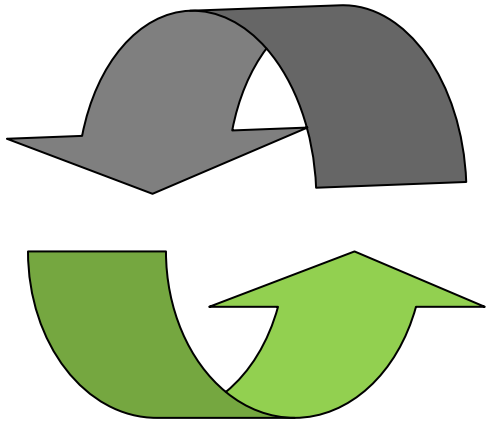
L'uso dei dati dei Registri Tumori per lo Screening

Livia Giordano Epidemiologia Screening - CPO -
A.O.U Città della Salute e della Scienza di Torino

SCREENING PROGRAMME

+

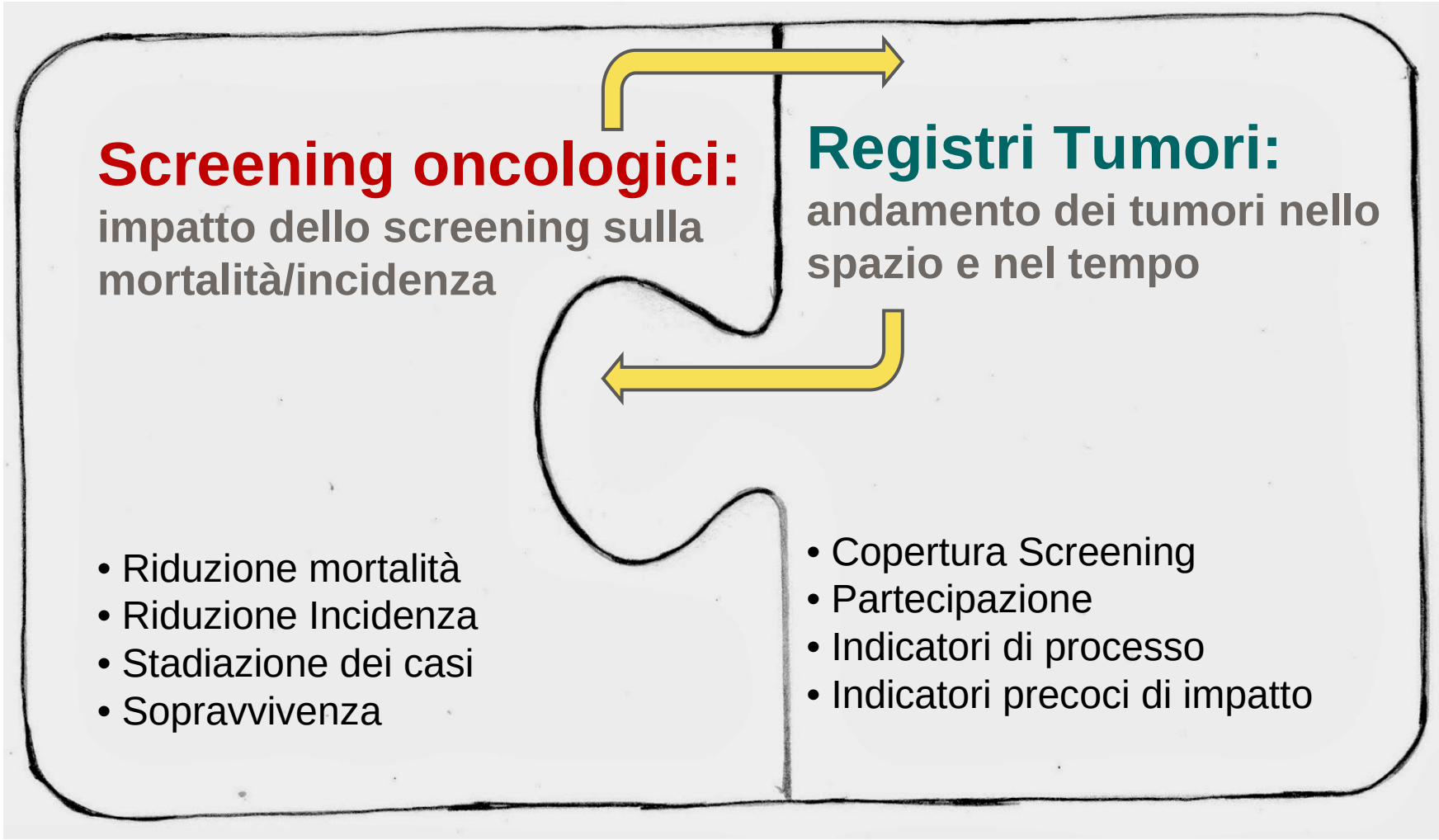
CANCER REGISTRY



a strong synergy to assess the impact of screening

Programmi organizzati di screening

- Invito attivo
- Protocollo di gestione delle positive
- “fail safe system” per approfondimento diagnostico e trattamento
- Monitoraggio e controllo di qualità di tutte le fasi


Screening oncologici:
impatto dello screening sulla mortalità/incidenza
Registri Tumori:
andamento dei tumori nello spazio e nel tempo
• Riduzione mortalità
• Riduzione Incidenza
• Stadiazione dei casi
• Sopravvivenza
• Copertura Screening
• Partecipazione
• Indicatori di processo
• Indicatori precoci di impatto

Gli screening oncologici di popolazione

Cancro della mammella

- **Test:** mammografia
- **Popolazione target** :
  ♀ 50-69 anni (45-74 in alcune regioni)
- **Periodismo:**
  2 anni
  (45-49: 1 anno)

Cancro della cervice uterina

- **Test:** Pap-test / HPV test
- **Popolazione target**
  Pap-test: ♀ 25-29
  HPV-test: ♀ 30-64
- **Periodismo:**
  Pap-test: 3 anni
  HPV test: 5 anni

Cancro del colon retto

- **Test:** FIT/FS
- **Popolazione target**
  ♀♂ FS: 58 anni
  ♀♂ FIT: 59-69 anni
- **Periodismo:**
  FIT:2 anni
  FS: once a life

Screening organizzati: la situazione europea

Figure 3.1. Distribution of breast cancer screening programmes in the EU in 2016

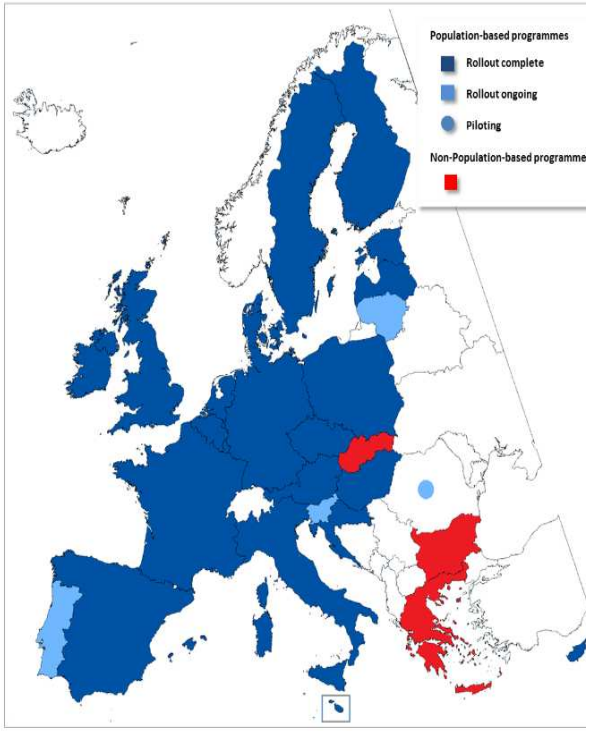


Figure 3.2. Distribution of cervical cancer screening programmes in the EU in 2016

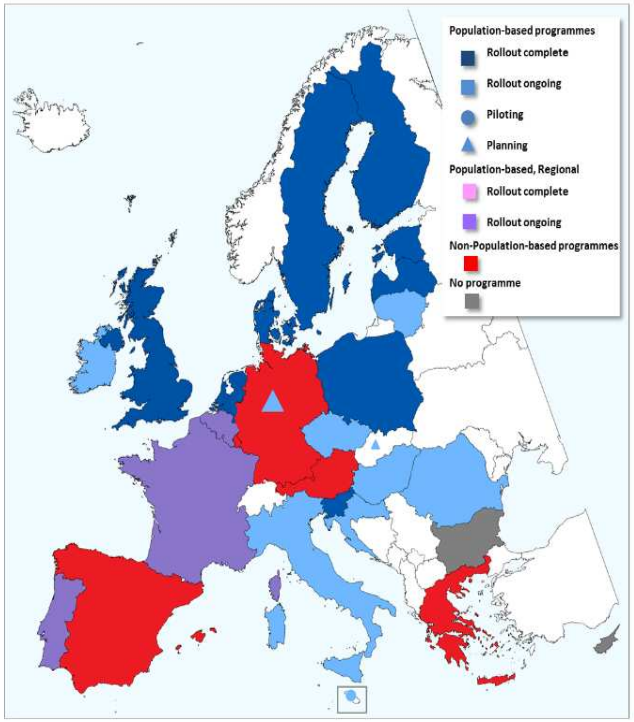
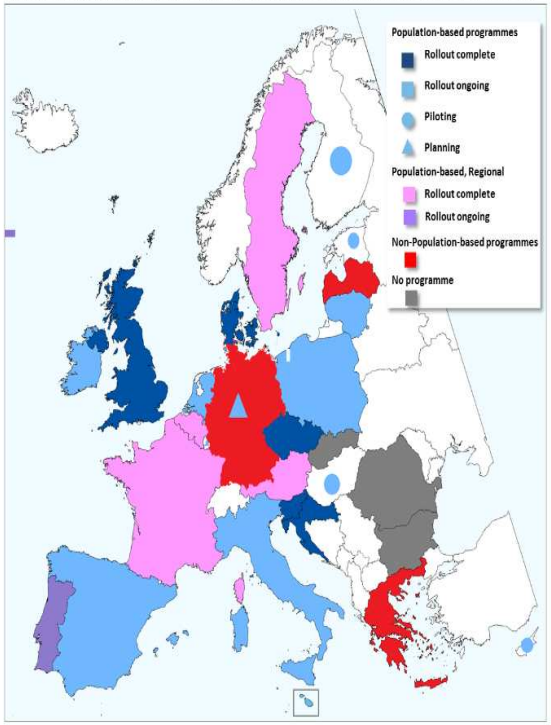


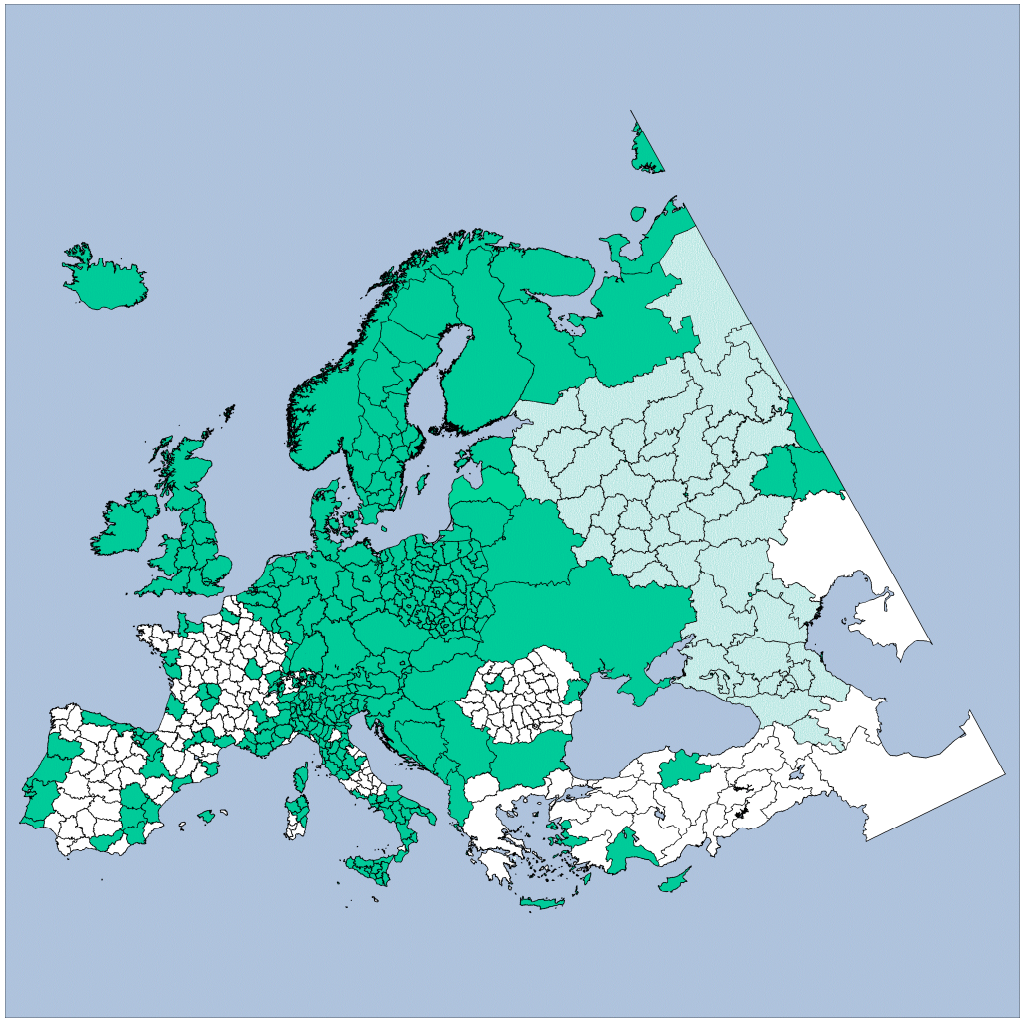
Figure 3.3. Distribution of colorectal cancer screening programmes in the EU in 2016



