CI with the Mantel-Haenszel procedure.

**Findings** The median trial time—the time from randomisation until the first round was completed for the control group or if the control group was not invited, until end of follow-up—was 6.5 years (range 3.0–18.1). The median follow-up time, the time from randomisation, to the end of follow-up, was 15.8 years (5.8–20.2). There were 511 breast cancer deaths in 1 864 770 women-years in the invited groups and 584 breast cancer deaths in 1 688 440 women-years in the control groups, a significant 21% reduction in breast cancer mortality (RR=0.79, 95% CI 0.70–0.89). The reduction was greatest in the age group 60–69 years at entry (33%). Looking at 5-year age groups, there were statistically significant effects in the age groups 55–59, 60–64, and 65–69 years (RR=0.76, 0.68, and 0.69, respectively). There was a small effect in women 50–54 years at randomisation (RR=0.95). The benefit in terms of cumulative breast cancer mortality started to emerge at about 4 years after randomisation and continued to increase to about 10 years. Thereafter the benefit in absolute terms was maintained throughout the period of observation. The age-adjusted relative risk for the total mortality was 0.98 (0.96–1.00).

**Interpretation** The advantageous effect of breast screening on breast cancer mortality persists after long-term follow-up. The recent criticism against the Swedish randomised controlled trials is misleading and scientifically unfounded.

*Lancet* 2002; 359: 909–19

See Commentary page 904

### Introduction

Service-screening for breast cancer occurs in several countries with the aim to decrease breast cancer mortality. The scientific basis for these programmes are the randomised screening trials. There are seven such studies, four from Sweden. The Swedish trials have a similar design: they were all population-based and compared invitation to breast screening with mammography alone versus no invitation. These Swedish trials differed from the other trials (the Health Insurance Plan of Greater New York, the Edinburgh trial, and the Canadian National Breast Screening Study), which all evaluated mammography combined with breast self-examination, clinical breast examination, or both. Moreover, the New York and the Canadian trials were not population-based.

The Swedish Cancer Society initiated an overview of the Swedish trials in the late 1980s. The objective was to validate the results from the individual trials through a method that was common to all trials, including a blind review of all deaths among breast cancer cases by an independent endpoint committee. Another objective was to increase the statistical power. The first results of the overview were published in 1993<sup>1</sup> and an update focusing on the age group 40–49 in 1997.<sup>2</sup> Concerns raised about the validity of the results from the trials,<sup>3</sup> include inappropriate exclusions, poor randomisation, and the excess total mortality in women invited to screening.

Our aim here was to extend the follow-up and to analyse the age-specific and trial-specific effects on breast cancer mortality, to describe the randomisation procedures in more detail, and to assess the quality of the cluster randomisation used in Östergötland. The Kopparberg part of the Two-County (WE) trial was not available for analysis but the continuation of the Malmö trial (MMST II) was added.

### Methods

# Effect of mammographic screening from age 40 years on breast cancer mortality at 10 years' follow-up: a randomised controlled trial

Sue M Moss, Howard Cuckle, Andy Evans, Louise Johns, Michael Waller, Lynda Bobrow, for the Trial Management Group\*

1997- 2007

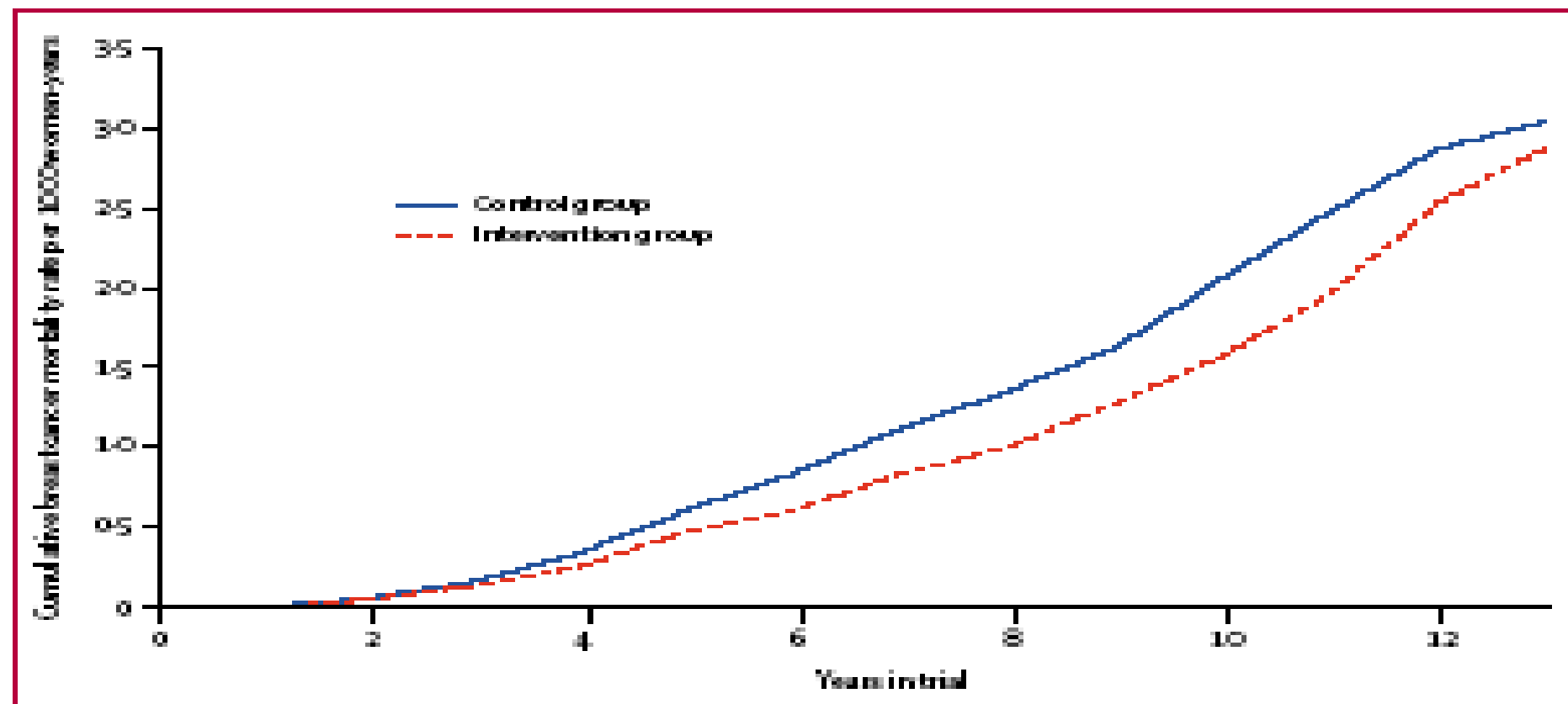


Figure 3: Nelson-Aalen estimate of cumulative breast cancer mortality

**Table 2. North American Recommendations for Routine Mammographic Screening in Women at Average Risk Who Are 40 Years of Age or Older.\***

Group (Date)	Frequency of Screening  yr	Initiation of Screening		
		40–49 Yr of Age	50–69 Yr of Age	≥70 Yr of Age
<b>Government-sponsored and private groups</b>				
U.S. Preventive Services Task Force (2002) †	1–2	Yes	Yes	Yes ‡
Canadian Task Force on Preventive Health Care (1998, 1999, 2001)	1–2	No	Yes	No
National Institutes of Health consensus conference (1997)		No §	—	—
American Cancer Society (1997)	1	Yes	Yes	Yes
National Cancer Institute (2002)	1–2	Yes	Yes	Yes
<b>Medical societies</b>				
American College of Obstetricians and Gynecologists (2000)	1–2 if 40–49 yr old 1 yr if ≥50 yr old	Yes	Yes	Yes
American Medical Association (1999)	1	Yes	Yes	Yes
American College of Radiology (1998)	1	Yes	Yes	Yes
American College of Preventive Medicine (1996)	1–2	No ¶	Yes	Yes
American Academy of Family Physicians (2001)	1–2	No § ¶	Yes	No
American Geriatrics Society (1999)	1–2	—	—	Yes ‡
<b>Advocacy groups</b>				
National Breast Cancer Coalition (2000)		No	— §	No
National Alliance of Breast Cancer Organizations (2002)	1	Yes	Yes	Yes
Susan B. Komen Foundation (2002)	1	Yes	Yes	Yes

\* Adapted from the U.S. Preventive Services Task Force.\* A “no” recommendation may be a statement that there is insufficient evidence for a positive recommendation.

† Recommendations are for mammography with or without clinical breast examination.

‡ There is an explicit recommendation to screen women older than 70 years of age.

§ Recommendations note that women should be counseled about the risks and benefits of mammography.

¶ Recommendations note that women at high risk should be screened beginning at 40 years of age.



# CNR –AIRC

## Consenso sugli screening in oncologia , Dicembre 1995/Giugno 1996

- ▶ Promuovere programmi su base regionale
- ▶ Adeguata pianificazione
- ▶ Controlli di qualità
- ▶ Valutazione raggiungimento standard
- ▶ Sistemi informativi di gestione computerizzati
- ▶ Programmi di formazione
- ▶ Mammella
- ▶ Cervice uterina
- ▶ Colonretto :
- ▶ Non esistono i presupposti per un programma



Figura 1: Distribuzione geografica dei programmi di screening mammografico: 1992



Figura 3: Distribuzione geografica dei programmi di screening mammografico: 2003

Figura 2: Distribuzione geografica dei programmi di screening mammografico: 2000

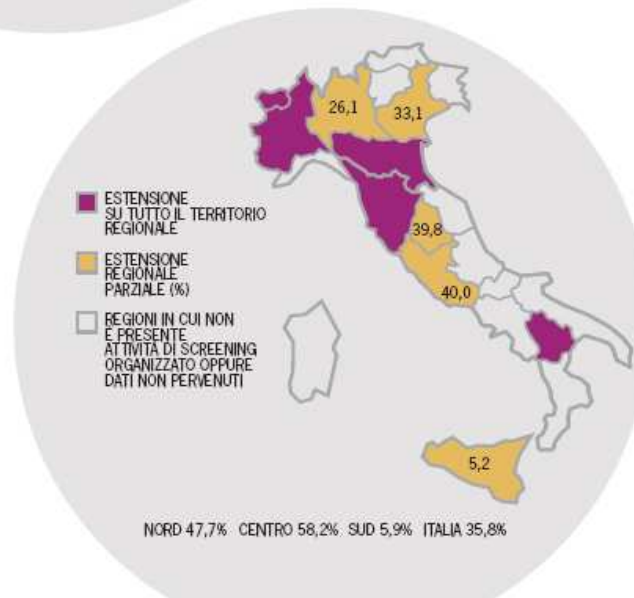
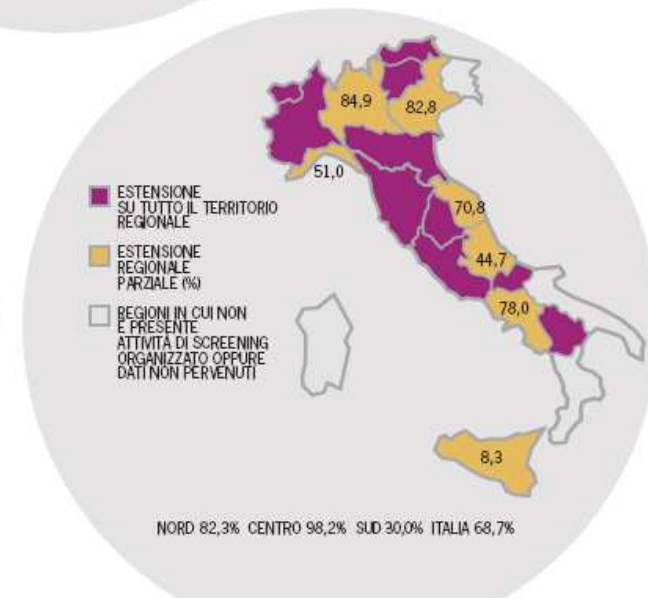
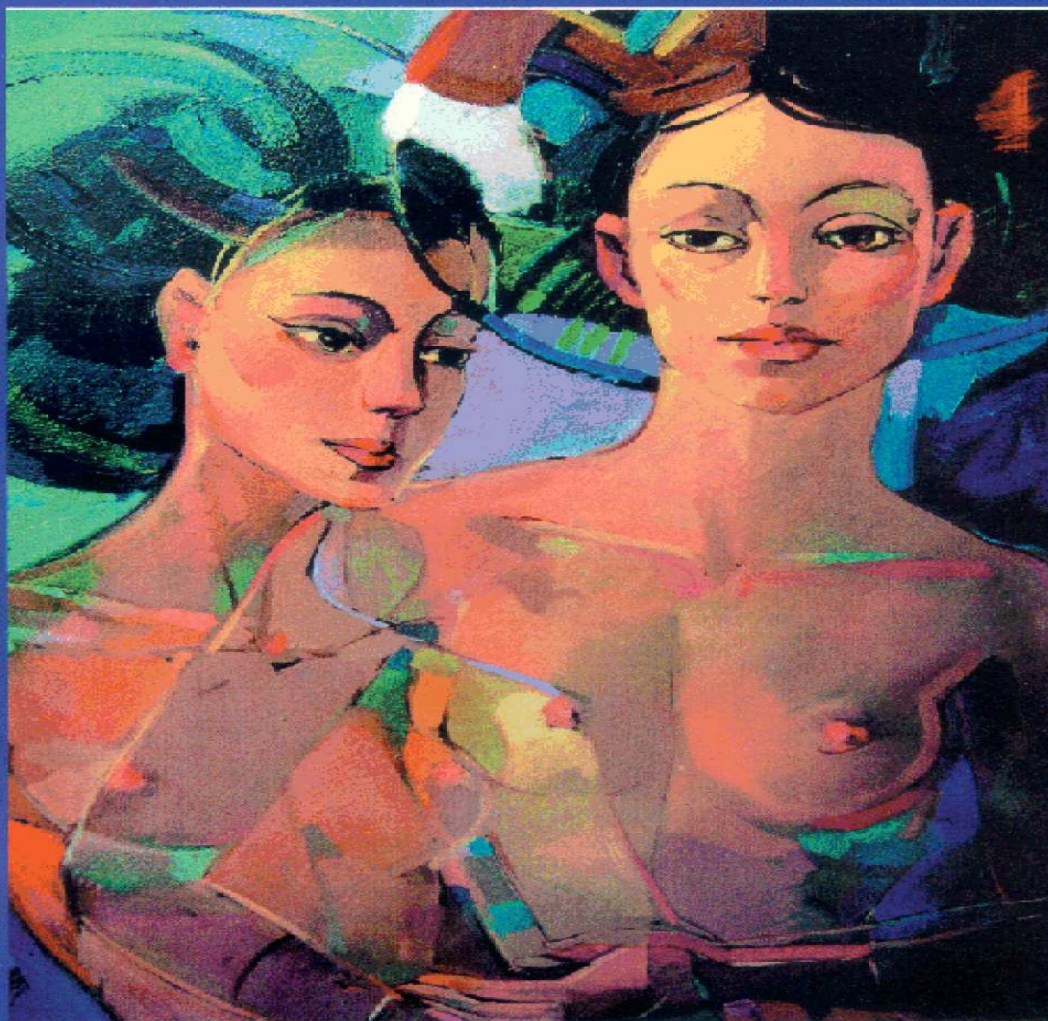


Figura 4: Distribuzione geografica dei programmi di screening mammografico: 2004





Un programma  
che ha  
dimostrato una  
grande  
Influenza  
nella pratica  
clinica  
senologica

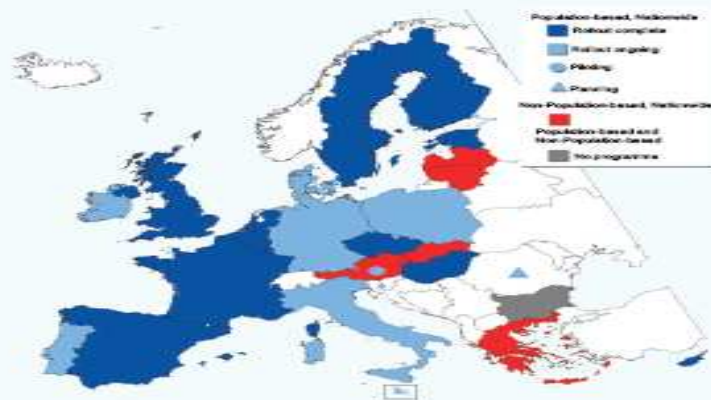
**European guidelines for quality assurance  
in mammography screening** *Third Edition*



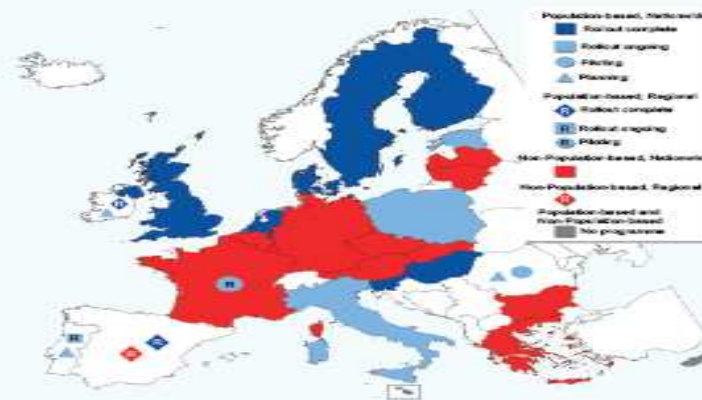
European Commission



### Breast Cancer Screening Programmes in the EU in 2007



### Cervical Cancer Screening Programmes in the EU in 2007



### Colorectal Cancer Screening Programmes in the EU in 2007



L 327/34 Official Journal of the European Union 16.12.2003

#### COUNCIL RECOMMENDATION of 2 December 2003 on cancer screening (2003/878/EC)

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 152(4), second subparagraph, thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,

Whereas:

- (1) Article 152 of the Treaty provides that Community action is to complement national policies and be directed towards improving public health, preventing human illness and diseases, and obviating sources of danger to human health. Such action shall cover the fight against the major health scourges, by promoting

## Cancer screening in the European Union

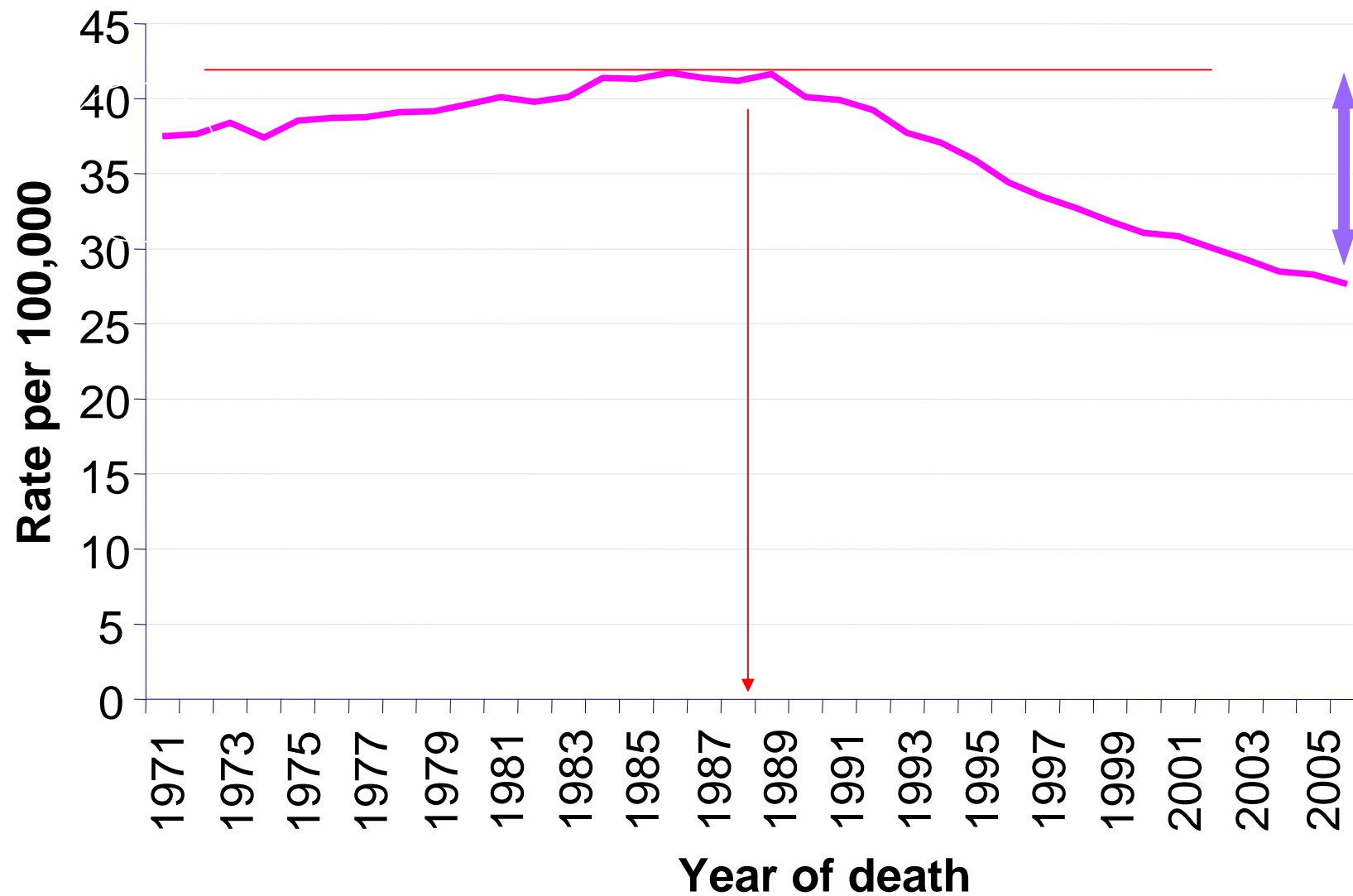
Report on the implementation of the Council Recommendation on cancer screening

First Report

# Lavalutazione di impatto



# Age-standardised (European) mortality rates, breast Breast cancer , females, UK 1971-2006

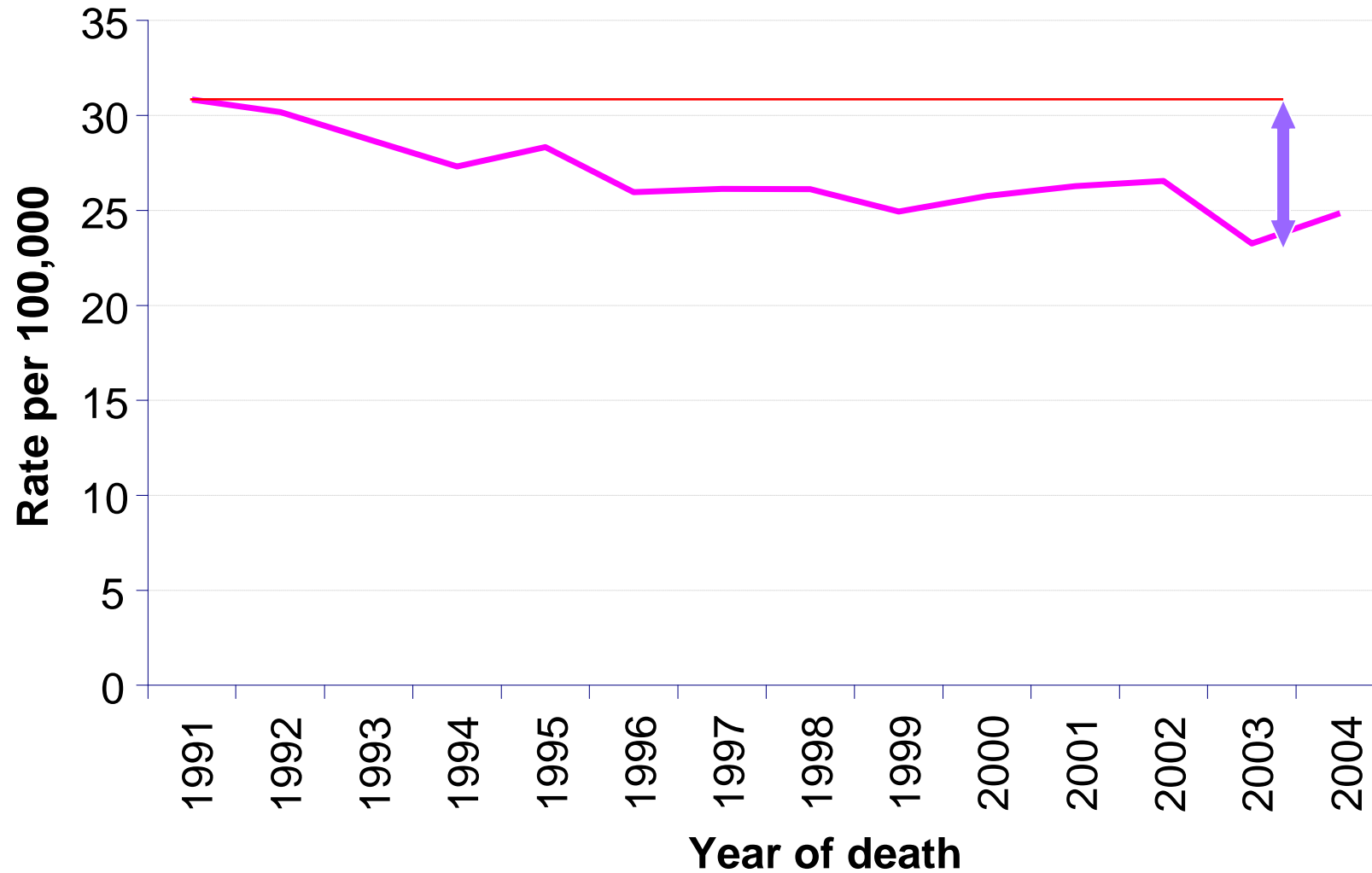


# Impressive time-related influence of the Dutch screening programme on breast cancer incidence and mortality, 1975-2006

Johannes D.M. Otten, Mireille J.M. Broeders, Jacques Fracheboud, Suzie J. Otto, Harry J. de Koning, André L.M. Verbeek