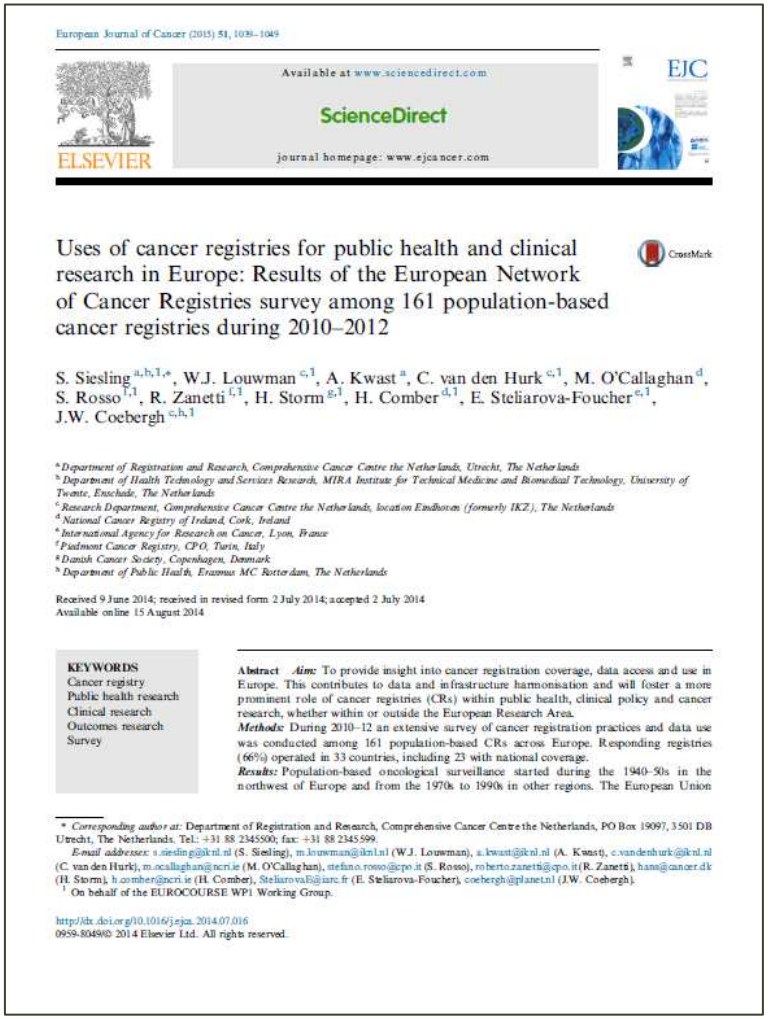
Cancer Screening in the European Union (2017)

Report on the implementation of the Council Recommendation on cancer screening

CRs: la situazione europea



La situazione Europea



European Journal of Cancer (2015) 51, 1039–1049

Available at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejcancer.com

Uses of cancer registries for public health and clinical research in Europe: Results of the European Network of Cancer Registries survey among 161 population-based cancer registries during 2010–2012

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[c] Research Department, Comprehensive Cancer Centre the Netherlands, location Eindhoven (formerly IKZ), The Netherlands
[d] National Cancer Registry of Ireland, Cork, Ireland
[e] International Agency for Research on Cancer, Lyon, France
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Available online 15 August 2014

KEYWORDS
Cancer registry
Public health research
Clinical research
Outcomes research
Survey

Abstract ***Aim:*** To provide insight into cancer registration coverage, data access and use in Europe. This contributes to data and infrastructure harmonisation and will foster a more prominent role of cancer registries (CRs) within public health, clinical policy and cancer research, whether within or outside the European Research Area.
Methods: During 2010–12 an extensive survey of cancer registration practices and data use was conducted among 161 population-based CRs across Europe. Responding registries (66%) operated in 33 countries, including 23 with national coverage.
Results: Population-based oncological surveillance started during the 1940–50s in the northwest of Europe and from the 1970s to 1990s in other regions. The European Union

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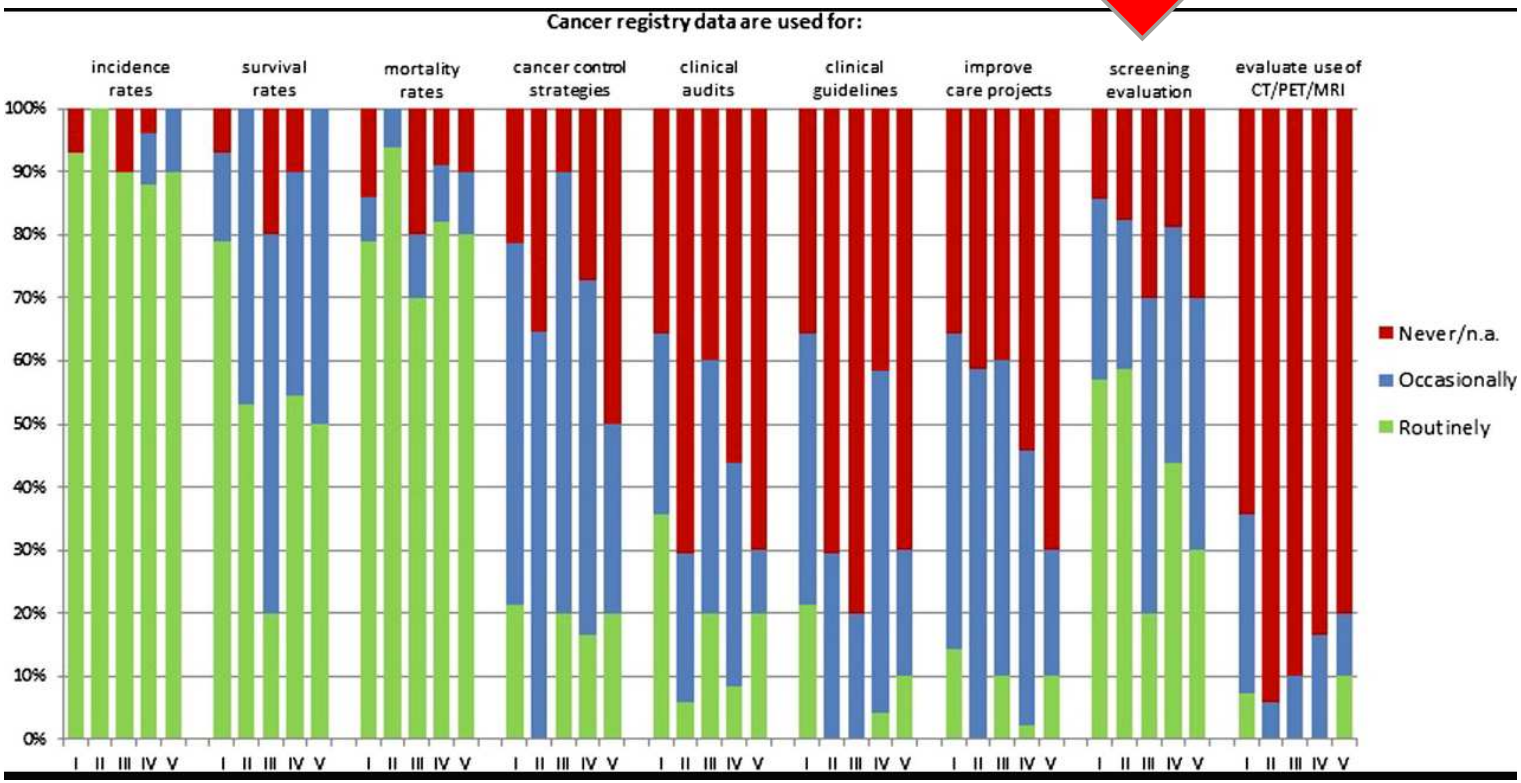
[1] On behalf of the EUROCOURSE WP1 Working Group.

http://dx.doi.org/10.1016/j.ejca.2014.07.016
0959-8049/



North-west: Belgium, Denmark, Finland, Iceland, Ireland, the Netherlands, Norway and United Kingdom encompassing England with 8 CRs & Wales, Scotland and Northern Ireland
Continental: Austria, Germany, Luxembourg, Switzerland
South-east: Croatia, Cyprus, Czech Republic, Bulgaria, Hungary, Rumania, Slovakia, Slovenia and Turkey
South-West: France, Italy, Malta, Portugal, Spain including Gibraltar
Central-east: Belarus, Estonia, Lithuania, Poland, Russia, Ukraine

S. Siesling et al. / European Journal of Cancer 51 (2015) 1039–1049

La situazione italiana

- 2001: i programmi di screening vengono inclusi nei Livelli Essenziali di Assistenza (LEA)
- 2002: Osservatorio Nazionale Screening
- 2004: Legge 138/2004
- 2007- 2018 Piani Nazionali della Prevenzione

La sfida di attuare programmi di screening di alta qualità per l'intera popolazione bersaglio non può essere affrontata senza accettare la necessità di un progetto comune a cui aderiranno tutti i soggetti coinvolti:

✓la società con tutti i suoi organi istituzionali e le associazioni

✓le società scientifiche dei professionisti coinvolti nello screening

✓ i mezzi di comunicazione di massa

✓il sistema sanitario nel suo complesso e le sue sezioni

✓le associazioni di advocacy

gis ma
gruppoitalianoscreening mammografico

GISCi
Gruppo Italiano Screening del Cervicocarcinoma

GISCoR
gruppo italiano screening colorettale

OSSERVATORIO NAZIONALE SCREENING

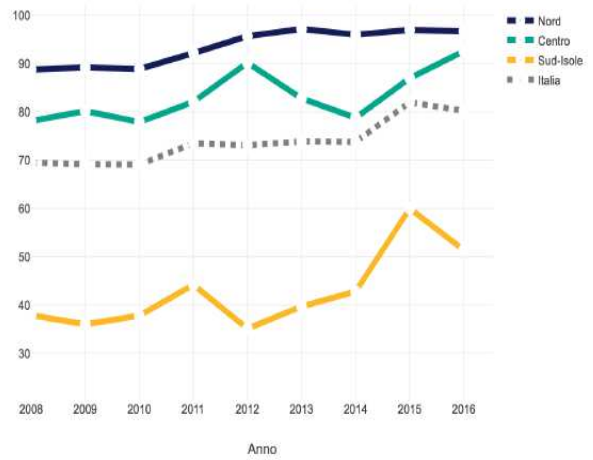
Indagine annuale
(dati aggregati)

Ministero Italiano della Salute

Monitoraggio e sistema di accreditamento

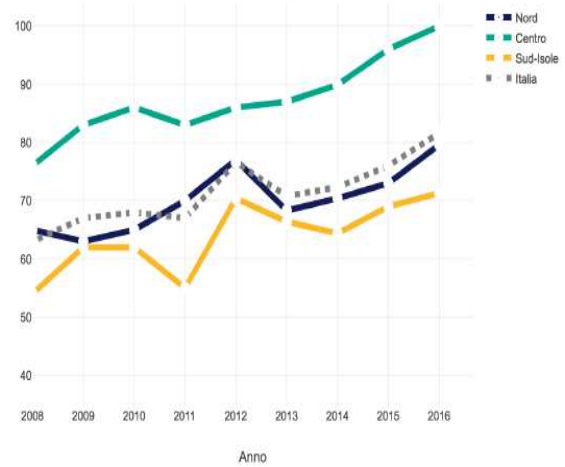
Report ONS 2017 - attività 2016

Figura 1. *Estensione effettiva dello screening mammografico per area geografica (% di donne di età 50-69 che ricevono la lettera di invito alla popolazione target dell'anno dal 2008 al 2016)*



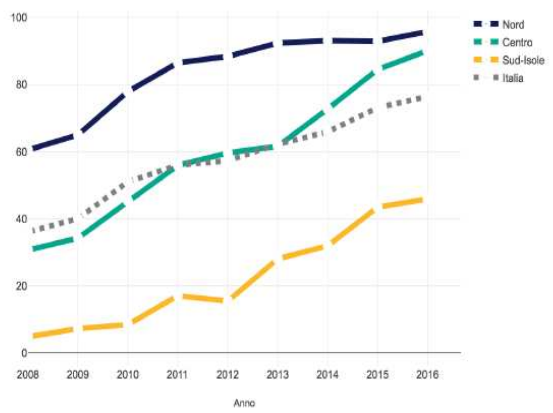
Mammella

Figura 3. *Estensione effettiva dello screening cervicale (% delle donne fra 25 e 64 anni di età che ricevono la lettera di invito alla popolazione target dell'anno dal 2008 al 2016)*



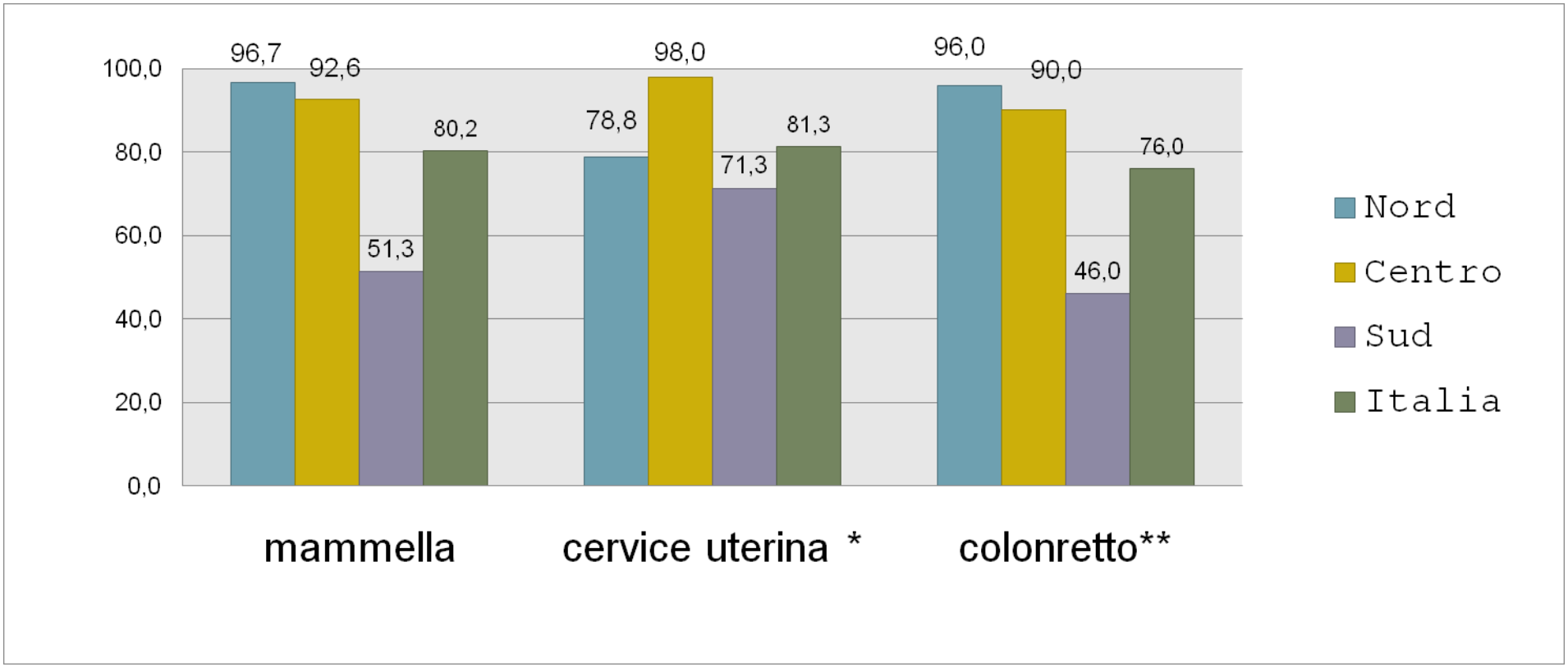
Cervice uterina

Figura 2. *Estensione effettiva dello screening colorettale per area geografica (% di persone di età 50-69 che ricevono la lettera di invito alla popolazione target dell'anno dal 2008 al 2016)*