■ thereafter showed a marked decline of **2.3-2.8% per annum** for the age groups 55-64 and 65-74 years, respectively. For the age group of 75-84 years, a decrease started in the year 2001. In women aged 45-54, an early decline in breast cancer mortality rates was noted (1971-1980), which is ongoing from 1992. For all ages, breast cancer incidence rates showed an increase between 1989 and 1993, mainly caused by the age group 50-69, and thereafter, a moderate increase caused by age group 70-74 years. This increase can partly be explained by the introduction of screening. *The results indicate an impressive decrease in breast cancer mortality in the age group invited for breast cancer screening, starting to show quite soon after implementation.*

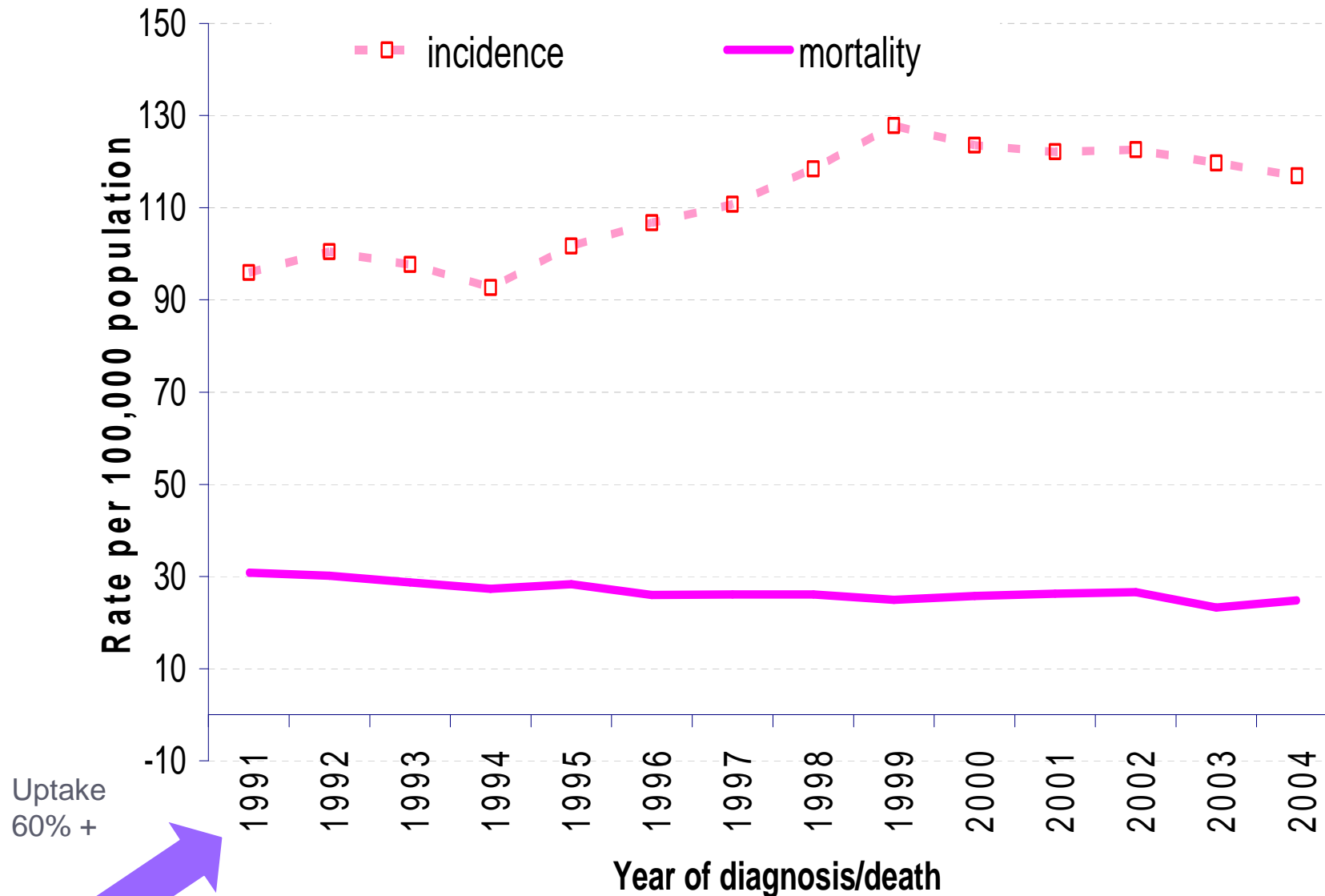
## Age-standardised (European) mortality rates, breast cancer, females, ITALY\*-screening areas 1991-2004



\* Parma, Modena, Ferrara, Romagna, Firenze-Prato, Ragusa



# Age standardised (European) incidence and mortality rates, breast cancer, females, ITALY\*, 1991-2004

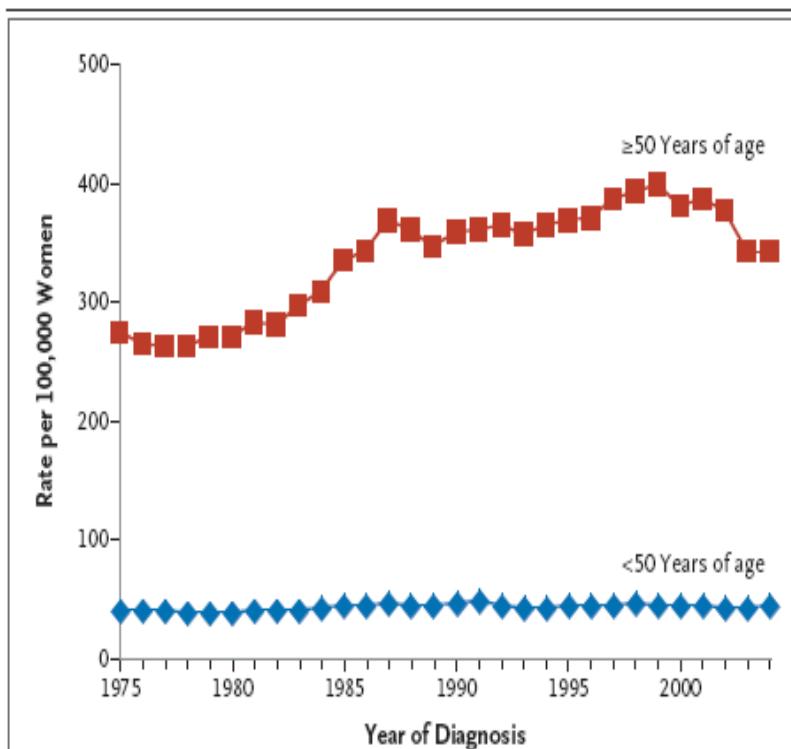


\* Parma, Modena, Ferrara, Romagna, Firenze-Prato, Ragusa

N ENGL J MED 356;16 WWW.NEJM.ORG APRIL 19, 2007

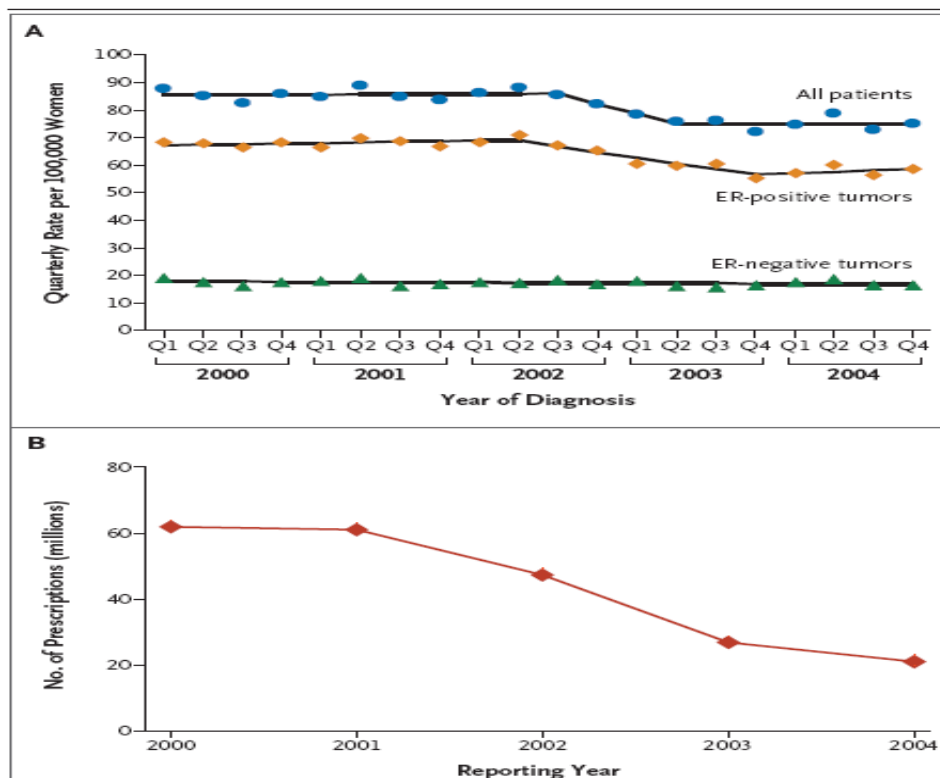
## The Decrease in Breast-Cancer Incidence in 2003 in the United States

Peter M. Ravdin, Ph.D., M.D., Kathleen A. Cronin, Ph.D., Nadia Howlander, M.S.,  
Christine D. Berg, M.D., Rowan T. Chlebowski, M.D., Ph.D., Eric J. Feuer, Ph.D.,  
Brenda K. Edwards, Ph.D., and Donald A. Berry, Ph.D.



**Figure 1.** Annual Incidence of Female Breast Cancer (1975–2004).

Data are from nine of the NCI's SEER registries. SEER sites include San Francisco, Connecticut, Detroit (metropolitan area), Hawaii, Iowa, New Mexico, Seattle–Puget Sound, Utah, and Atlanta (metropolitan area).



**Figure 2.** Quarterly Incidence of Breast Cancer in Women between the Ages of 50 and 69 Years, According to Estrogen-Receptor (ER) Status, and the Number of Prescriptions for Hormone-Replacement Therapy (2000–2004).

In Panel A, data are from nine of the NCI's SEER registries, with trends modeled with regression-analysis statistical software (Joinpoint). Trends were age-adjusted to the standard population in the year 2000 and were adjusted for reporting delays. Panel B shows the number of prescriptions reported in the United States for the combined estrogen–progestin preparation Prempro and the conjugated equine estrogen Premarin, according to year.