Colonretto

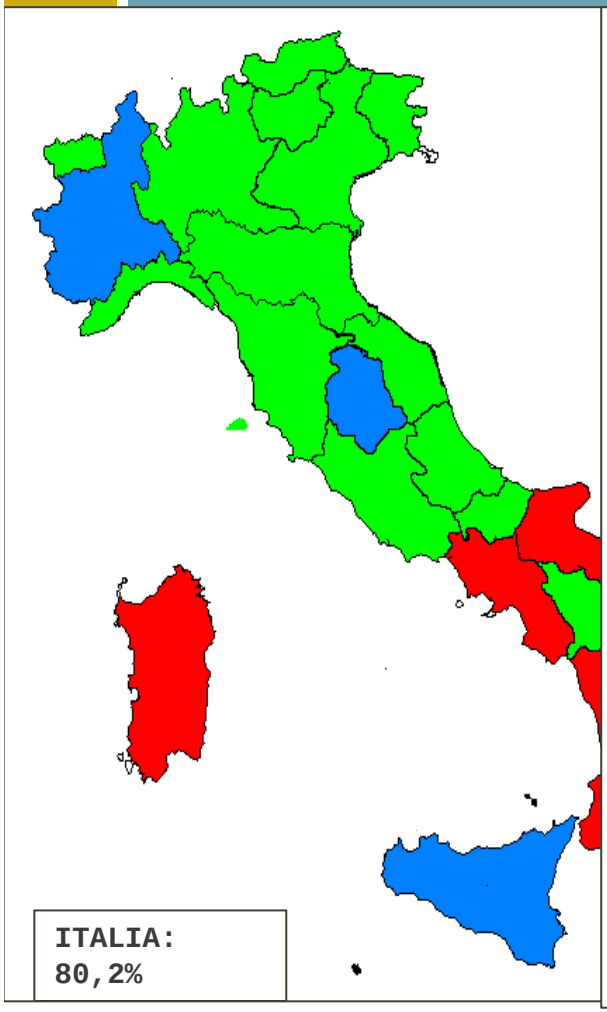
Estensione effettiva
Attività 2016



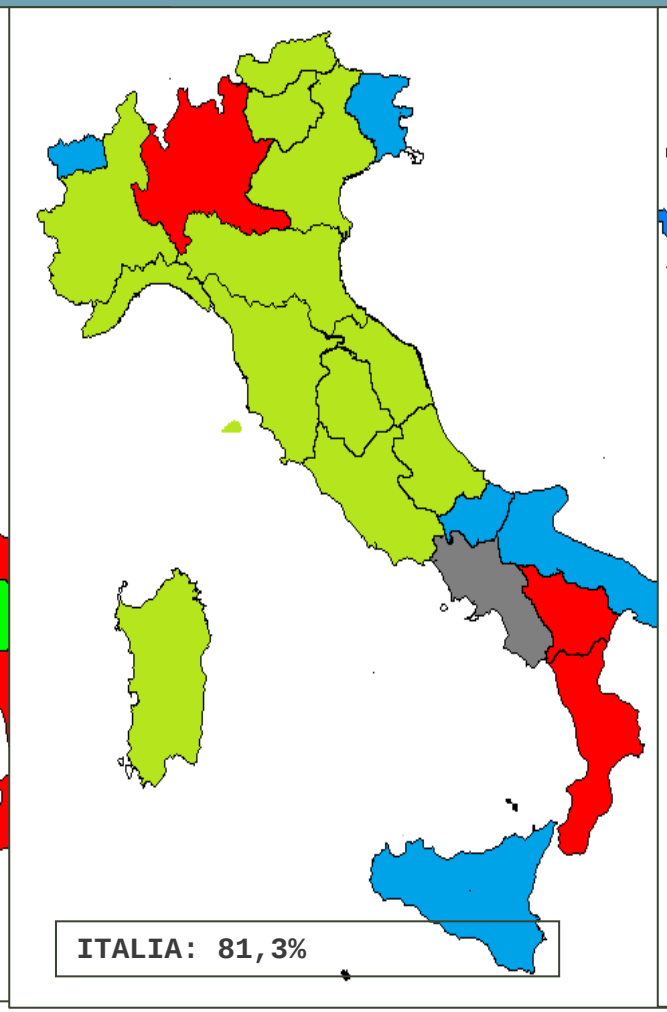
* **Pap-test + HPV**
** **FIT**

Estensione screening 2016

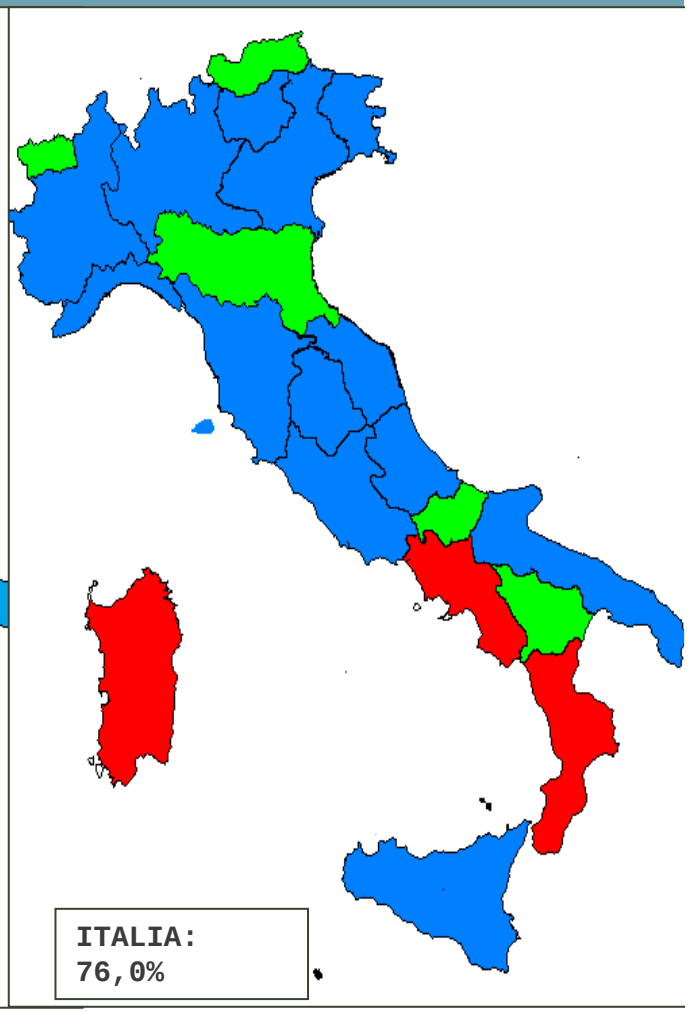
> 90% **70 - 90%** **50 – 70%** **< 50%**



Mammella



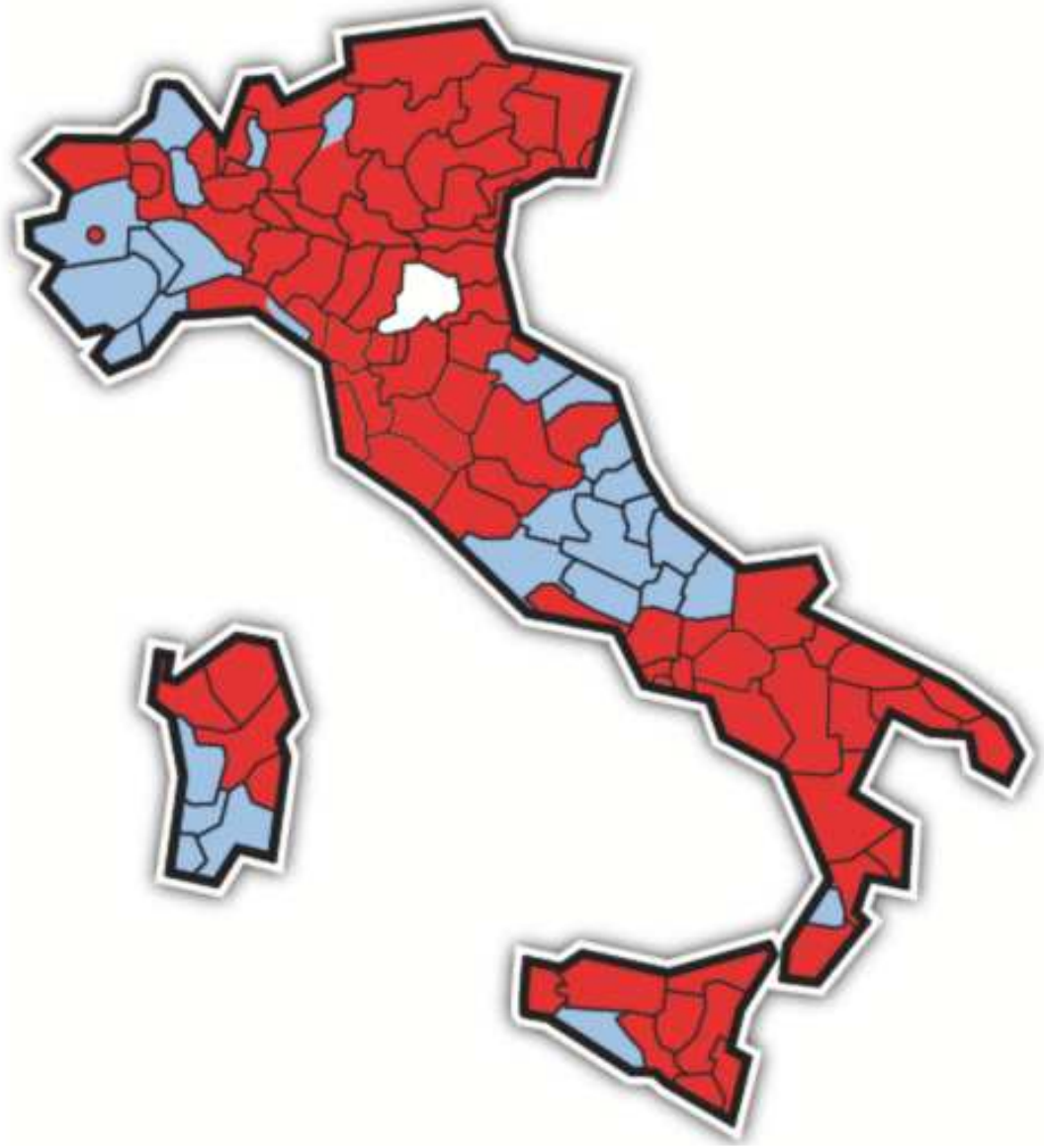
Cervice



Colonretto

MAPPA DEI REGISTRI TUMORI IN ITALIA (ottobre 2017)