## Outcome Research Ecological and Incidence-based mortality studies confirming the mortality reduction in service screening (selection )

- ▶ **Jonsson H et al.:Service screening with mammography in Northern Sweden: effects on breast cancer mortality - an update.J Med Screen. 2007;14(2):87-93.**
- ▶ **Swedish Organised Service Screening Evaluation Group.Reduction in breast cancer mortality from organized service screening with mammography: 1. Further confirmation with extended data.Cancer Epidemiol Biomarkers Prev. 2006 Jan;15(1):45-51**
- ▶ **Swedish Organised Service Screening Evaluation Group.Reduction in breast cancer mortality from the organised service screening with mammography: 2. Validation with alternative analytic methods.Cancer Epidemiol Biomarkers Prev. 2006 Jan;15(1):52-6**
- ▶ **Sarkeala T et al. Organised mammography screening reduces breast cancer mortality: a cohort study from Finland.Int J Cancer. 2008 Feb 1;122(3):614-9.**
- ▶ **Sarkeala T et al. Breast cancer mortality with varying invitational policies in organised mammography.Br J Cancer. 2008 Feb 12;98(3):641-5.**
- ▶ **Ascunce EN et al. Changes in breast cancer mortality in Navarre (Spain) after introduction of a screening programme.J Med Screen. 2007;14(1):14-20.**
- ▶ **Olsen AH et al Breast cancer mortality in Copenhagen after introduction of mammography screening: cohort study.BMJ. 2005 Jan 29;330(7485):220.**
- ▶ **Olsen AH et al. Estimating the benefits of mammography screening: the impact of study design.Epidemiology. 2007 Jul;18(4):487-92**
- ▶ **Paci E et al.:Quantification of the effect of mammographic screening on fatal breast cancers: The Florence Programme 1990-96.Br J Cancer. 2002 Jul 1;87(1):65-9.**

## Outcome Research: the screening benefit on breast cancer mortality service screening case control studies

- ▶ Fielder HM et al. A case-control study to estimate the impact on breast cancer death of the breast screening programme in Wales. *J Med Screen*. 2004;11(4):194-8.
- ▶ Allgood PC et al. :A case-control study of the impact of the East Anglian breast screening programme on breast cancer mortality. *Br J Cancer*. 2008 Jan 15;98(1):206-9.
- ▶ Gabe R et al. :A case-control study to estimate the impact of the Icelandic population-based mammography screening program on breast cancer death. *Acta Radiol*. 2007 Nov;48(9):948-55.
- ▶ Roder D et al.: Population screening and intensity of screening are associated with reduced breast cancer mortality: evidence of efficacy of mammography screening in Australia. *Breast Cancer Res Treat*. 2008 Apr;108(3):409-16.

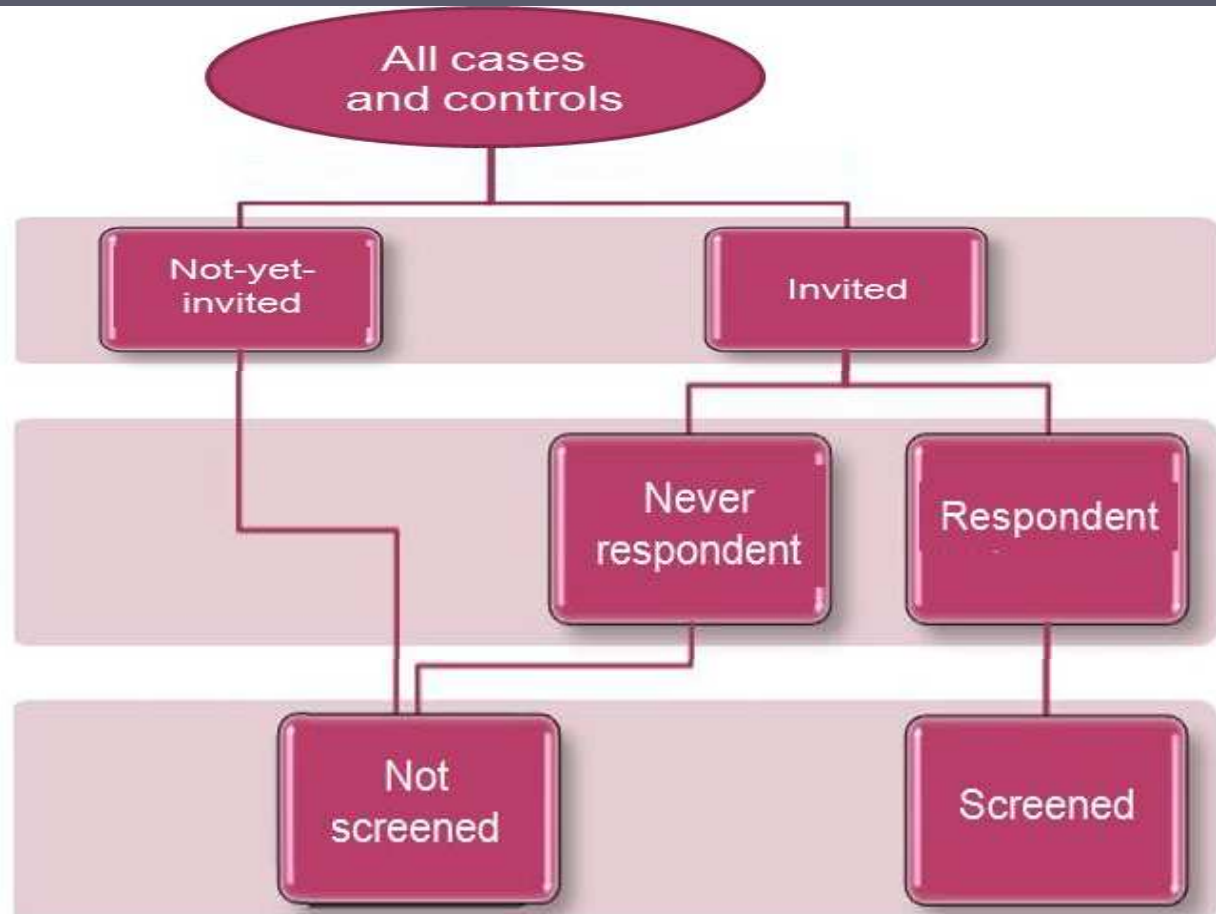
Different methodologies , impressing indication for the effectiveness of service screening in reducing mortality.  
Need of agreed methodology

## Effectiveness of service screening: a case–control study to assess breast cancer mortality reduction

D Puliti<sup>1</sup>, G Miccinesi<sup>1</sup>, N Collina<sup>2</sup>, V De Lisi<sup>3</sup>, M Federico<sup>4</sup>, S Ferretti<sup>5</sup>, AC Finarelli<sup>6</sup>, F Foca<sup>7</sup>, L Mangone<sup>8</sup>, C Naldoni<sup>9</sup>, M Petrella<sup>9</sup>, A Ponti<sup>10</sup>, N Segnan<sup>10</sup>, A Sigona<sup>11</sup>, M Zarcione<sup>12</sup>, M Zorzi<sup>13</sup>, M Zappa<sup>1</sup> and E Paci<sup>1,11</sup>, the IMPACT Working Group

<sup>1</sup>Clinical and Descriptive Epidemiology Unit, CSPO, Research Institute of the Tuscany Region, via San Salvi 12, Florence 50135, Italy; <sup>2</sup>AUSL Bologna, Via del Seminario 1, S. Lazzaro di Savena, Bologna 40068, Italy; <sup>3</sup>Parma Cancer Registry, via Abbeveratoia 4, Parma 43100, Italy; <sup>4</sup>Modena Cancer Registry, via del Pozzo 71, Modena 41100, Italy; <sup>5</sup>Ferrara Cancer Registry, via Fossato di Montara 64b, Ferrara 44100, Italy; <sup>6</sup>Emilia-Romagna Region Health Department, viale Aldo Moro 21, Bologna 40127, Italy; <sup>7</sup>Romagna Cancer Registry, via Carlo Farini 34, Forlì 47100, Italy; <sup>8</sup>Reggio Emilia Cancer Registry, via Amerigo 2, Reggio Emilia 42100, Italy; <sup>9</sup>Epidemiology Unit ASL2, via XIV Settembre 29, Perugia 06100, Italy; <sup>10</sup>Epidemiology Unit, CPO Piemonte, via S. Francesco da Paola 31, Torino 10123, Italy; <sup>11</sup>Cancer Registry, A.O. 'Civile M.P. Arezzo', via Dante 109, Ragusa 97100, Italy; <sup>12</sup>Palemo Breast Cancer Registry, Piazzale N. Leotta 2, Palermo 90127, Italy; <sup>13</sup>Venetian Tumour Registry, Istituto Oncologico Veneto, via Gattamelata 64, Padua 35128, Italy

Statistical analysis



Conditional logistic regression: odds ratio of the probability of dying for breast cancer by invitation and screening status

Screening status	Odds ratio (95% CI)
Not invited	1
Invited	0.75 (0.62 - 0.92)
Not screened	1
Screened	0.50 (0.42 - 0.60)
Screening status	Odds ratio (95% CI)
Never respondent	1
Screened	0.46 (0.38 - 0.56)
Screened (self-selection corrected) *	0.55 (0.36 - 0.85)

**25%  
mortality  
reduction  
for Invited  
women**

**45% breast cancer  
mortality  
reduction for  
Screened women  
(corrected for  
selection)**

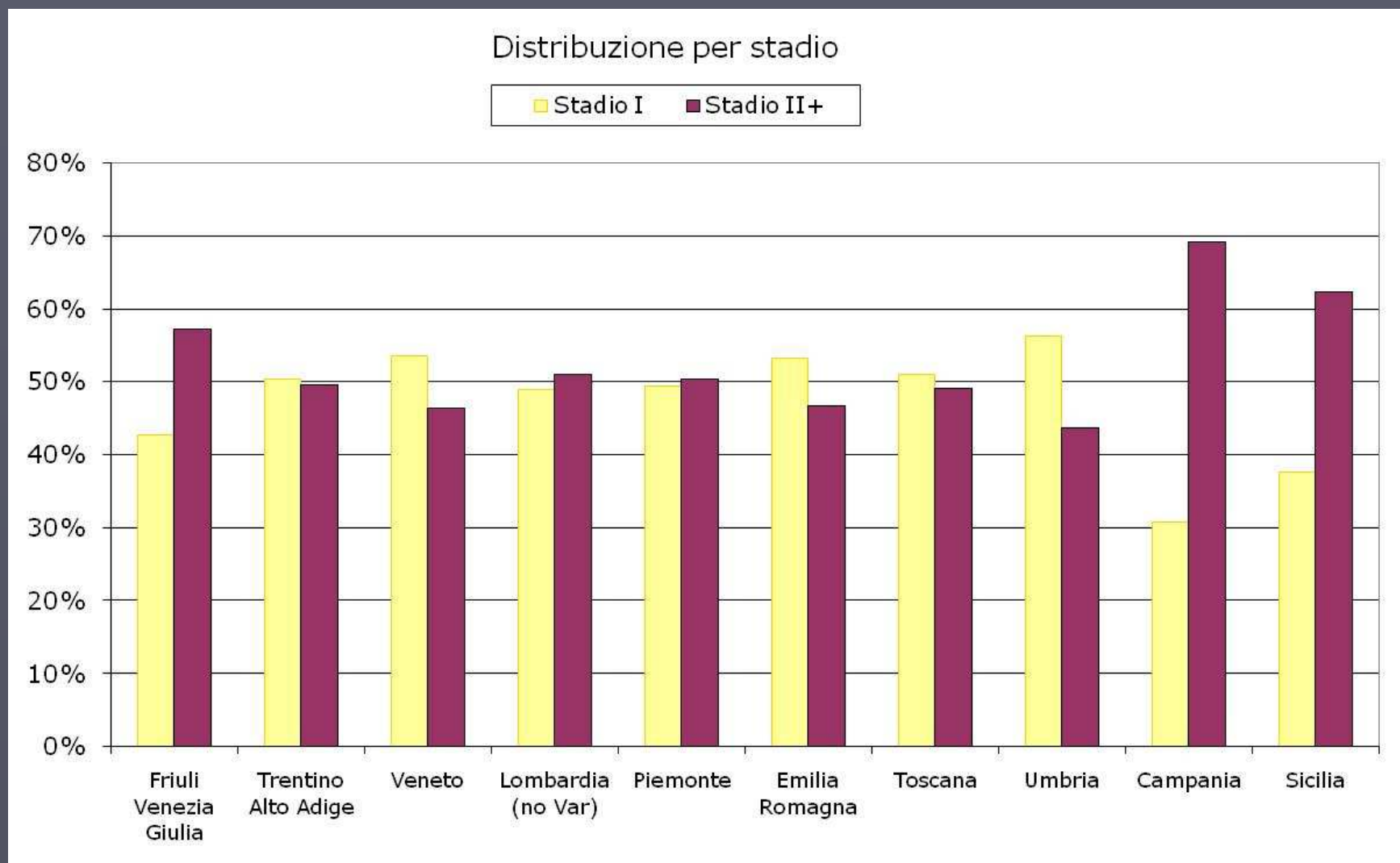
## Progetto IMPATTO (N=83000)

Distribuzione della modalità diagnostica per regione.

Età 50-69 anni. Periodo 1998-2006.