COPERTURA	70%	28%	2%
POPOLAZIONE	41.435.000	16.022.501	976.243

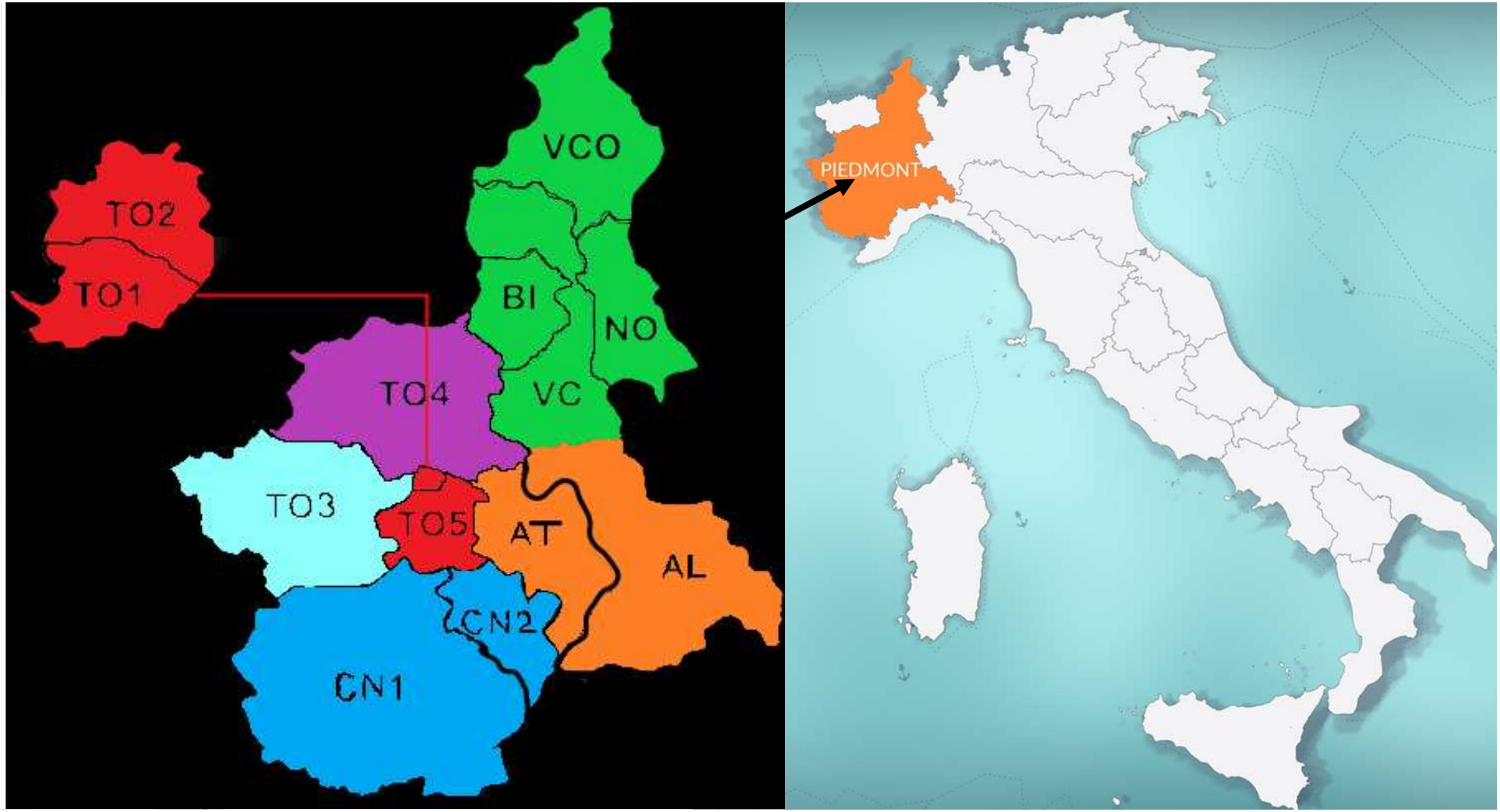


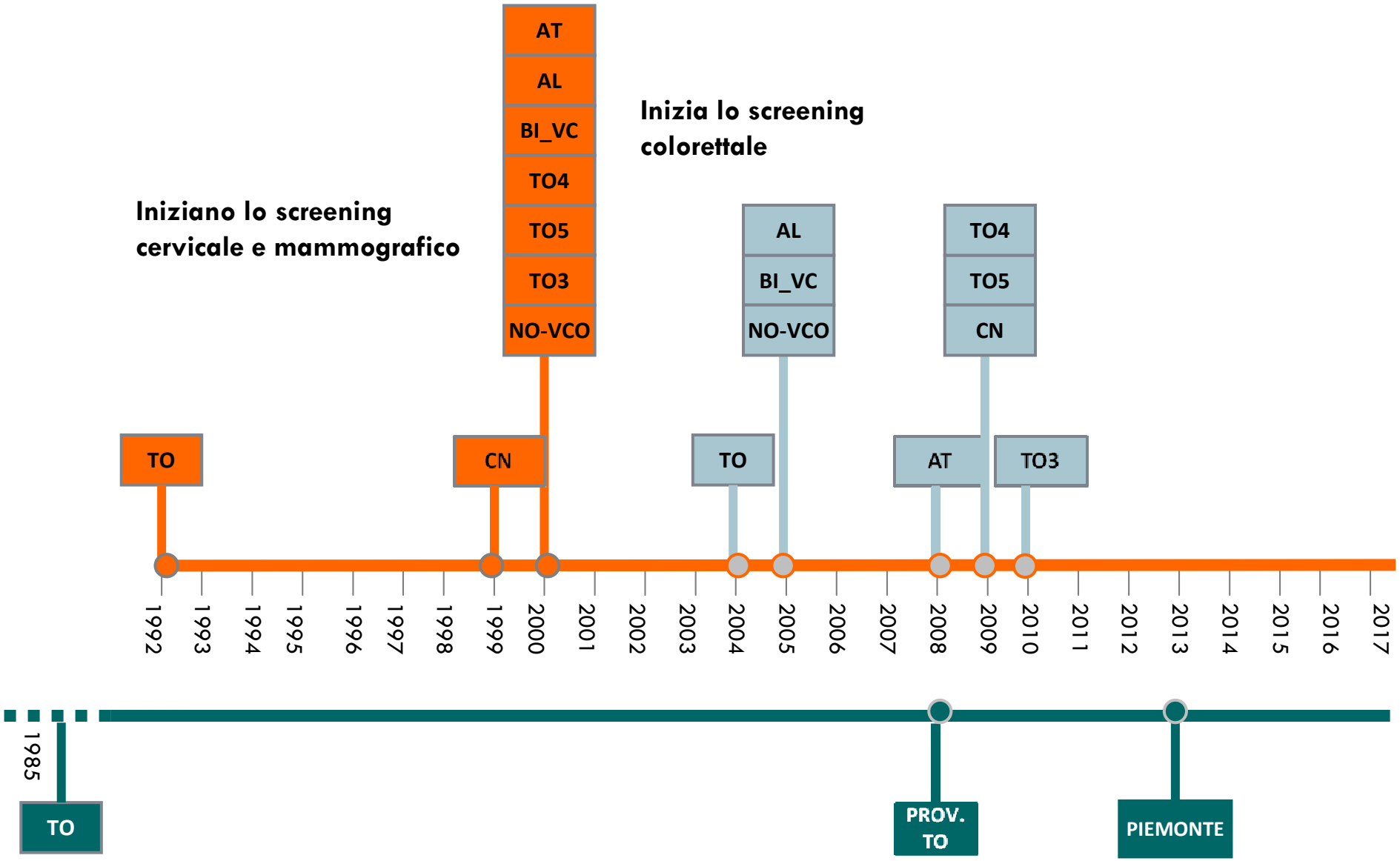
LEGENDA

Aree coperte dai Registri tumori di popolazione

- Registri accreditati
- Registri in attività
- Aree NON coperte dai Registri tumori di popolazione

la situazione piemontese




Iniziano lo screening cervicale e mammografico
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NO-VCO
Inizia lo screening colorettale
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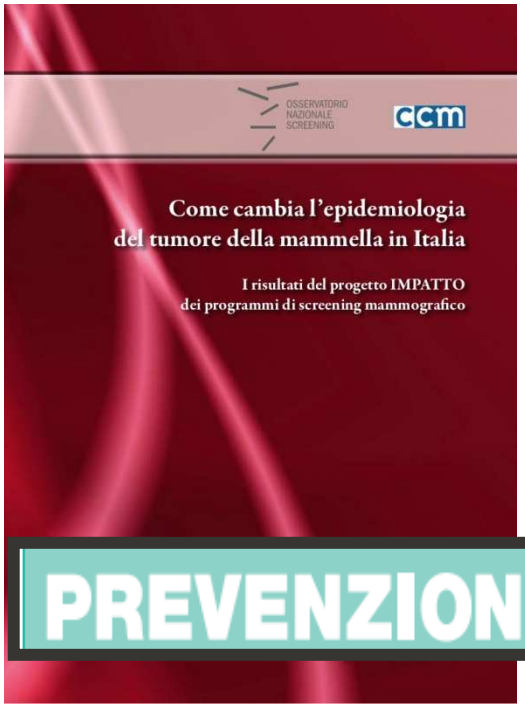
PROV. TO
PIEMONTE

Impatto degli screening in termini di mortalità, incidenza, sopravvivenza, etc

AIRTUM

OSSERVATORIO NAZIONALE SCREENING



Registro Tumori Piemonte

PREVENZIONE SERENA

GRUPPO IMPATTO CERVICE

GRUPPO IMPATTO COLON RETTO

Tumore della mammella

Tumore della mammella

- **Test:** mammografia
- **Popolazione target :**
  ♀ 45-74 anni
- Periodismo: 2 anni (45-49: 1 anno)

Tumore della mammella: prima dello screening

Cancer Causes and Control 13: 65–71, 2002.
© 2002 *Kluwer Academic Publishers. Printed in the Netherlands.*

Stage-specific incidence of breast cancer before the beginning of organized screening programs in Italy

Eva Buiatti[1,*], Alessandro Barchielli[2], Simone Bartolacci[1], Lauro Bucchi[3], Vincenzo De Lisi[4], Massimo Federico[5], Stefano Ferretti[6], Eugenio Paci[7], Marcello Vettorazzi[8], Roberto Zanetti[9] & the SCREENREG Working Group[†]
[1]*Tuscany Regional Health Agency;* [2]*Epidemiology Unit, ASL 10, Florence;* [3]*Romagna Cancer Registry;* [4]*Parma Cancer Registry;* [5]*Modena Cancer Registry;* [6]*Ferrara Cancer Registry;* [7]*Tuscany Cancer Registry;* [8]*Veneto Cancer Registry;* [9]*Piedmont Cancer Registry*

Received 14 March 2001; accepted in revised form 1 October 2001

Key words: breast cancer, mammographic screening, stage.

Abstract

Objective: To measure stage-specific geographic and time variability of breast cancer in seven Italian areas before the onset of organized screening programs.
Methods: All invasive cancers (8689 cases) arising in women aged 40–79 years during the pre-screening period 1985–1997, were considered. Multiple Poisson regression analysis was performed.
Results: About 39% of the cases were classified as "early," 52% as "advanced," and 9% as "unspecified" stage. Age-adjusted incidence rates showed a significant geographic variation for early but not for advanced cancers (range: 58–103 cases/100,000 and 104–125 cases/100,000, respectively). The result was confirmed in the multiple regression analysis after adjustment for year of diagnosis and age. Early breast cancer risk adjusted for age and registry showed a significant increase over time (+3.9% per year for all ages, and +6.2% per year for age category 50–79). In contrast, a decreasing time trend was observed for advanced cancer of 3 cm or over in women aged less than 60.
Conclusions: In our study, early breast cancer incidence varied both by geographic area and time before the commencement of screening. The differences in early-stage incidence may well be related to differences in availability of "spontaneous" mammography. Late-stage incidence decreased over time in younger women and for very advanced cases, but not in the older ones, nor for cancers less than 3 cm. Early detection outside organized screening was only partially efficient in reducing advanced breast cancer incidence. The trend of incidence of advanced disease, as previously proposed, is confirmed to be a valid early indicator of effectiveness of screening.

Introduction

Randomized trials have shown that mammographic screening reduces breast cancer mortality in women aged 50–69 years, on average by 30% [1, 2]. In recent years screening has been introduced in several European countries as a public health program at a population level [3–6]. Since 1995, the Italian Ministry of Health has been promoting local mammographic screening initiatives based upon the use of a nationally agreed protocol. The presence in the screening area of a population-based breast cancer registry, finalized to the control of early efficacy indicators of the screening program, is one of the conditions recommended by the protocol. The magnitude of reduction of breast cancer mortality due to screening is expected to vary according to women's compliance, mammographic quality, diagnostic sensitivity, and therapeutic appropriateness [7, 8]. Further,

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† Balzi D (Epidemiology Unit, ASL 10, Florence), Falcini F (Romagna Cancer Registry), Crocetti E, Giorgi D (Tuscany Cancer Registry/Epidemiology Unit, CSPO, Florence), Finarelli AC, Krogh V (Emilia-Romagna Region), Segnan N, Ponti A, Ronco G (Screening Evaluation Unit, CPO, Piedmont), Simonato L (Veneto Cancer Registry), Patriarca S, Rosso S (Piedmont Cancer Registry).

Table 4. All cases, early, and advanced cases. Incidence rate ratios, estimated according to the multivariate analysis (model: registry + year + age group, when appropriate), by cancer registry

Cancer registry	All cases 40–79 years		Early cases 40–79 years		Advanced cases					
	IRR	95% CI	IRR	95% CI	40–49 years		50–59 years[b]		60–79 years[c]	
					IRR	95% CI	IRR	95% CI	IRR	95% CI
Turin[a]	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Florence	1.3	1.1–1.4	1.7	1.4–2.0	1.2	0.9–1.7	1.0	0.8–1.3	0.9	0.8–1.1
Modena	1.1	1.0–1.3	1.5	1.3–1.9	1.2	0.8–1.8	0.9	0.7–1.1	1.2	1.1–1.4
Parma	1.1	0.9–1.3	0.9	0.7–1.2	2.1	1.2–3.5	1.0	0.8–1.3	1.3	1.1–1.5
Romagna	1.0	0.9–1.1	1.3	1.1–1.5	1.0	0.7–1.3	1.0	0.9–1.2	0.9	0.8–1.0
Ferrara	1.2	1.0–1.3	1.6	1.3–2.0	1.3	0.9–1.9	1.9	0.9–1.3	1.0	0.9–1.2
Veneto	1.1	1.0–1.3	1.4	1.2–1.8	1.3	0.8–2.0	0.9	0.7–1.1	1.1	0.9–1.3

[a] Reference.
[b] Model: registry (crude IRR).
[c] Model: registry + age group.

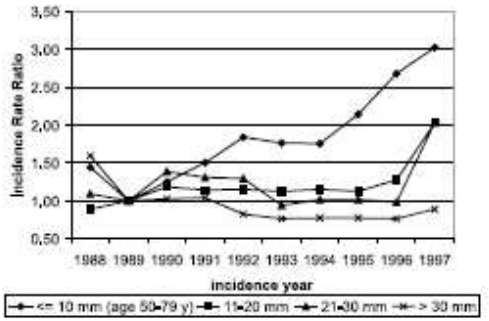

Fig. 1. Breast cancer incidence in seven Italian areas. Pre-screening period; women aged 40–79 years; cases stratified by cancer size.

Lo studio IMPATTO

Complessivamente il dataset IMPATTO comprende una casistica di 83.000 casi di k mammario, tra 1988-2006. Collaborazione Registri Tumori e Servizi di Screening

PROGETTO IMPATTO

Come cambia l'epidemiologia del tumore della mammella in Italia dopo l'avvio dei programmi di screening?

Obiettivi

La valutazione dell'impatto dello screening mammografico in termini di:

1) andamento dell'incidenza e della stadiazione
2) uso della chirurgia conservativa
3) riduzione della mortalità per tumore della mammella

Modalità diagnostica

Ciascun caso è stato classificato in base alla modalità diagnostica in una delle seguenti categorie:

1) cancro identificato al primo test di screening (SD)

2) cancro identificato ad un test di screening ripetuto (SD)

3) cancro in donne con almeno un test negativo (NSD)

4) cancro in donne mai rispondenti (NSD)

5) cancro in donne non ancora invitate (NSD)

Periodo di studio e numerosità della casistica

Region	Centre	Period of the study	Screening activation
Emilia Romagna	Bologna	1997 - 2001	1997
	Ferrara	1991 - 2001	1997
	Modena	1992 - 2001	1995
	Parma	1992 - 2001	1997
	Reggio Emilia	1997 - 2001	1994
	Romagna	1989 - 2001	1996
Piemonte	Torino	1988 - 2000	1992
Sicilia	Palermo	1999 - 2002	-
	Ragusa	1990 - 2001	1994
Toscana	Firenze	1990 - 2001	1990
Umbria	Perugia	1997 - 2001	1997
Veneto	Verona	1997 - 2001	1999

Le differenze geografiche in epoca di screening: incidenza, stadiazione e sopravvivenza

Donella Puliti

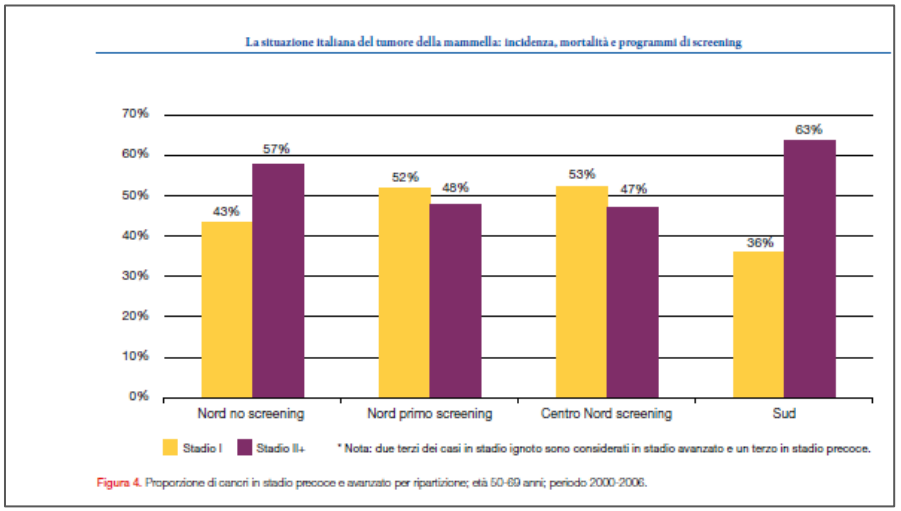

Figura 4. Proporzione di cancri in stadio precoce e avanzato per ripartizione; età 50-69 anni; periodo 2000-2006.

La proporzione di cancri in stadio avanzato risulta del 47-48% nelle aree di screening e del 57-63% nelle aree senza programmi di screening.

Nella fascia di età di screening si conferma il dato che nelle aree del Centro e Nord Italia, a parità di livelli di incidenza, la distribuzione per stadio e piuttosto diversa a seconda della presenza o meno dei programmi di screening. Di rilievo il fatto che nel Sud Italia, a fronte di livelli di incidenza sostanzialmente più bassi, si registra un livello di tassi avanzati praticamente uguale alle altre aree.

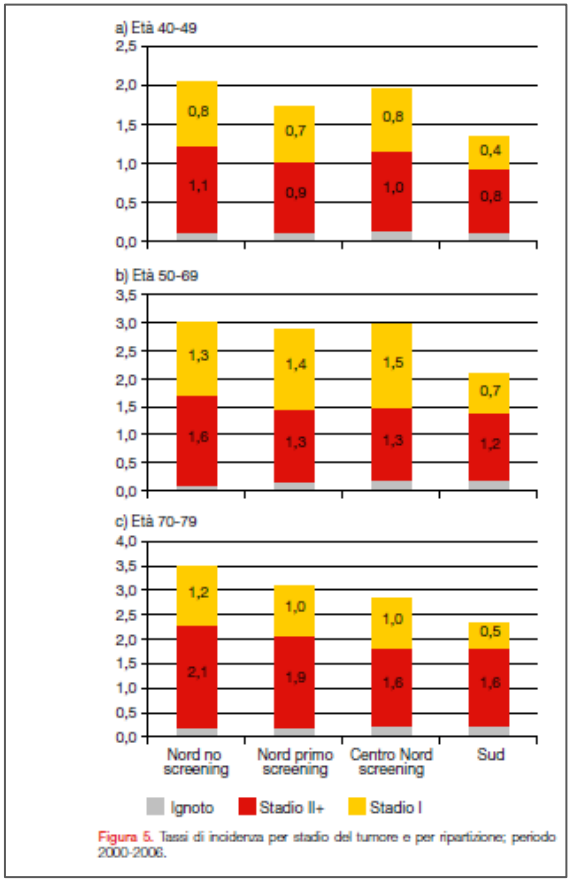

Figura 5. Tassi di incidenza per stadio del tumore e per ripartizione; periodo 2000-2006.

la riduzione di incidenza di stadi avanzati

Original Article

Decreasing Incidence of Late-Stage Breast Cancer After the Introduction of Organized Mammography Screening in Italy

Flavia Foca, BStat[1]; Silvia Mancini, BStat[1]; Lauro Bucchi, MD[1]; Donella Puliti, PhD[2]; Marco Zappa, MD[2]; Carlo Naldoni, MD[3]; Fabio Falcini, MD[1]; Maria L. Gambino, PhD[4]; Silvano Piffer, MD[5]; Maria E. Sanoja Gonzalez, PhD[6]; Fabrizio Stracci, MD, PhD[7]; Manuel Zorzi, MD[8]; Eugenio Paci, MD[2]; and the IMPACT Working Group

BACKGROUND: After the introduction of a mammography screening program, the incidence of late-stage breast cancer is expected to decrease. The objective of the current study was to evaluate variations in the total incidence of breast cancer and in the incidence of breast cancers with a pathologic tumor (pT) classification of pT2 through pT4 after the introduction of mammography screening in 6 Italian administrative regions. **METHODS:** The study area included 700 municipalities, with a total population of 692,824 women ages 55 to 74 years, that were targeted by organized mammography screening between 1991 and 2005. The year screening started at the municipal level (year 1) was identified. The years of screening were numbered from 1 to 8. The ratio of the observed 2-year, age-standardized (Europe) incidence rate to the expected rate (the incidence rate ratio [IRR]) was calculated. Expected rates were estimated assuming that the incidence of breast cancer was stable and was equivalent to that in the last 3 years before year 1. **RESULTS:** The study was based on a total of 14,447 incident breast cancers, including 4036 pT2 through pT4 breast cancers. The total IRR was 1.35 (95% confidence interval, 1.03-1.41) in years 1 and 2, 1.16 (95% confidence interval, 1.10-1.21) in years 3 and 4, 1.14 (95% confidence interval, 1.08-1.20) in years 5 and 6, and 1.14 (95% confidence interval, 1.08-1.21) in years 7 and 8. The IRR for pT2 through pT4 breast cancers was 0.97 (95% confidence interval, 0.90-1.04) in years 1 and 2, 0.81 (95% confidence interval, 0.75-0.88) in years 3 and 4, 0.79 (95% confidence interval, 0.73-0.87) in years 5 and 6, and 0.71 (95% confidence interval, 0.64-0.79) in years 7 and 8. **CONCLUSIONS:** A significant and stable decrease in the incidence of late-stage breast cancer was observed from the third year of screening onward, when the IRR varied between 0.81 and 0.71. *Cancer* 2013;119:2022-8. © *2013 American Cancer Society.*

KEYWORDS: breast cancer, incidence, mammography, screening, tumor stage.

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Stefano Gatto died on May 4, 2012. He contributed greatly to the development of screening programs in Italy. This paper is dedicated to his memory.

The membership of the IMPACT Working Group is as follows: E. Paci, D. Puliti, M. Zappa, G. Miccinesi, P. Falini, E. Crocetti, and G. Manneschi (Cancer Prevention and Research Institute, Florence); N. Segnan, A. Ponti, L. Giordano, C. Senore, A. Frigerio, S. Pitarella, and M. P. Mano (Piemonte Center for Cancer Epidemiology and Prevention, San Giovanni Battista University Hospital Center, Torino); R. Zanetti, S. Patriarca, and S. Rosso (Piemonte Tumor Registry, Piemonte Center for Cancer Epidemiology and Prevention, San Giovanni Battista University Hospital Center, Torino); A. Sapino (San Giovanni Battista University Hospital Center, Torino); S. Pisani, M. L. Gambino, and L. Balconi (Epidemiological Observatory, Local Health Authority, Varese); P. Contiero, G. Tagliabue, and L. Preto (Tumor Registry and Environmental Epidemiology, Institute for Cancer Research and Treatment, National Tumor Institute, Milano); R. Tessandori, M. L. Annulli, S. Maspero, E. Moroni, and M. E. Sanoja Gonzalez (Epidemiological Observatory, Local Health Authority, Sondrio); S. Piffer, S. Franchini, M. A. Gentilini, M. Cappelletti, and L. Battisti (Epidemiological Observatory, Provincial Healthcare Trust, Trento); M. Pellegrini (Screening Mammography, Provincial Healthcare Trust, Trento); E. Galligioni (Medical Oncology Unit, Santa Chiara Hospital, Trento); M. Zorzi, S. Baracco, C. Fedato, S. Guzzinati, A. R. Fiore, M. Baracco, A. Dal Cin, D. Monetti, A. Rossano, and S. Ciatto (Tumor Registry, Veneto Oncology Institute, Institute for Cancer Research and Treatment, Padova); A. Molino (University of Verona, Verona); F. Caumo (Local Public Health Authority 20, Verona); M. Pieno and M. Bovo (Local Public Health Authority 9, Treviso); L. Gallo and A. Stomeo (Local Public Health Authority 18, Rovigo); D. Serraino, L. Dal Maso, M. de Dottori, A. De Paoli, A. Zucchetto, O. Forgiarini, E. De Santis, and L. Zanier (Department of Epidemiology and Biostatistics, Institute for Cancer Research and Treatment, Oncology Referral Center, Aviano); C. Naldoni, A. Finarelli, and P. Sassoli (Emilia-Romagna Region, Bologna); N. Collina, C. Petrucci, and V. Perlangeli (Breast Cancer Registry, Local Public Health Unit, Bologna); A. Pasquini, P. Baldazzi, M. Manfredi, and G. Saguatti (Breast Screening, Local Public Health Unit, Bologna); S. Ferretti (Ferrara Cancer Registry, Ferrara); G. P. Bazaldi and G. Benea (Breast Screening, Local Public Health Unit, Ferrara); M. Federico and C. Cirilli (Modena Cancer Registry, Modena); E. Gallo and R. Negri (Breast Screening, Local Public Health Unit, Modena); V. De Lisi, P. Sgargi, and M. Michiara (Parma Cancer Registry, Parma); G. M. Conti (Breast Screening, Local Public Health Unit, Parma); L. Mangone and N. Bonciani (Reggio Emilia Cancer Registry, Reggio Emilia); C. A. Mori, A. Cattani, L. Paterlini, and C. Campari (Breast Screening, Local Public Health Unit, Reggio Emilia); F. Falcini, A. Ravaioli, and R. Vattiato (Romagna Cancer Institute, Institute for Cancer Research and Treatment, Meldola); M. Serafini, B. Vitali, and P. Biavetti (Breast Screening, Local Public Health Unit, Ravenna); D. Caruti, C. Fabbri, and G. Monticelli (Breast Screening, Local Public Health Unit, Rimini); C. Imolesi, M. Palazzi, N. Bertozzi, and M. Faedi (Breast Screening, Local Public Health Unit, Cesena); F. Stocco and F. La Rosa (Umbria Tumor Registry, Perugia); M. Petrella and I. Fusco Moffa (Epidemiology Unit, Local Health Unit 2, Perugia); M. Fusco (Campania Regional Tumor Registry, Local Health Unit NA4, Napoli); C. Maione (Maternity-Infant Service, Local Health Unit NA4, Napoli); M. Castaing, G. Benedetto, M. Fidelbo, G. Sciacchitano, E. Vasquez, S. Cordio, and S. Sciacca (University of Catania, Integrated Tumor Registry of Catania, Messina, Siracusa, and Enna); A. Traina and M. Zarcone (Department of Oncology, ARNAS Ascoli Civic Hospital, Palermo); A. Sigona and R. Tumino (Unit of Anatomic Pathology, Local Health Unit 7, Ragusa); C. Iacono and G. La Rosa (Oncology Unit, Local Health Unit 7, Ragusa); A. Madeddu, M. L. Contrino, and F. Tisano (Integrated Tumor Registry of Catania, Messina, Siracusa, and Enna; Siracusa Section, Siracusa); and P. Candela and T. Scuderi (Department of Prevention, Local Public Health Unit, Trapani).

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KEYWORDS: breast cancer, incidence, mammography, screening, tumor stage.

Original Article

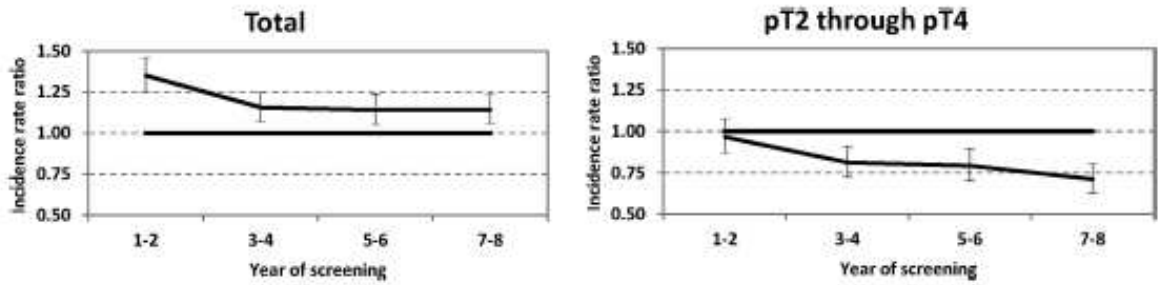
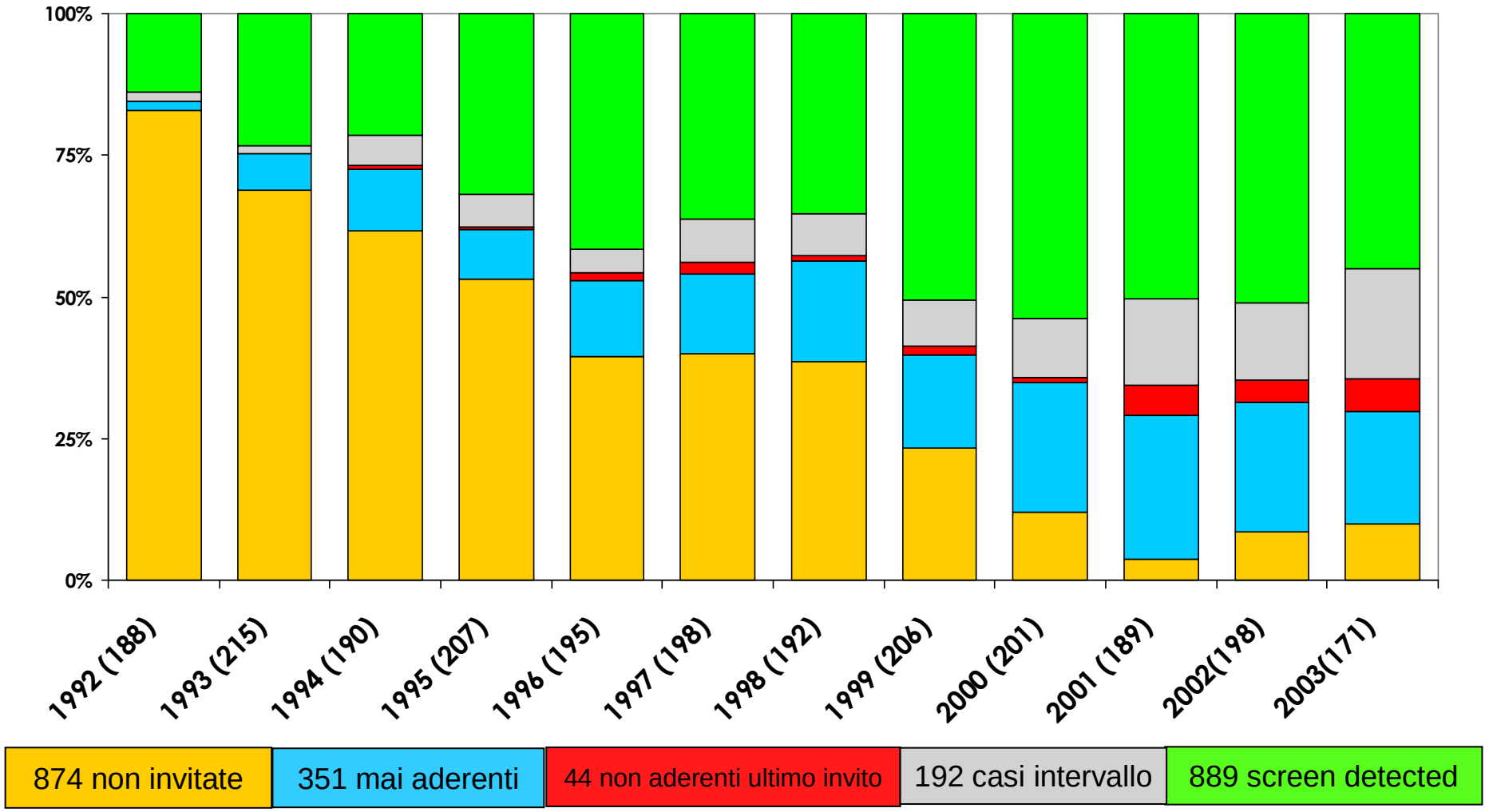


Figure 2. Ratios with 95% confidence intervals are illustrated between the observed and expected age-standardized (Europe) incidence rates of breast cancer per 100,000 women according to 2-year screening period (ages 55 to 74 years). pT indicates pathologic tumor classification.