Regione	N°	SD (1°test)	SD (test ripet)	NSD screenate	NSD non rispondenti	NSD non invitate
Piemonte	2697	21.9	26.5	13.7	21.0	16.9
Lombardia	2281	16.6	4.3	2.9	7.5	68.7
Emilia Romagna	13733	21.8	28.3	15.4	19.3	15.3
Friuli Venezia Giulia	2503	0.0	0.0	0.0	0.0	100.0
Trentino Alto Adige	1061	23.8	7.0	4.9	9.1	55.3
Toscana	1903	11.2	37.4	25.8	18.7	7.0
Campania	842	7.7	2.5	4.4	16.9	68.5
Sicilia	3738	3.1	1.2	1.3	5.8	88.7

Proporzione di k in stadio precoce e avanzato per regione. Età 50-69 anni.  
(hp: 2/3 degli ignoti sono considerati k in stadio avanzato).



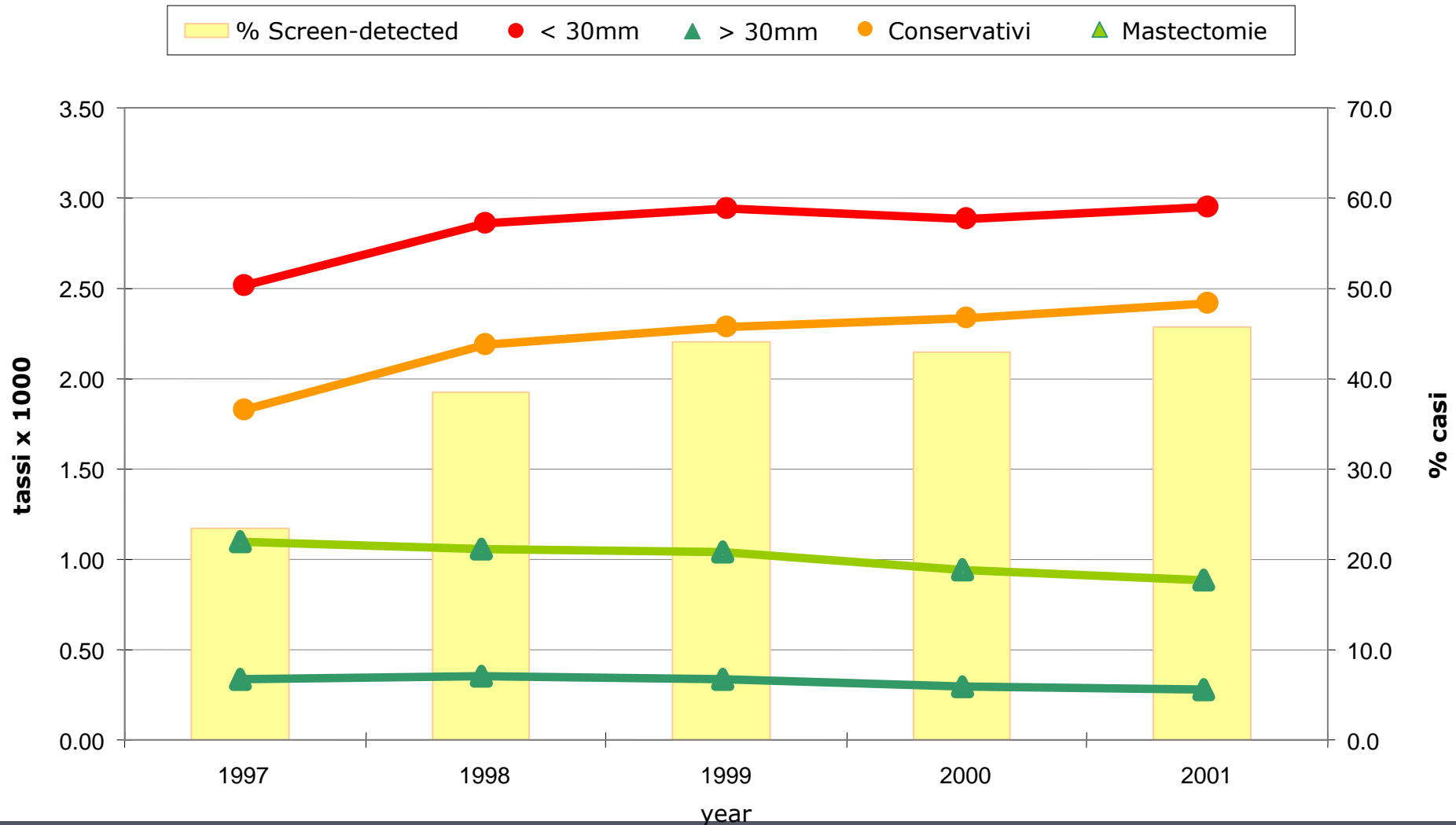


Short Communication

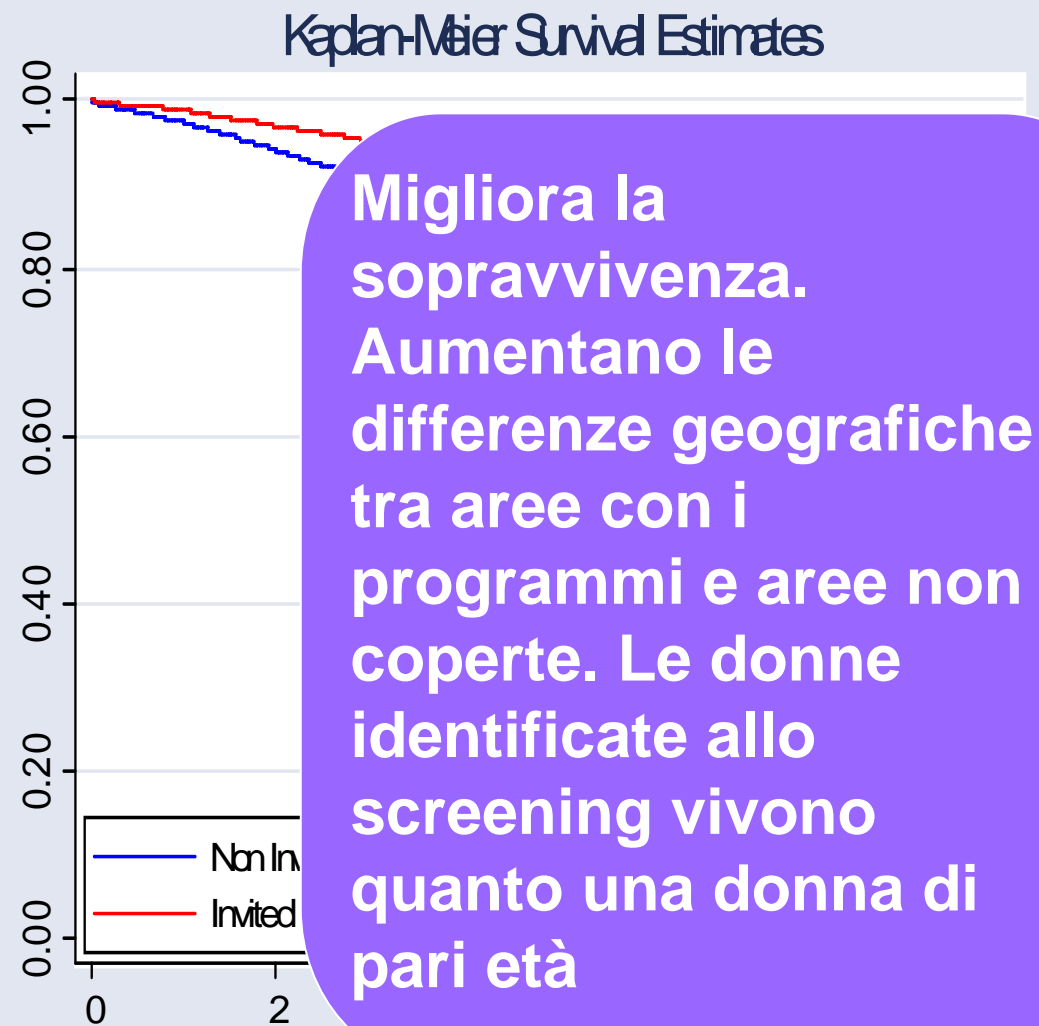
Mastectomy rates are decreasing in the era of service screening: a population-based study in Italy (1997–2001)

M Zorzi<sup>1</sup>, D Puliti<sup>2</sup>, M Vettorazzi<sup>1</sup>, V De Lisi<sup>3</sup>, F Falcini<sup>4</sup>, M Federico<sup>5</sup>, S Ferretti<sup>6</sup>, IF Moffa<sup>7</sup>, L Mangone<sup>8</sup>, MP Mano<sup>9</sup>, C Naldoni<sup>10</sup>, A Ponti<sup>11</sup>, A Traina<sup>12</sup>, R Tumino<sup>13</sup> and E Paci<sup>8,2</sup> for the IMPACT Working Group<sup>1,4</sup>

<sup>1</sup>Istituto Oncologico Veneto, Padova, Italy; <sup>2</sup>Clinical and Descriptive Epidemiology Unit-CSPQ-Research Institute of the Tuscany Region, Firenze, Italy; <sup>3</sup>Parma Cancer Registry, Parma, Italy; <sup>4</sup>Romagna Cancer Registry, Forlì, Italy; <sup>5</sup>Modena Cancer Registry, Modena, Italy; <sup>6</sup>Ferrara Cancer Registry, Ferrara, Italy; <sup>7</sup>Epidemiology Unit-ASL 2, Perugia, Italy; <sup>8</sup>Reggio-Emilia Cancer Registry, Reggio-Emilia, Italy; <sup>9</sup>University of Turin-Department of Biological Sciences and Human Oncology, Turin, Italy; <sup>10</sup>Screening program-Emilia-Romagna Region Health Department, Bologna, Italy; <sup>11</sup>Epidemiology Unit-CPO Piemonte, Turin, Italy; <sup>12</sup>Department of Oncology-ARNAS Ascoli, Palermo, Italy; <sup>13</sup>Cancer Registry and Human Pathology Department-Arezzo Hospital, Ragusa, Italy



## Cause-specific survival rates, by invitation status .



Migliora la sopravvivenza. Aumentano le differenze geografiche tra aree con i programmi e aree non coperte. Le donne identificate allo screening vivono quanto una donna di pari età



### Evaluation of service mammography screening impact in Italy. The contribution of hazard analysis

Eugenio Paci<sup>a,\*</sup>, Enzo Coviello<sup>b</sup>, Guido Miccinesi<sup>a</sup>, Donella Puliti<sup>a</sup>, Laura Cortesi<sup>c</sup>, Vincenzo De Lisi<sup>d</sup>, Stefano Ferretti<sup>e</sup>, Lucia Mangone<sup>f</sup>, Vincenza Perlangeli<sup>g</sup>, Antonio Ponti<sup>h</sup>, Alessandra Ravaoli<sup>i</sup>, Priscilla Sassoli de' Bianchi<sup>j</sup>, Nereo Segnan<sup>h</sup>, Fabrizio Stracci<sup>k</sup>, Rosario Tumino<sup>l</sup>, Maurizio Zarcone<sup>m</sup>, Manuel Zorzi<sup>n</sup>, Marco Zappa<sup>a</sup>, IMPACT Working Group<sup>o</sup>