Impatto dello screening

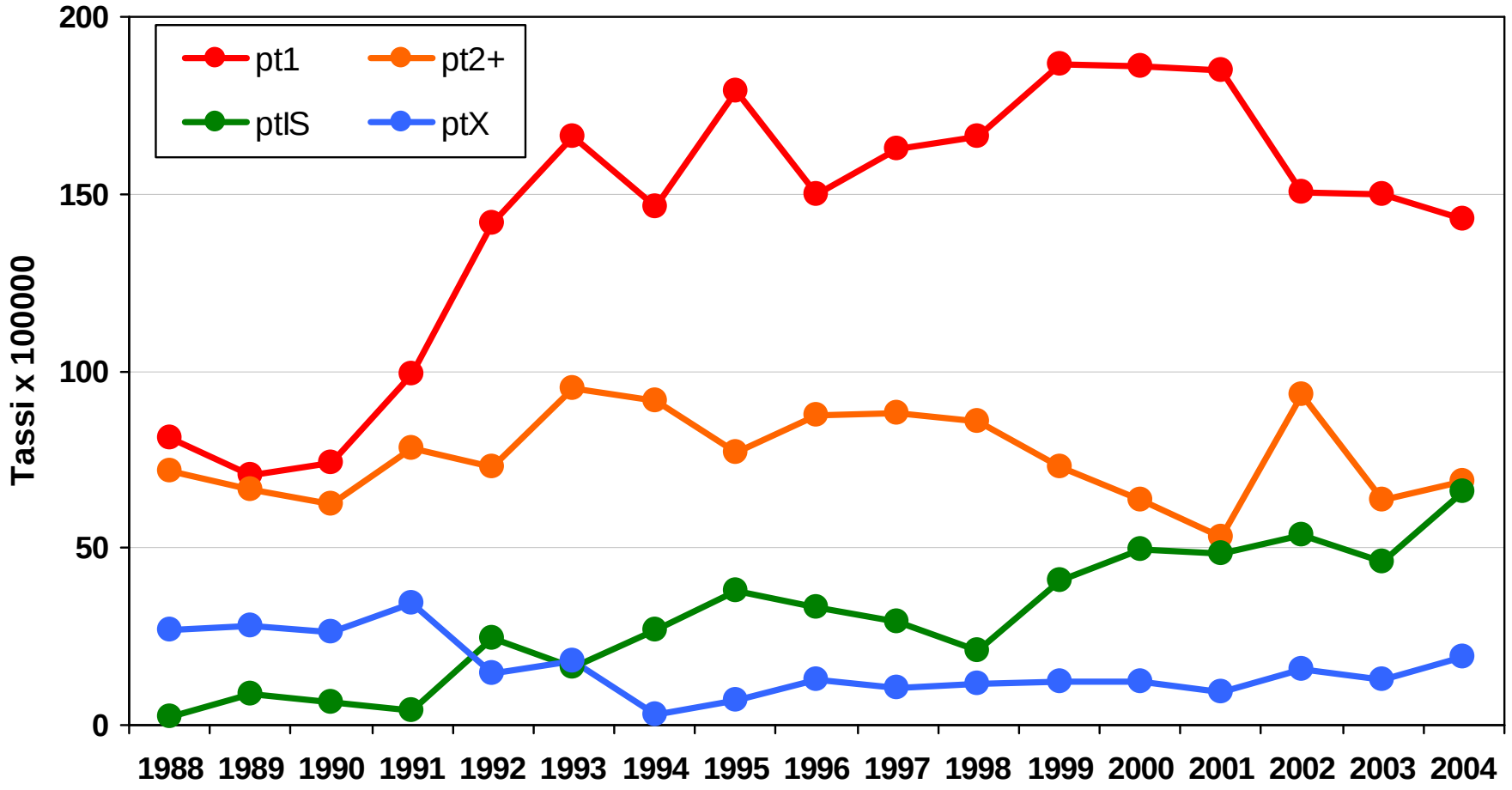
Cancri incidenti a Torino (registro tumori)

Donne 50-59 anni in cinque categorie per storia di screening 1992-2003



Impatto dello screening

Trend tassi di incidenza a Torino per PT (età 50-59)



1988-2004

L'aumento di sopravvivenza

ELSEVIER

European Journal of Cancer 41 (2005) 2728–2734

European Journal of Cancer

www.ejconline.com

Early diagnosis, not differential treatment, explains better survival in service screening

Eugenio Paci [a,*], Antonio Ponti [b], Marco Zappa [a], Silvia Patriarca [c], Patrizia Falini [a], Gabriella Delmastro [b], Simonetta Bianchi [d], Anna Sapino [e], Vania Vezzosi [d], Carlo Senore [b], Emanuele Crocetti [a], Alfonso Frigerio [f], Roberto Zanetti [c], Marco Rosselli del Turco [g], Nereo Segnan [b]

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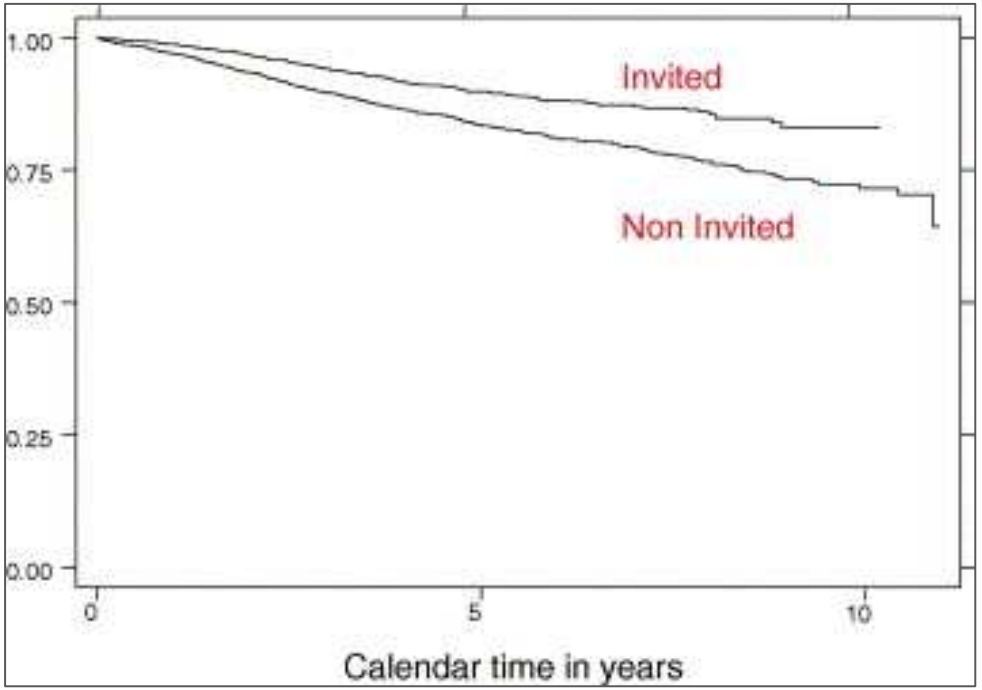
Available online 18 October 2005

Abstract

Italian population-based breast cancer screening programmes with 2-year, high-quality mammography started in the cities of Florence and Turin in the early 1990s. Breast cancer cases from the local Tumour Registry were classified by method of detection and tumour characteristics (size, nodal-status and grade). Follow-up was at December 2001.

In total, 4444 breast cancer cases were analysed. The Hazard Ratio comparing before and after-invitation breast cancer cases indicated a 27% reduction (HR = 0.73; 95%CI: 0.61–0.87) in the risk of dying for the disease. After adjustment for tumour characteristics, survival rate was comparable by invitation status, whereas the proportion of early cancer was 33.7% and 46.6% in the before and after-invitation group. Survival rates by tumour characteristic subgroups was comparable by invitation status. Late stage and grade 3 were indicators of poor prognosis. Adjustment for tumour characteristics confirmed screening and not differential treatment as the most important reason for the observed survival benefit. The survival analysis by specific subgroups did not support the hypothesis that the difference in prognosis was attributable to differential treatment.

Keywords: Mammography screening; Breast cancer care; Breast cancer treatment; Survival rate; Breast cancer mortality



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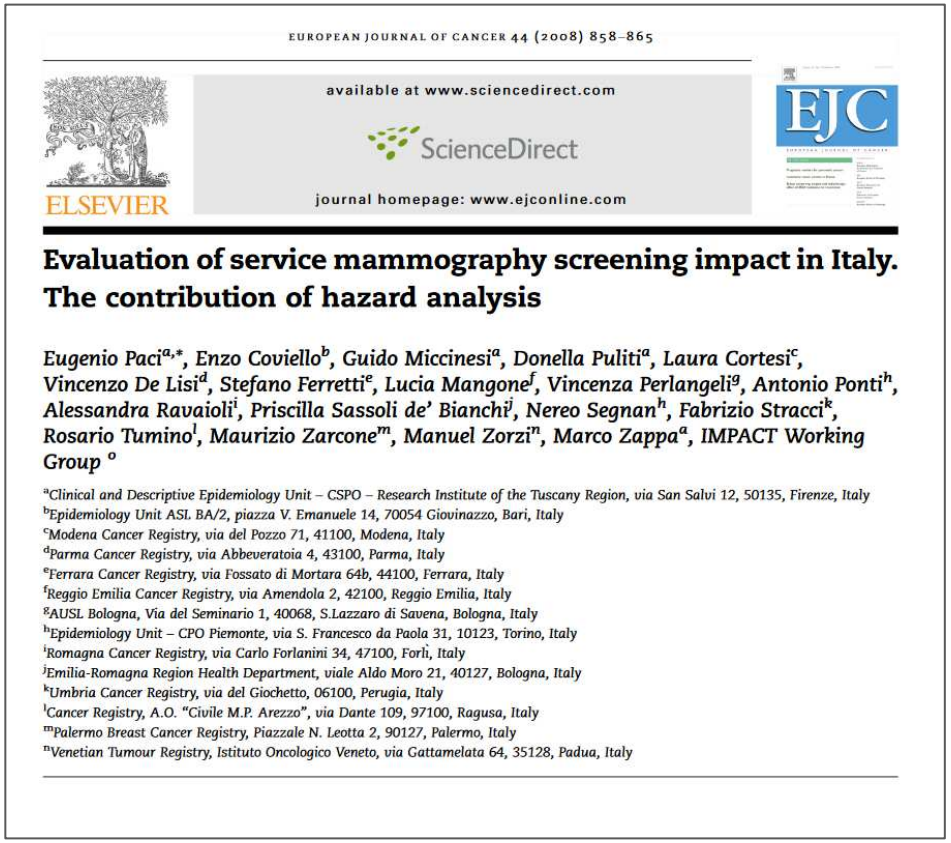

EUROPEAN JOURNAL OF CANCER 44 (2008) 858–865

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EJC

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

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

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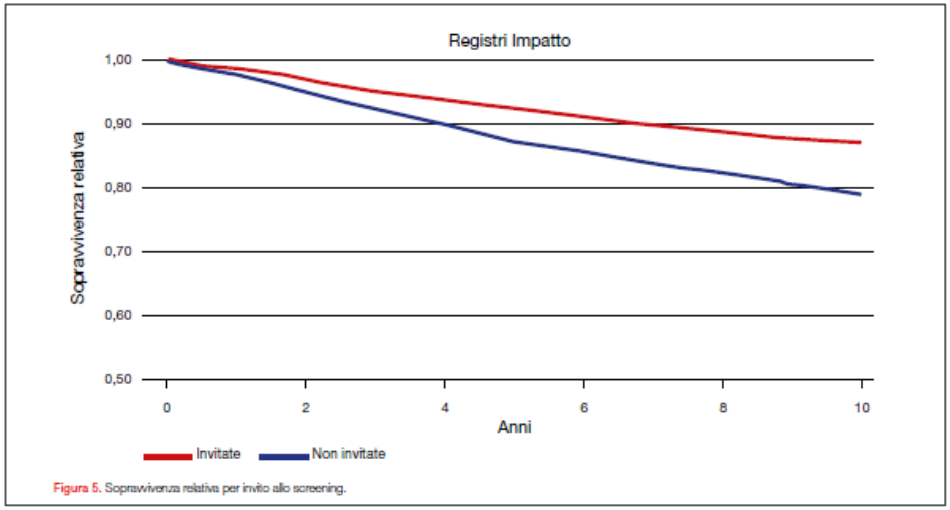

Figura 5. Sopravvivenza relativa per invito allo screening.

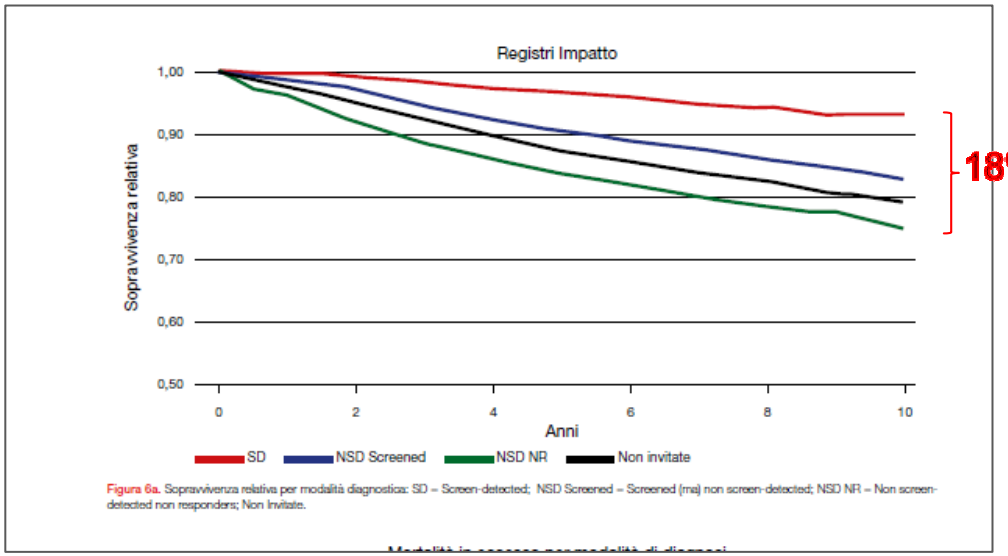

Figura 6a. Sopravvivenza relativa per modalità diagnostica: SD = Screen-detected; NSD Screened = Screened (ma) non screen-detected; NSD NR = Non screen-detected non responders; Non Invitate.