**0-years survival :**

**post - screening:**

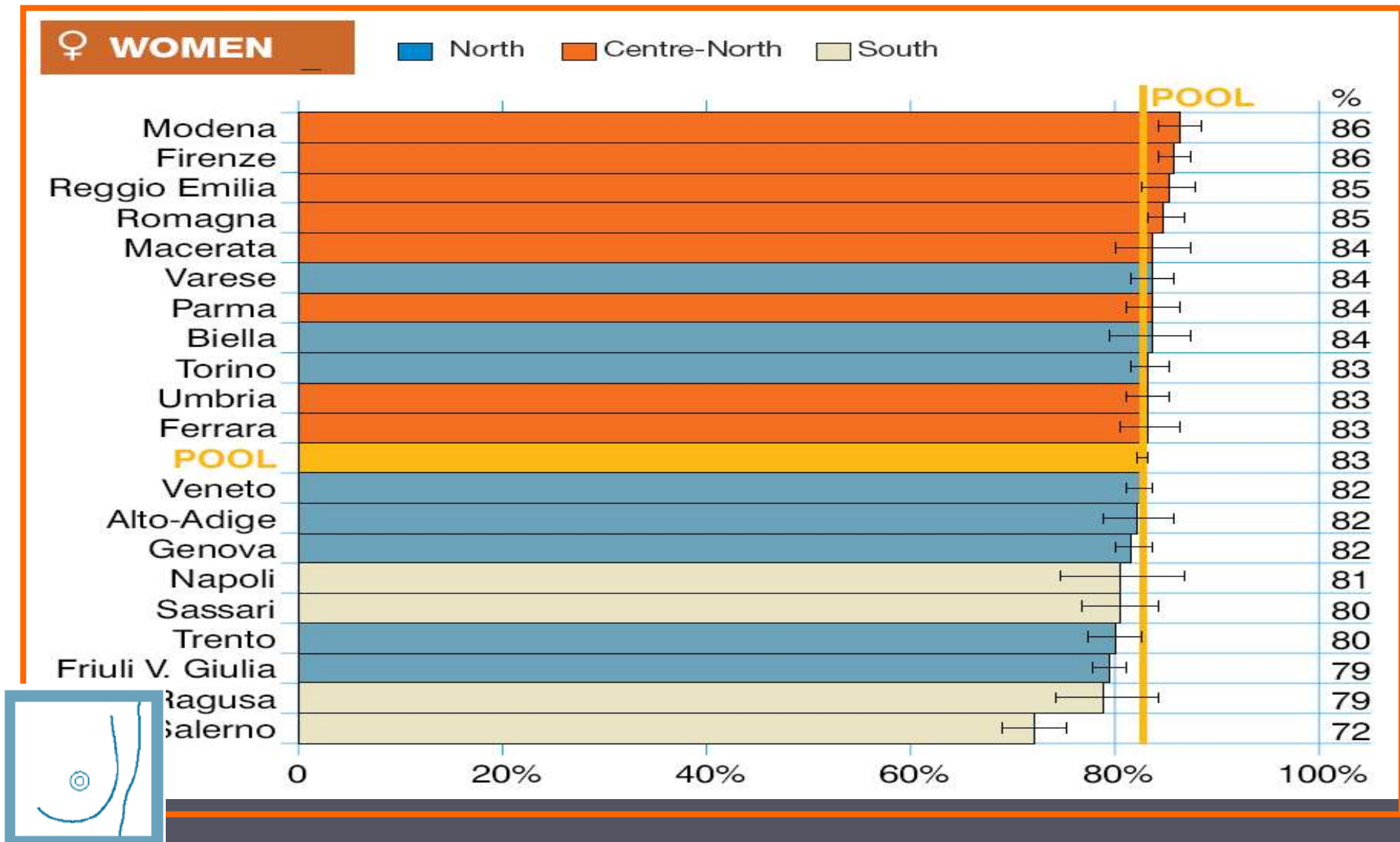
**5.3%**

**pre-screening**

**75.6%**

# Gradiente geografico: sopravvivenza relativa standardizzata

Si mantengono importanti disuguaglianze, in parte dovute allo screening



# Breast screening: the facts— or maybe not

**Peter Gøtzsche and colleagues** argue that women are still not given enough, or correct, information about the harms of screening

Three years ago, we published a survey of the information given to women invited for breast screening with mammography in six countries with publicly funded screening programmes.<sup>1</sup> The major harm of screening, which is over-

## Problems with UK leaflet

The revised leaflet emphasises the benefits of screening. The first page leaves no doubt that screening is good for women, with its second heading: “Why do I need breast screening?”



Una polemica aspra e senza ascolto reciproco, largamente in mano ai media scientifici (Lancet, BMJ, JNCI)

## Summary from evidence based leaflet

- It may be reasonable to attend for breast cancer screening with mammography, but it may also be reasonable not to attend because screening has both benefits and harms
- If 2000 women are screened regularly for 10 years, one will benefit from the screening, as she will avoid dying from breast cancer
- At the same time, 10 healthy women will, as a consequence, become cancer patients and will be treated unnecessarily. These women will have either a part of their breast or the whole breast removed, and they will often receive radiotherapy and sometimes chemotherapy
- Furthermore, about 200 healthy women will experience a false alarm. The psychological strain until one knows whether it was cancer, and even afterwards, can be severe

# Tumore della prostata dallo screening spontaneo ai trial



## INCIDENZA

UOMINI					
1993-1995			2003-2005		
17,4%	POLMONE	1°	PROSTATA	18,5%	
12,8%	CUTE	2°	CUTE	15,8%	
11,3%	PROSTATA	3°	POLMONE	13,1%	
11,3%	COLON RETTO	4°	COLON RETTO	12%	
7,4%	VESCICA	5°	VESCICA	5,7%	

DONNE					
1993-1995			2003-2005		
24,2%	MAMMELLA	1°	MAMMELLA	24,9%	
12,2%	COLON RETTO	2°	CUTE	15,1%	
12%	CUTE	3°	COLON RETTO	11,9%	
5,5%	STOMACO	4°	POLMONE	5%	
4,6%	POLMONE	5°	STOMACO	4,1%	

[www.registri-tumori.it](http://www.registri-tumori.it)



AIRTUM incidenza. Primi cinque tumori in termini di frequenza, e percentuale rispetto al totale dei tumori, fra quelli diagnosticati nel periodo 2003-2005 per sesso e classe d'età (0-44, 45-64, 65+ anni)

	UOMINI			DONNE		
	0-44	45-64	65+	0-44	45-64	65+
<b>1°</b>	Cute non melanoma (14,2%)	Prostata (15,6%)	Prostata (20,3%)	Mammella (32,7%)	Mammella (35,5%)	Mammella (18,8%)
<b>2°</b>	Testicolo (12,9%)	Cute non melanoma (14,7%)	Cute non melanoma (16,0%)	Tiroide (12,6%)	Cute non melanoma (12,0%)	Cute non melanoma (16,6%)
<b>3°</b>	Non Hodgkin (8,2%)	Polmone (12,8%)	Polmone (14,4%)	Cute non melanoma (12,0%)	Colonretto (9,6%)	Colonretto (14,2%)
<b>4°</b>	Melanoma (7,7%)	Colonretto (12,5%)	Colonretto (12,1%)	Melanoma (7,2%)	Corpo utero (5,9%)	Polmone (5,6%)
<b>5°</b>	Leucemie (6,1%)	VADS (6,2%)	Vescica (6,5%)	Cervice (4,3%)	Tiroide (4,6%)	Stomaco (5,3%)

# L'ERA DEL PSA

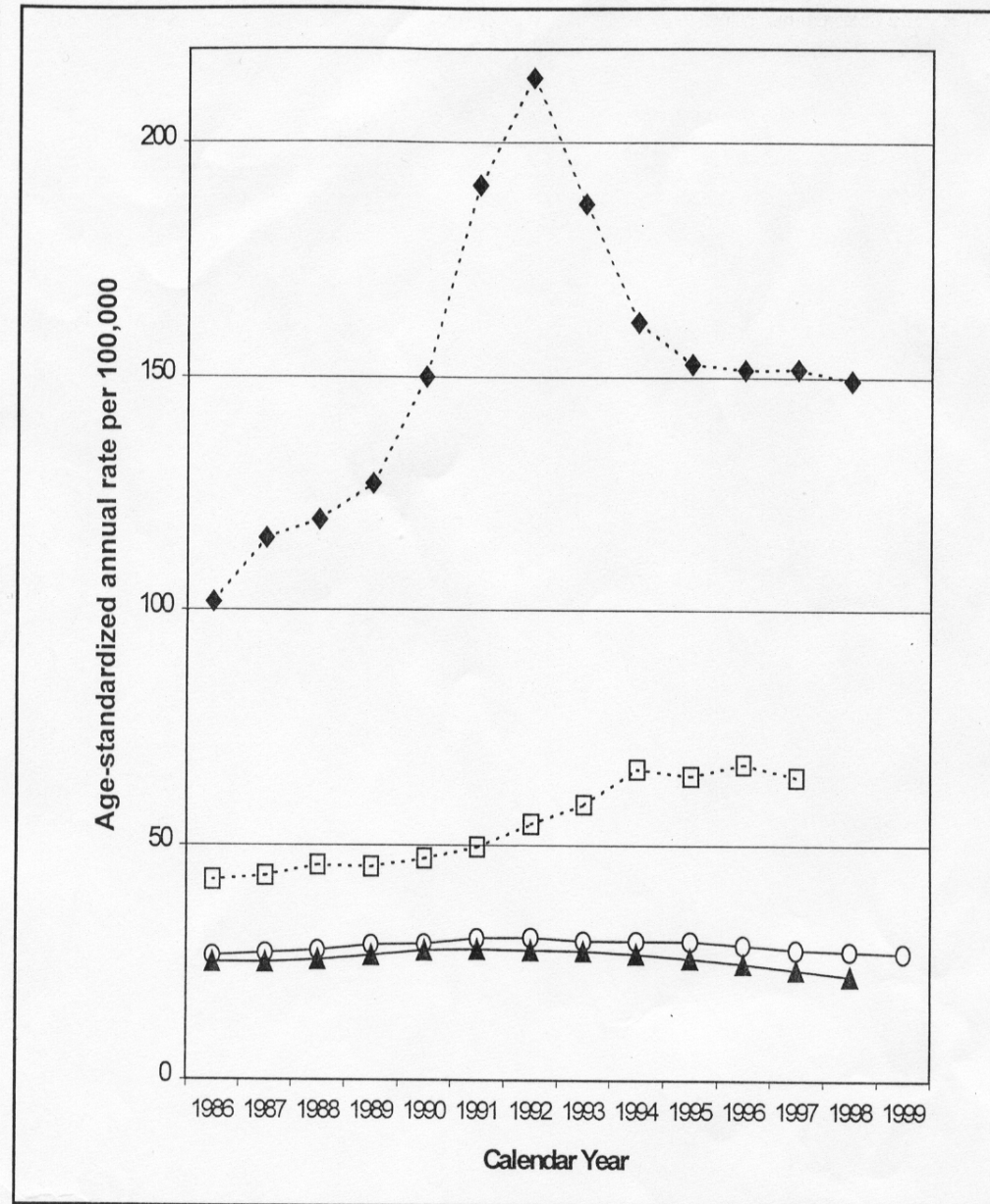


Fig. 1. Prostate cancer incidence and mortality rates in U.S. men (white) and in U.K. men (all races). Both rates from each country were age-standardized to the European standard population. ◆ = incidence, U.S. white men (nine Surveillance, Epidemiology, and End Results [SEER] registries); □ = incidence, U.K. men (all races) (England); ▲ = mortality, U.S. white men (entire U.S.); ● = mortality, U.K. men (all races) (England and Wales).