La riduzione dei tassi di mastectomie

British Journal of Cancer (2006) 00, 000–000

www.bjcancer.com

Short Communication

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

M Zorzi[1], D Puliti[2], M Vettorazzi[1], V De Lisi[3], F Falcini[4], M Federico[5], S Ferretti[6], IF Moffa[7], L Mangone[8], MP Mano[9], C Naldoni[10], A Ponti[11], A Traina[12], R Tumino[13] and E Paci[*,2], for the IMPACT Working Group[14]

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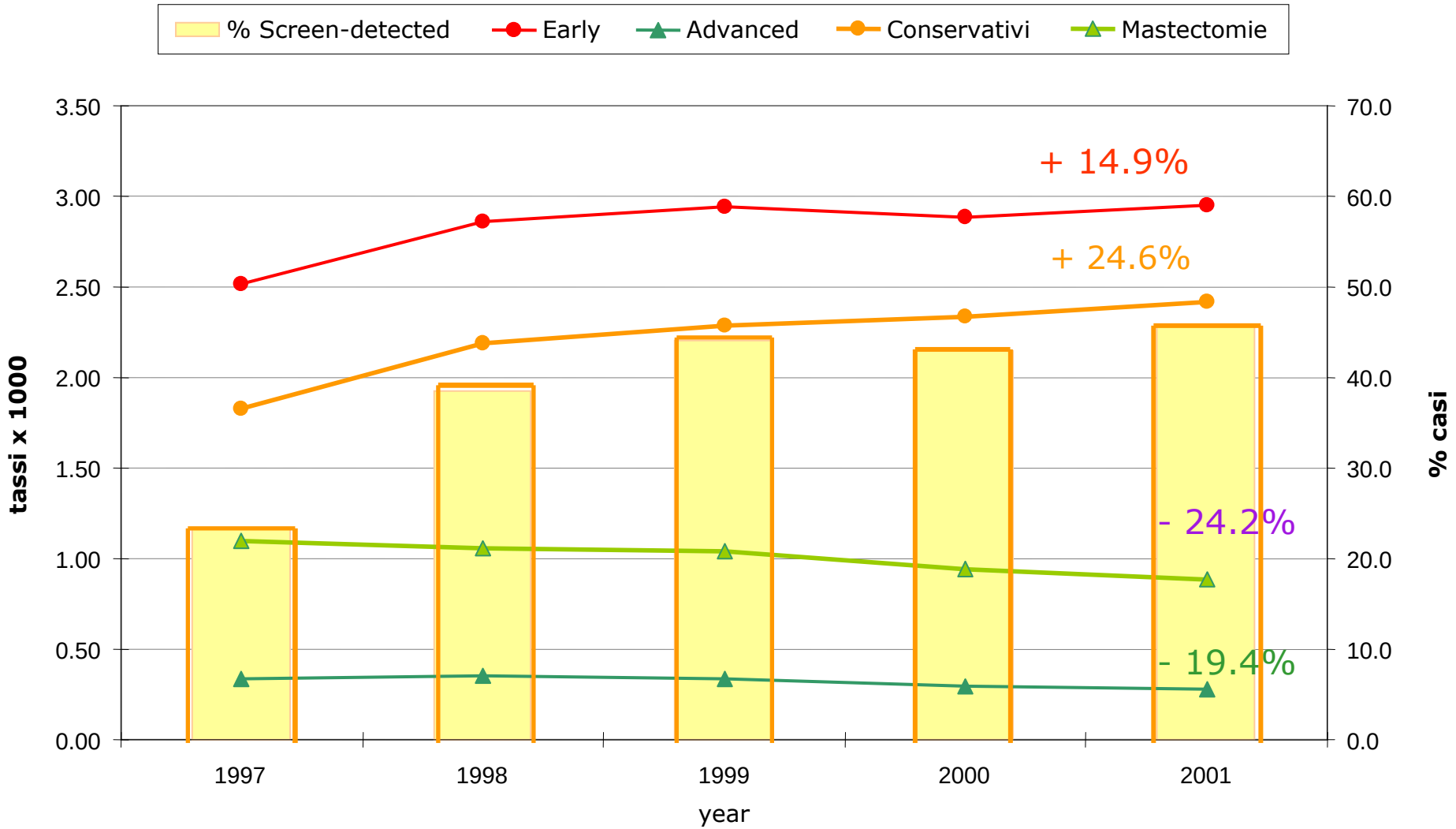
Table 1 Study centres and breast cancer cases included, by regional area

Region	Centre	Screening activation	Cases (no.)		
			In situ	Invasive	Total
Emilia Romagna	Bologna City	June 1997	141	1819	1960
	Bologna North	November 1997	97	665	762
	Cesena	December 1997	63	605	668
	Ferrara	October 1997	109	1462	1571
	Forlì	March 1996	91	635	726
	Modena	October 1995	319	2281	2600
	Parma	July 1997	199	1514	1713
	Ravenna	December 1995	177	1401	1578
	Reggio Emilia	November 1994	184	1557	1741
	Rimini	November 1997	60	883	943
Piemonte	Torino	February 1992	170	1642	1812
Sicilia	Palermo	—	56	1443	1499
	Ragusa	February 1994	15	582	597
Toscana	Florence City	October 1990	109	1467	1576
	Florence suburbs	May 1992	56	641	697
Umbria	Perugia	November 1997	87	1041	1128
Veneto	Verona	July 1999	229	1510	1739
Total			2162	21 148	23 310

Proporzione di SD e trends dei tassi di incidenza e di trattamento chirurgico. Donne 50-69 anni.



Stima della sovradiagnosi

Breast Cancer Research Vol 8 No 6 Paci *et al.*

Available online http://breast-cancer-research.com/content/8/6/R68

Research article

Highly accessed

Open Access

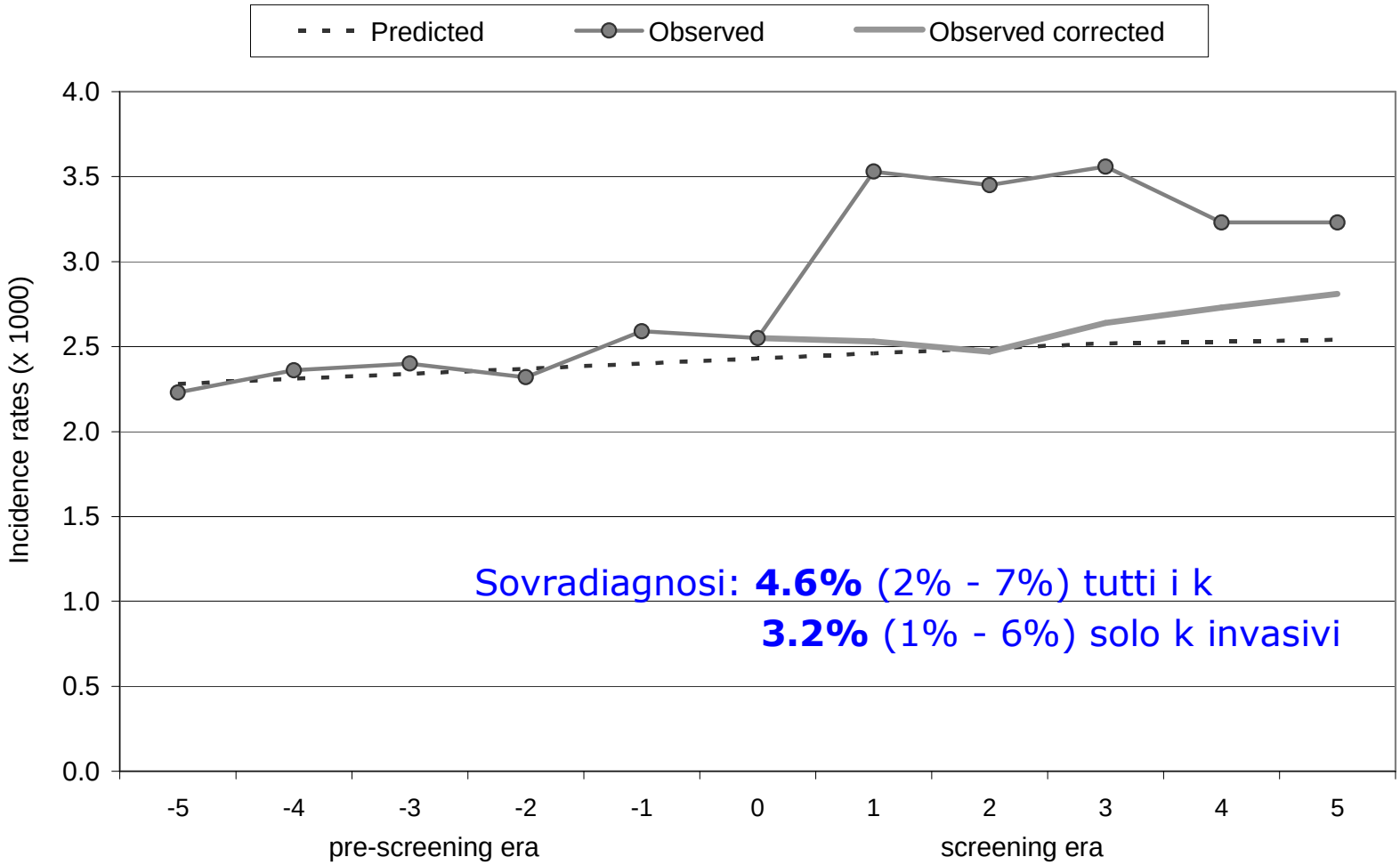
Estimate of overdiagnosis of breast cancer due to mammography after adjustment for lead time. A service screening study in Italy

Eugenio Paci[1], Guido Miccinesi[1], Donella Puliti[1], Paola Baldazzi[2], Vincenzo De Lisi[3], Fabio Falcini[4], Claudia Cirilli[5], Stefano Ferretti[6], Lucia Mangone[7], Alba Carola Finarelli[8], Stefano Rosso[9], Nereo Segnan[10], Fabrizio Stracci[11], Adele Traina[12], Rosario Tumino[13] and Manuel Zorzi[14]

Correzione per lead time: abbiamo posposto la data di incidenza dei casi screen-detected secondo la distribuzione attesa del lead time.

Gli osservati corretti per lead-time sono stati confrontati con gli attesi stimati sulla base del trend di incidenza del periodo pre-screening.

Tassi di incidenza (50-74) attesi, osservati e osservati corretti



I tumori intervallo

- **Definizione**

  Si intende per CI, sulla base delle Linee Guida Europee , un carcinoma successivo ad un processo di screening negativo e comparso prima del passaggio di screening successivo. In accordo con le suddette linee guida UE, la dizione di CI spetta sia alle forme invasive che a quelle in situ. Pur essendo i carcinomi in situ in parte lesioni non evolutive (sovradiagnosi) o a lenta evoluzione in invasivo (quindi di probabile diagnosi precoce anche allo screening successivo), una minoranza di essi (forme poco differenziate) hanno un rischio elevato di evoluzione rapida in forme invasive altrettanto aggressive, e l'efficacia dello screening dipende anche dalla diagnosi di queste lesioni.

- - per l'identificazione dei CI non diagnosticati al centro di screening l'ideale è disporre di un **registro tumori**, che è lo strumento deputato a rilevare l'incidenza, e tende a ignorare solo i casi (molto pochi, in genere) diagnosticati al di fuori del SSN.
- - un surrogato può essere la creazione di un **registro di patologia** (monitorando i servizi di anatomia patologica dell'area) in considerazione che è molto raro che un CM non abbia almeno una diagnosi istologica. Un simile strumento, però, tende a ignorare i casi che vengono diagnosticati e trattati al di fuori dell'area di riferimento.
- - molto utile è la consultazione delle **schede di dimissione ospedaliera (SDO)** che coprono il territorio regionale e, in via differita, registrano anche i ricoveri dei propri residenti in altre regioni

I tumori intervallo

Available online at www.sciencedirect.com
ScienceDirect
The Breast 17 (2008) 477–483
THE BREAST
www.elsevier.com/locate/breast

Original article

Breast screening: Axillary lymph node status of interval cancers by interval year

Lauro Bucchi [a,*], Donella Puliti [b], Alessandra Ravaioli [a], Laura Cortesi [c], Vincenzo De Lisi [d], Fabio Falcini [a], Stefano Ferretti [e], Alfonso Frigerio [f], Lucia Mangone [g], Marco Petrella [h], Chiara Petrucci [i], Priscilla Sassoli de Bianchi [j], Adele Traina [k], Rosario Tumino [l], Roberto Zanetti [m], Manuel Zorzi [n], Eugenio Paci [b]

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I tumori intervallo

Table 2
Characteristics of screen-detected cancers and interval cancers ($n = 2002$)

	SD cancers	Interval cancers by interval month			p
	($n = 1211$)	1–12 ($n = 273$)	13–18 ($n = 265$)	19–24 ($n = 253$)	
Median patient age (years)	62	59	58	60	0.000[a]
Number of previous negative mammographies (%)					0.014
1	70.9	67.0	69.1	73.5	
2	17.3	25.3	19.2	16.2	
3	9.0	3.3	8.7	7.1	
4–5	2.9	4.4	3.0	3.2	
Tumour grade (%)[b]					0.000
1	27.4	14.5	17.3	17.5	
2	50.3	47.5	45.5	42.9	
3	22.3	38.0	37.3	39.6	
Unknown	10.2	11.4	17.0	14.2	
Tumour size (%)[c]					0.000
2–7 mm	17.0	5.1	6.8	6.7	
8–12 mm	32.9	18.7	23.4	19.8	
13–17 mm	24.5	27.5	26.0	21.7	
18–22 mm	14.6	19.4	21.1	24.1	
23–27 mm	4.5	11.0	9.4	9.9	
≥28 mm	6.4	18.3	13.2	17.8	
Histologic type (%)					0.10
Ductal	76.9	73.3	72.1	74.3	
Lobular	15.8	21.6	21.9	18.2	
Tubular	2.9	1.1	1.1	2.0	
Other	4.5	4.0	4.9	5.5	
Sentinel lymph node biopsy (%)	27.0	13.6	17.4	19.8	0.000
Positive lymph nodes (%)	27.7	37.7	42.3	44.3	0.000

SD: screen-detected cancers.
[a] For the Kruskal–Wallis test. All other p values are for the Pearson χ^2 test.
[b] The percents of grade 1–3 cancers were calculated excluding those cancers with grade unknown.
[c] Criteria for categorisation are given in the Methods section.