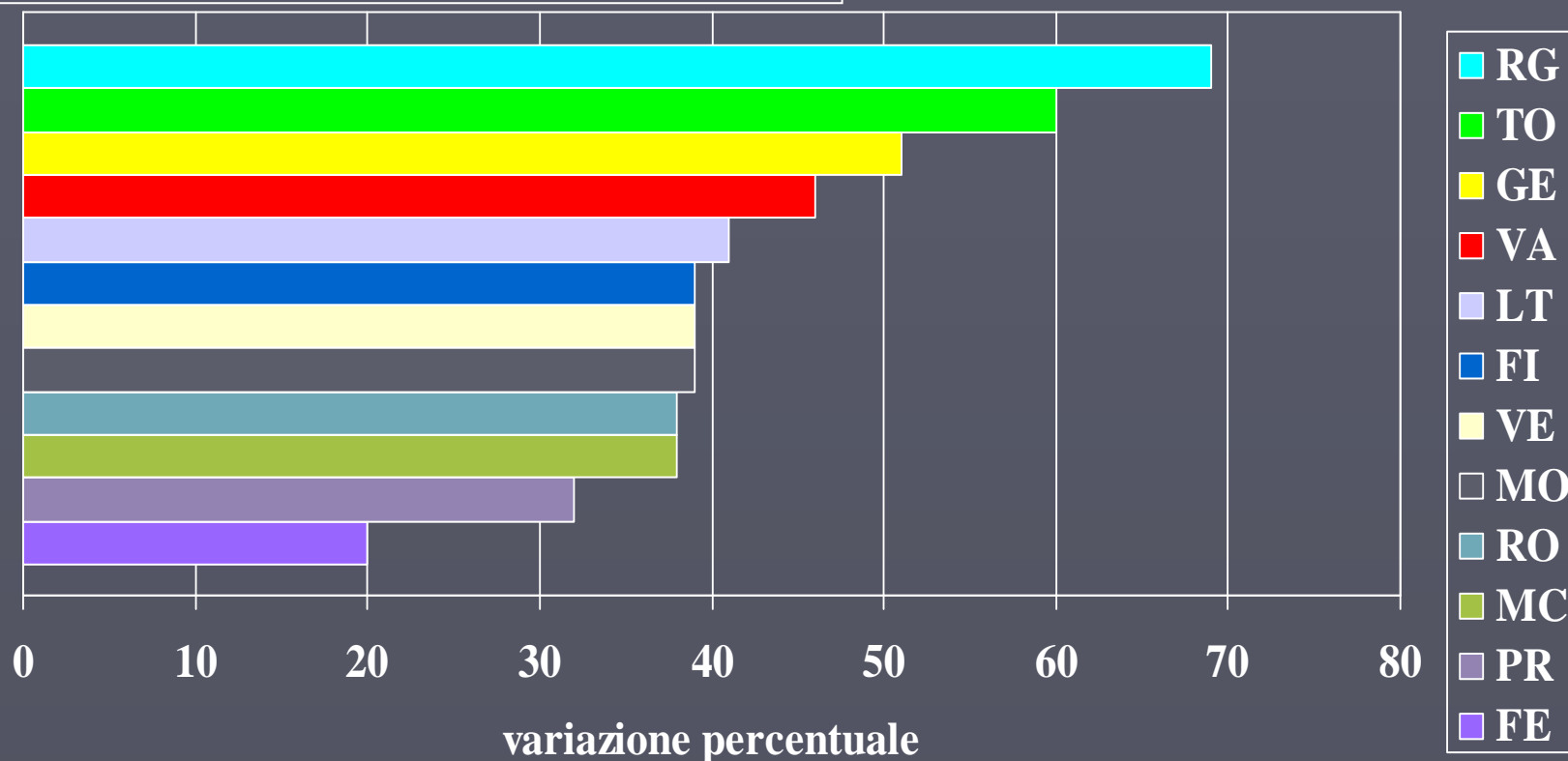
Shibata &  
Whittemore  
JNCI 2001

# Tumore della prostata. Registri Italiani

## Variazione percentuale nei tassi standardizzati

### inizio e fine anni '90

da Cancro in Italia vol. 2 e 3

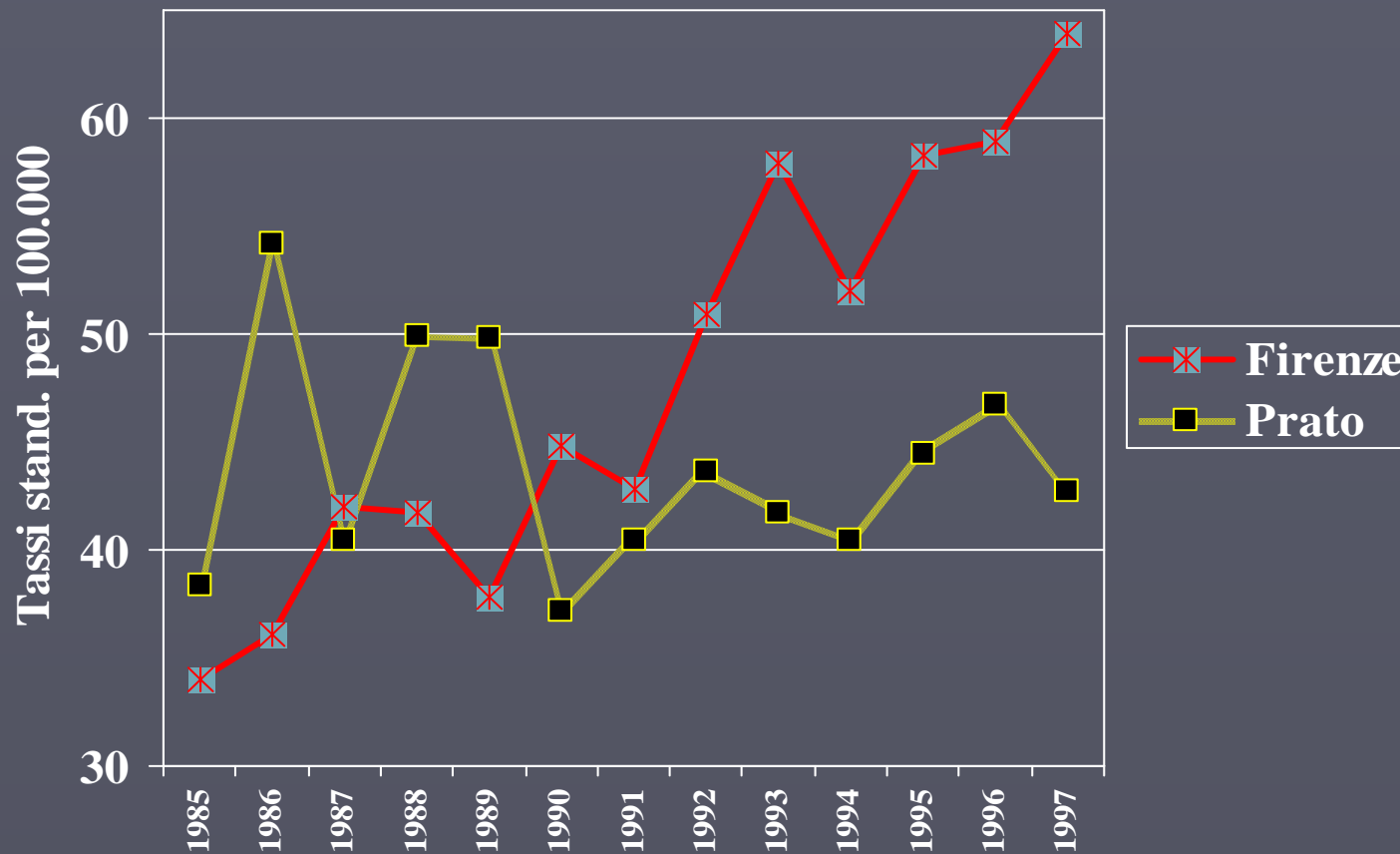




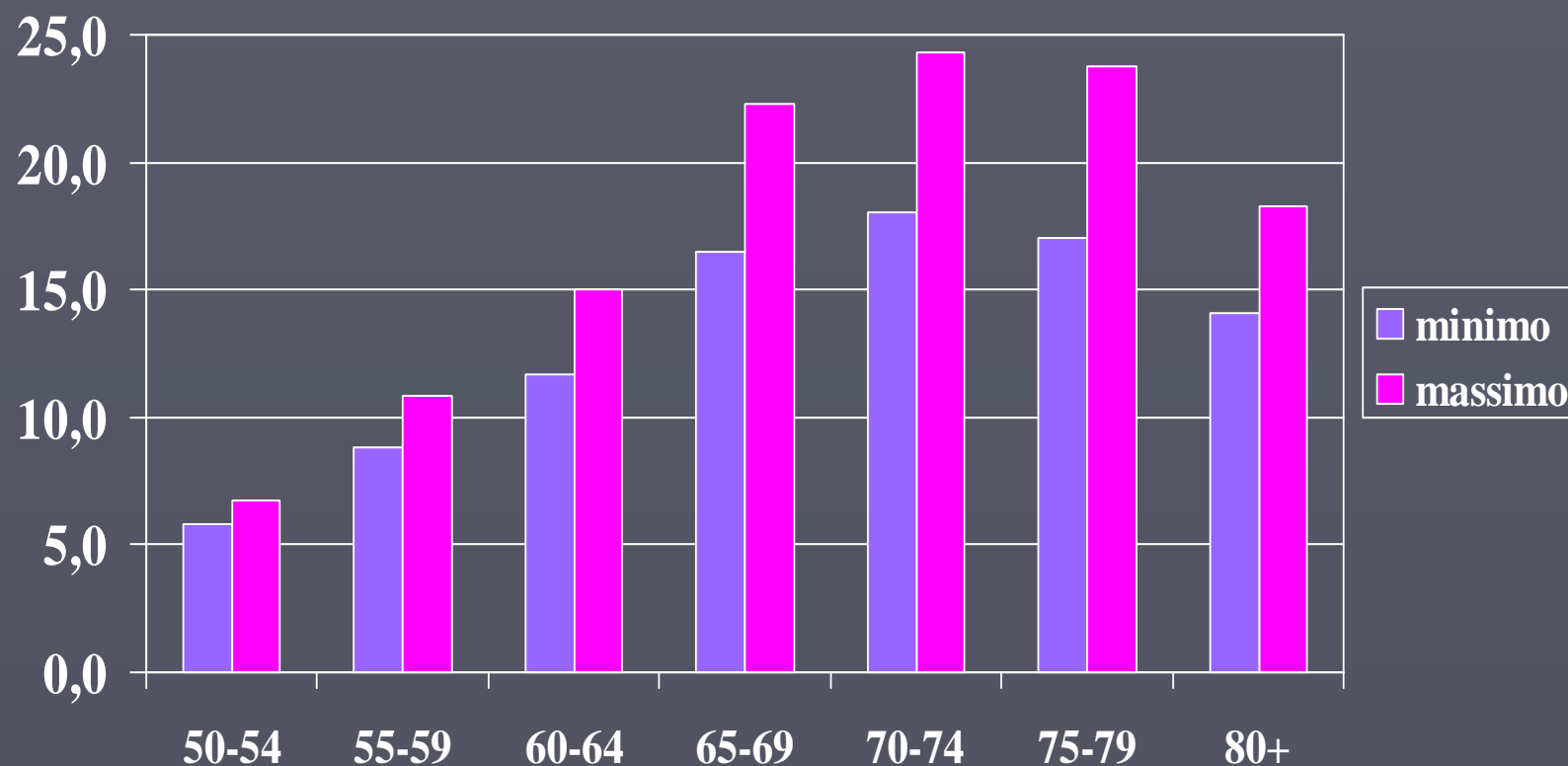
**Prostate Cancer: Different  
Incidence But Not Mortality  
Trends Within Two Areas of  
Tuscany, Italy**

EMANUELE CROCETTI  
STEFANO CIATTO  
MARCO ZAPPA

Journal of the National Cancer Institute, Vol. 93, No. 11, June 6, 2001



# Stima della percentuale di residenti nell'area fiorentina che hanno effettuato un test del PSA nel 2000



Fonte :archivio regionale delle procedure diagnostiche

# EPIDEMIOLOGIA & PREVENZIONE

Rivista dell'Associazione Italiana di epidemiologia ANNO 33 (1) GENNAIO-APRILE 2009 SUPPLEMENTO 2

AIRTUM Working Group

DOCUMENTO ANNUALE 2009

I nuovi dati di incidenza e mortalità  
PERIODO 2003-2005

New incidence and mortality data  
2003-2005

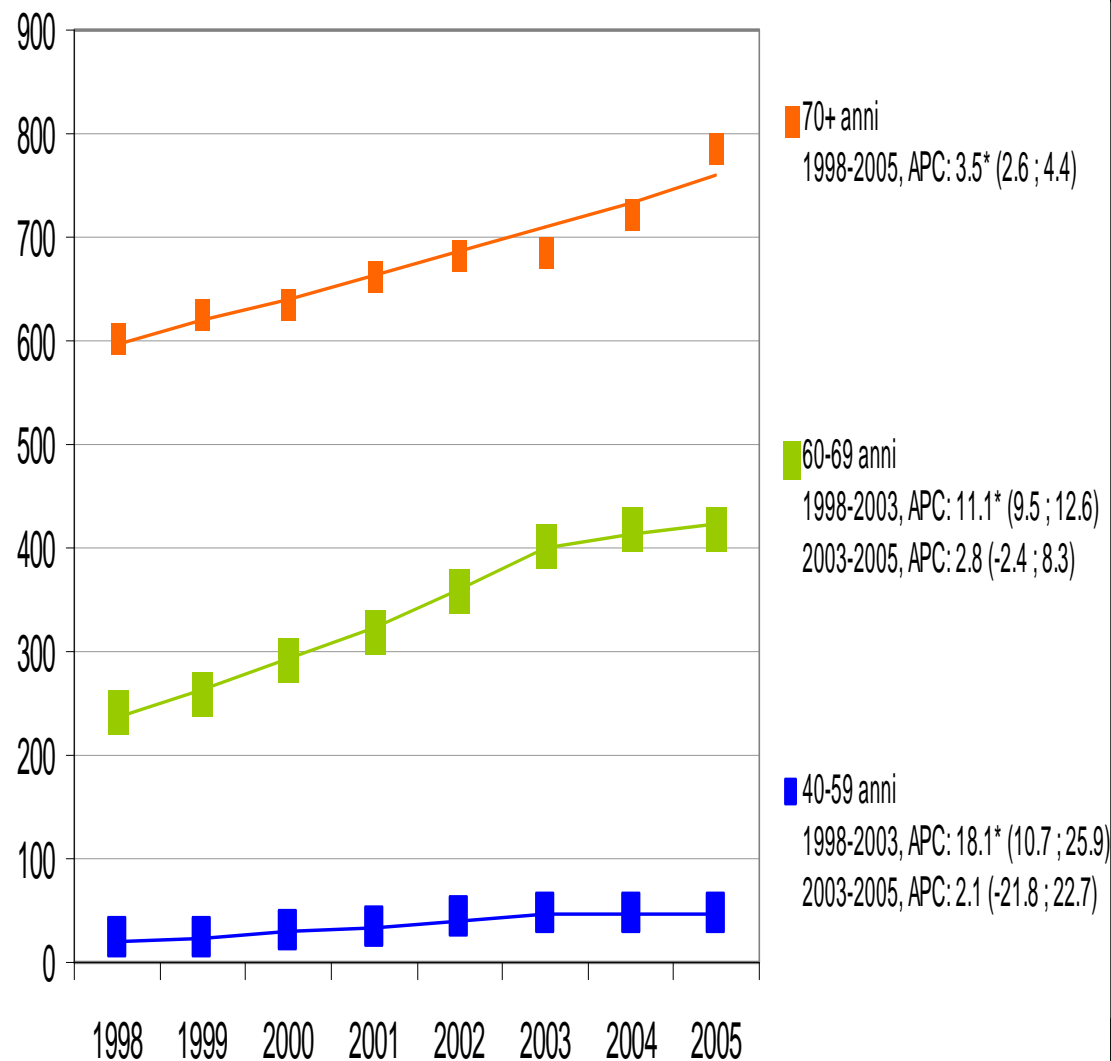
AGGIORNAMENTO  
APPROFONDIMENTO



Associazione Italiana registri tumori

inferenze

## POOL AIRTUM 1998-2005, Tumore della prostata. Tassi di incidenza standardizzati sulla popolazione europea



## DOCUMENTO DI CONSENSO ITALIANO SULLO SCREENING PER IL CARCINOMA DELLA PROSTATA

*Documento finale di consenso elaborato a seguito della Consensus Conference di Firenze (17.5.2003), edito a cura di: Associazione Italiana di Epidemiologia, Associazione Italiana di Medicina Nucleare, Associazione Italiana di Oncologia Medica, Associazione Italiana Medici di Famiglia, Associazione Urologi Italiani, Centro per lo Studio e la Prevenzione Oncologica - Firenze, Centro Studi e Ricerche in Medicina Generale, Gruppo Italiano per lo Screening del Cervicocarcinoma, Gruppo Uro-oncologico del Nord Est, Società Italiana di Andrologia, Società Italiana di Biochimica Clinica e Biologia Molecolare Clinica, Società Italiana di Chirurgia Oncologica, Società Italiana di Genetica Umana, Società Italiana di Medicina Generale, Società Italiana di Psico-oncologia, Società Italiana di Radiologia Medica, Società Italiana di Statistica Medica ed Epidemiologia Clinica, Società Italiana di Urodinamica, Società Italiana di Urologia Oncologica, Società Urologia Nuova*

### FIRENZE 2003

- ▶ L'assemblea dei rappresentanti delle Associazioni Scientifiche intervenute alla "Consensus Conference" ha condiviso all'unanimità le seguenti raccomandazioni conclusive:
- ▶ Non esiste al momento, in base all'evidenza scientifica, indicazione all'esecuzione dello screening di soggetti asintomatici mediante PSA, sia quale provvedimento sanitario di "popolazione" (invito attivo di residenti selezionati in base all'età), che "spontaneo" (raccomandazione alla popolazione di sottoporsi al dosaggio periodico del PSA).

ORIGINAL ARTICLE

## Screening and Prostate-Cancer Mortality in a Randomized European Study

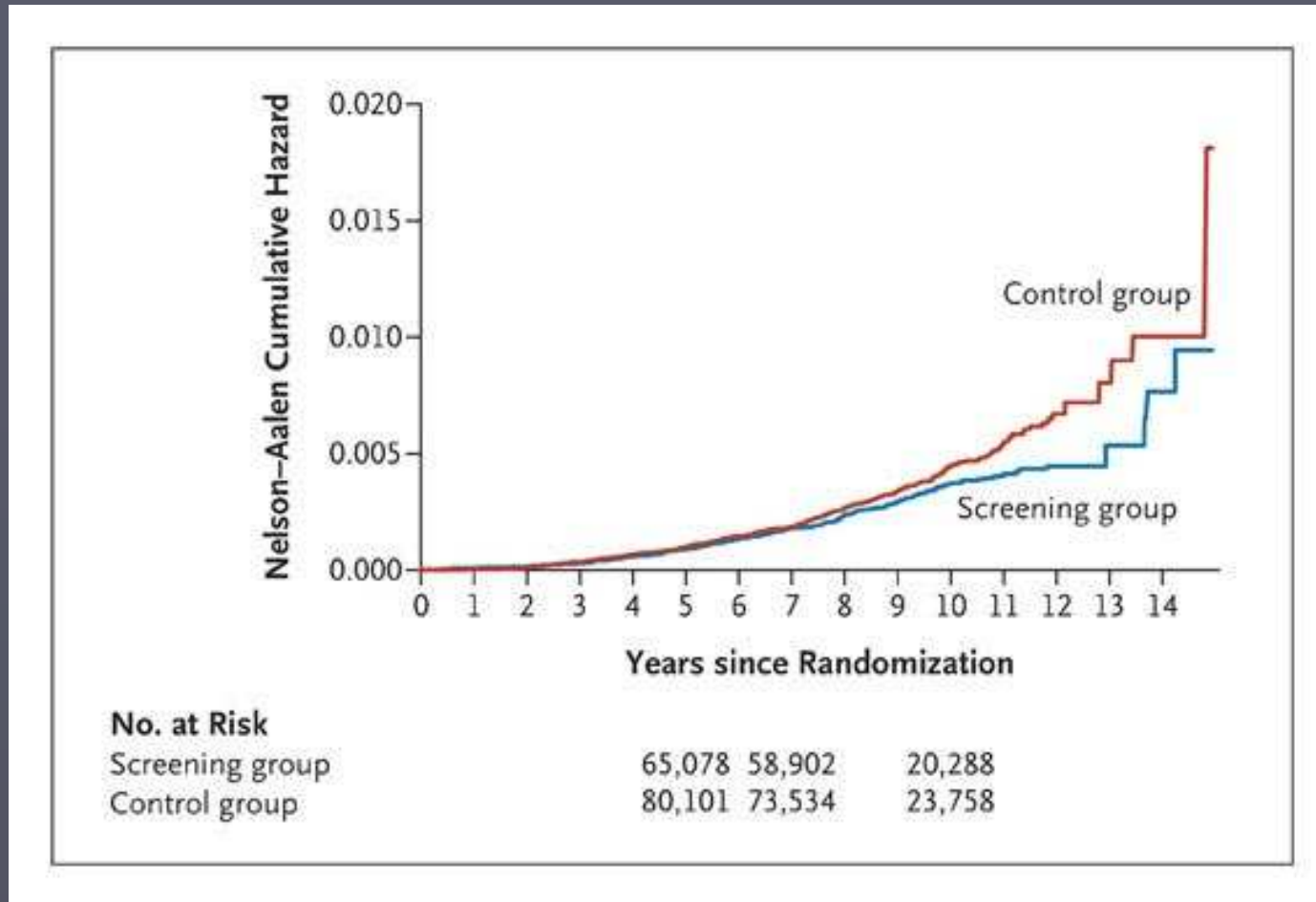
Fritz H. Schröder, M.D., Jonas Hugosson, M.D., Monique J. Roobol, Ph.D.,  
Teuvo L.J. Tammela, M.D., Stefano Ciatto, M.D., Vera Nelen, M.D.,  
Maciej Kwiatkowski, M.D., Marcos Lujan, M.D., Hans Lilja, M.D.,  
Marco Zappa, Ph.D., Louis J. Denis, M.D., Franz Recker, M.D.,  
Antonio Berenguer, M.D., Liisa Mänttinen, Ph.D., Chris H. Bangma, M.D.,  
Gunnar Aus, M.D., Arnauld Villers, M.D., Xavier Rebillard, M.D.,  
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Harry J. de Koning, M.D., and Anssi Auvinen, M.D., for the ERSPC Investigators\*

ORIGINAL ARTICLE

## Mortality Results from a Randomized Prostate-Cancer Screening Trial

Gerald L. Andriole, M.D., E. David Crawford, M.D., Robert L. Grubb III, M.D.,  
Saundra S. Buys, M.D., David Chia, Ph.D., Timothy R. Church, Ph.D.,  
Mona N. Fouad, M.D., Edward P. Gelmann, M.D., Paul A. Kvale, M.D.,  
Douglas J. Reding, M.D., Joel L. Weissfeld, M.D., Lance A. Yokochi, M.D.,  
Barbara O'Brien, M.P.H., Jonathan D. Clapp, B.S., Joshua M. Rathmell, M.S.,  
Thomas L. Riley, B.S., Richard B. Hayes, Ph.D., Barnett S. Kramer, M.D.,  
Grant Izmirlian, Ph.D., Anthony B. Miller, M.B., Paul F. Pinsky, Ph.D.,  
Philip C. Prorok, Ph.D., John K. Gohagan, Ph.D., and Christine D. Berg, M.D.,  
for the PLCO Project Team\*

## Cumulative Risk of Death from Prostate Cancer

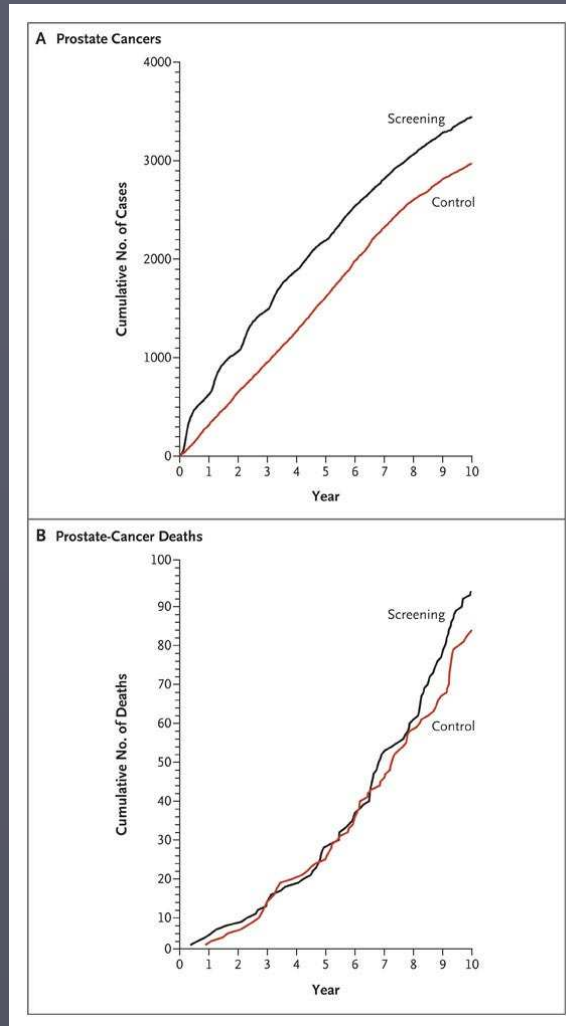


Schroder F et al. N Engl J Med 2009;360:1320-1328



The NEW ENGLAND  
JOURNAL of MEDICINE

# Number of Diagnoses of All Prostate Cancers (Panel A) and Number of Prostate-Cancer Deaths (Panel B)



Andriole G et al. N Engl J Med 2009;360:1310-1319



The NEW ENGLAND  
JOURNAL of MEDICINE

# Screening for Prostate Cancer — The Controversy That Refuses to Die

Michael J. Barry, M.D.

- ▶ Possibile immaturità del follow up (in particolare in PLCO)
- ▶ Possibile contaminazione (particolarmente in PLCO)
- ▶ Eccesso di incidenza (sovradiagnosi ) specialmente nello studio europeo (1 vita salvata per 48 casi in eccesso diagnosticati)



# Conclusione

- ▶ Il modello utilizzato per la valutazione della mammografia permette valutazioni di impatto perché sorretto dalle conoscenze dei trial randomizzati. Non risparmia, positivamente, la polemica, anche se troppo aspra e poco incisiva
- ▶ La sperimentazione in-naturale dello screening con PSA potrà difficilmente essere modificata dai risultati dei trial. Ciononostante questo risultato riapre la discussione e la possibilità di ricerca su storia naturale e trattamento (sorveglianza attiva)
- ▶ Notevole preoccupazione nei prossimi anni per la valutazione dello screening per il tumore del polmone (CT Scan a bassa dose) in cui la collaborazione US/EU per una condivisione della valutazione tra studi one-arm e studi randomizzati è per il momento fallita. E così quella tra studi europei (che sono disegnati per il pooling, come lo studio ITALUNG nella Regione Toscana) e studio americano NLST
- ▶ Nel complesso i due screenin (mammella e prostata) hanno profondamente modificato l'epidemiologia di questi tumori, ma è necessario che nel futuro si analizzino a fondo queste esperienze

# Impact working group

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Galleria degli Uffizi