- I cancri d'intervallo avevano più spesso metastasi linfonodali, specialmente nel secondo anno. Essi erano associati a donne più giovani e avevano un diametro maggiore, un grado più alto, e una prevalenza leggermente più alta di carcinomi lobulari.

I tumori intervallo

- L'OR grezzo (modello base) indica che il rischio era più alto di circa il 60% per i cancri d'intervallo del primo anno e di oltre il 100% per quelli del secondo.
- *L'OR aggiustato per le caratteristiche demografiche e la tecnica di stadiazione linfonodale era 1,41 (IC 95% 1,06-1,87), 1,74 (1,31-2,31) e 1,91 (1,43-2,54), rispettivamente.*
- *Il tipo istologico, il grado tumorale, e il diametro tumorale sono stati inseriti a turno nel modello. Il tipo istologico ha avuto effetti limitati.*
- *Dopo aggiustamento per il grado, gli OR sono diminuiti a 1,23 (0,92-1,65), 1,58 (1,18-2,12) e 1,73 (1,29-2,32). Una riduzione più ampia e stata osservata dopo aggiustamento per il diametro, con degli OR di 0,95 (0,70-1,29), 1,34 (0,99-1,81) e 1,37 (1,01-1,85).*
- *L'effetto dell'aggiustamento per il diametro ha suggerito che l'eccesso di rischio di interessamento linfonodale per i cancri del primo anno d'intervallo è solo il risultato della loro più alta età cronologica. Viceversa, l'aumentata aggressività dei cancri d'intervallo del secondo anno è parzialmente indipendente da questa, e riflette caratteristiche biologiche intrinseche.*

Table 3
Odds ratio (and 95% confidence interval) for interval cancers versus the screen-detected cancers having positive lymph nodes, by interval month ($n = 2002$)

Model	Variables in the model	Interval month		
		1–12	13–18	19–24
Basic	Detection mode	1.58 (1.20–2.09)	1.91 (1.45–2.52)	2.08 (1.57–2.74)
1	Basic model + health area + time period of diagnosis	1.61 (1.21–2.12)	1.96 (1.49–2.59)	2.06 (1.55–2.72)
2	Model 1 + pN staging technique	1.48 (1.12–1.96)	1.84 (1.39–2.44)	1.95 (1.47–2.59)
3	Model 2 + patient age at diagnosis	1.41 (1.06–1.87)	1.74 (1.31–2.31)	1.91 (1.43–2.54)
4	Model 3 + histologic type	1.35 (1.01–1.81)	1.70 (1.27–2.26)	1.94 (1.45–2.59)
5	Model 3 + tumour grade	1.23 (0.92–1.65)	1.58 (1.18–2.12)	1.73 (1.29–2.32)
6	Model 3 + tumour size	0.95 (0.70–1.29)	1.34 (0.99–1.81)	1.37 (1.01–1.85)
7	Model 3 + tumour grade + tumour size	0.91 (0.67–1.24)	1.33 (0.98–1.80)	1.35 (0.99–1.84)
8	Model 3 + histologic type + tumour grade + tumour size	0.90 (0.66–1.22)	1.33 (0.98–1.81)	1.39 (1.02–1.89)

Odds ratios were estimated using binary logistic regression analysis (forward stepwise method).

la riduzione di mortalità

British Journal of Cancer (2008) 99, 423–427

www.bjcancer.com

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

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The aim of this study was the evaluation of the impact of service screening programmes on breast cancer mortality in five regions of Italy. We conducted a matched case–control study with four controls for each case. Cases were defined as breast cancer deaths occurred not later than 31 December 2002. Controls were sampled from the local municipality list and matched by date of birth. Screening histories were assessed by the local, computerised, screening database and subjects were classified as either invited or not-yet-invited and as either screened or unscreened. There were a total of 1750 breast cancer deaths within the 50 to 74-year-old breast cancer cases and a total of 7000 controls. The logistic conditional estimate of the cumulative odds ratios comparing invited with not-yet-invited women was 0.75 (95% CI: 0.62–0.92). Restricting the analyses to invited women, the odds ratio of screened to never-respondent women corrected for self-selection bias was 0.55 (95% CI: 0.36–0.85). The introduction of breast cancer screening programmes in Italy is associated with a reduction in breast cancer mortality attributable to the additional impact of service screening over and above the background access to mammography.

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Keywords: breast cancer; case–control study; service screening

Clinical Studies

Table 1: Patient characteristics, screening history by case–control status

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

		Cases	Controls
Region, N (%)	Screening activation		
Emilia-Romagna	1995	784 (44.8)	3136 (44.8)
Piedmont	1992	418 (23.9)	1672 (23.9)
Tuscany	1990	454 (25.9)	1816 (25.9)
Umbria	1997	42 (2.4)	168 (2.4)
Veneto	1999	52 (3.0)	208 (3.0)
Mean (range) age at diagnosis or pseudodiagnosis		62.3 (50–74)	62.2 (49–75)
Invitation status, N (%)			
Not-yet-invited		1093 (62.5)	4228 (60.4)
Invited		657 (37.5)	2772 (39.6)
Number of screening visits among invited, N (%)			
0		360 (54.8)	1054 (38.0)
1		212 (32.3)	1123 (40.5)
2		52 (7.9)	397 (14.3)
3+		33 (5.0)	198 (7.1)
Mean (range) age at first screening		59.2 (50–71)	60.0 (49–71)
Mode of detection, N (%)			
Screen-detected		181 (10.3)	
Not screen-detected with at least 1 screening test		116 (6.6)	
Never respondent		360 (20.6)	
Not-yet-invited		1093 (62.5)	
TNM stage, N (%)			
Early (stage 0–I)		173 (9.9)	
Advanced (stage II+)		1301 (74.3)	
Unknown		276 (15.8)	
Mean (range) age at death		65.2 (50–85)	

Table 2: The odds ratios for risk of breast cancer death by screening history

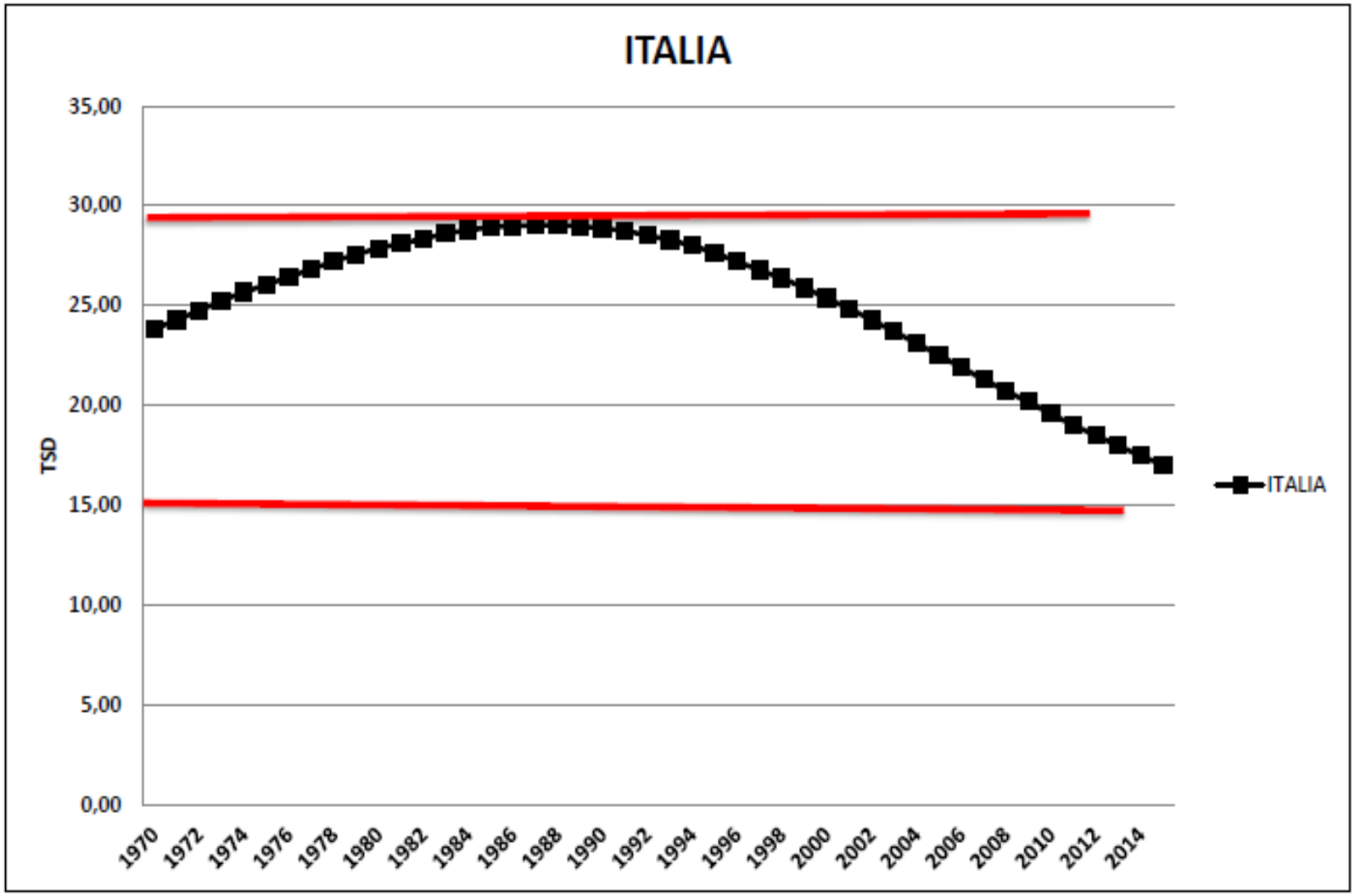
From: Effectiveness of service screening: a case–control study to assess breast cancer mortality reduction

	No of cases/ controls	Odds ratio (95% CI)
Analysis by allocation		
Not-yet-invited	1093/4228	1
Invited[a]	657/2772	0.75 (0.62–0.92)
Analysis by screening status		
Unscreened[b]	1453/5282	1
Screened	297/1718	0.50 (0.42–0.60)
Analysis by screening status among invited women only		
Never respondent	360/761	1
Screened	297/1307	0.46 (0.38–0.56)
Screened (self-selection corrected)		0.55 (0.36–0.85)

[a]Screened+never-respondent.

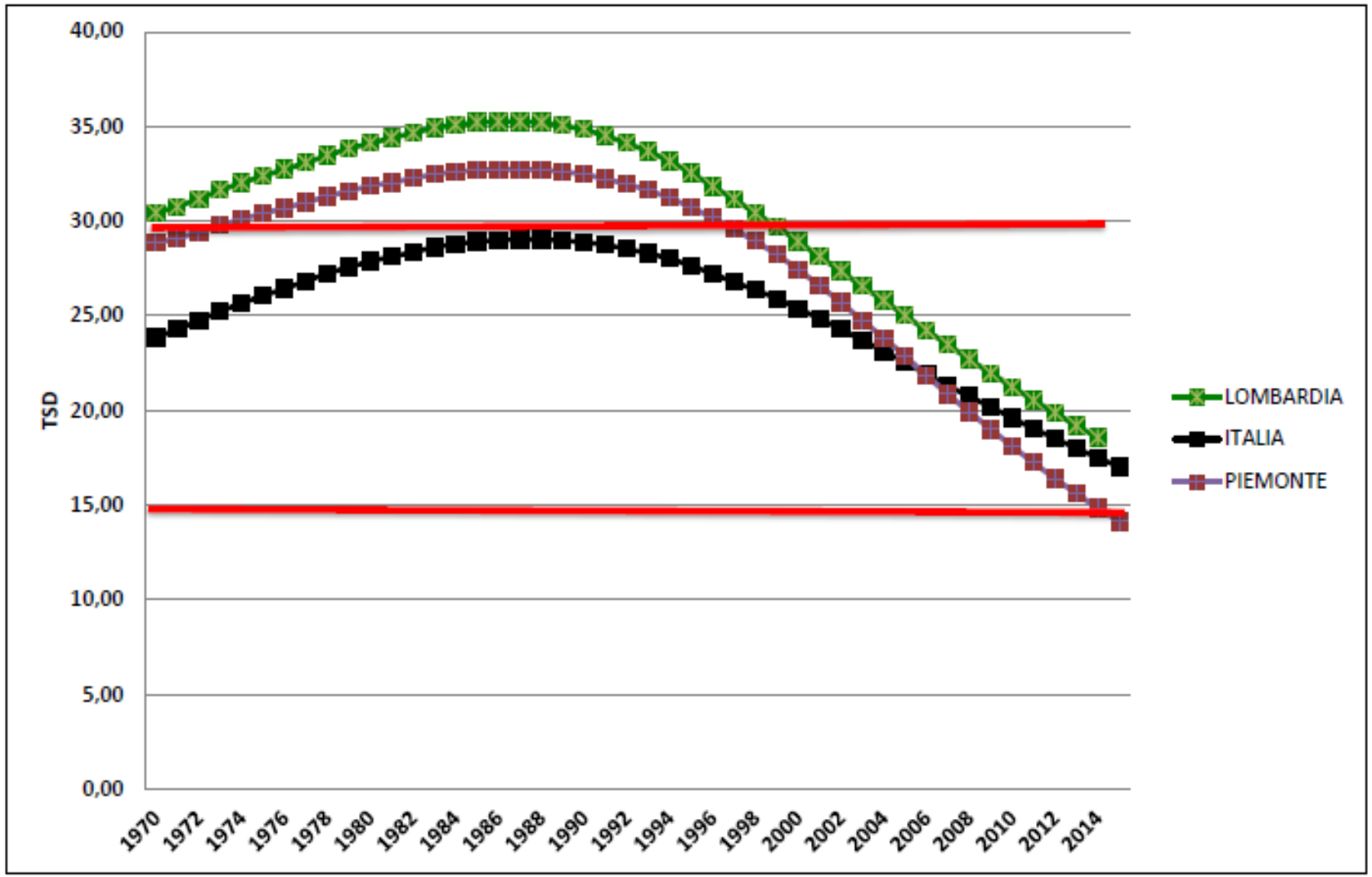
[b]Never-respondent+not-yet-invited.

Mortalità per Tumore della mammella (C50)
Età 0-99, Standardizzazione Pop. Europea, x 100.000



Elaborazione da Tumori.net. Ottobre 2015

Mortalità per Tumore della mammella (C50)
Età 0-99, Standardizzazione Pop. Europea, x 100.000



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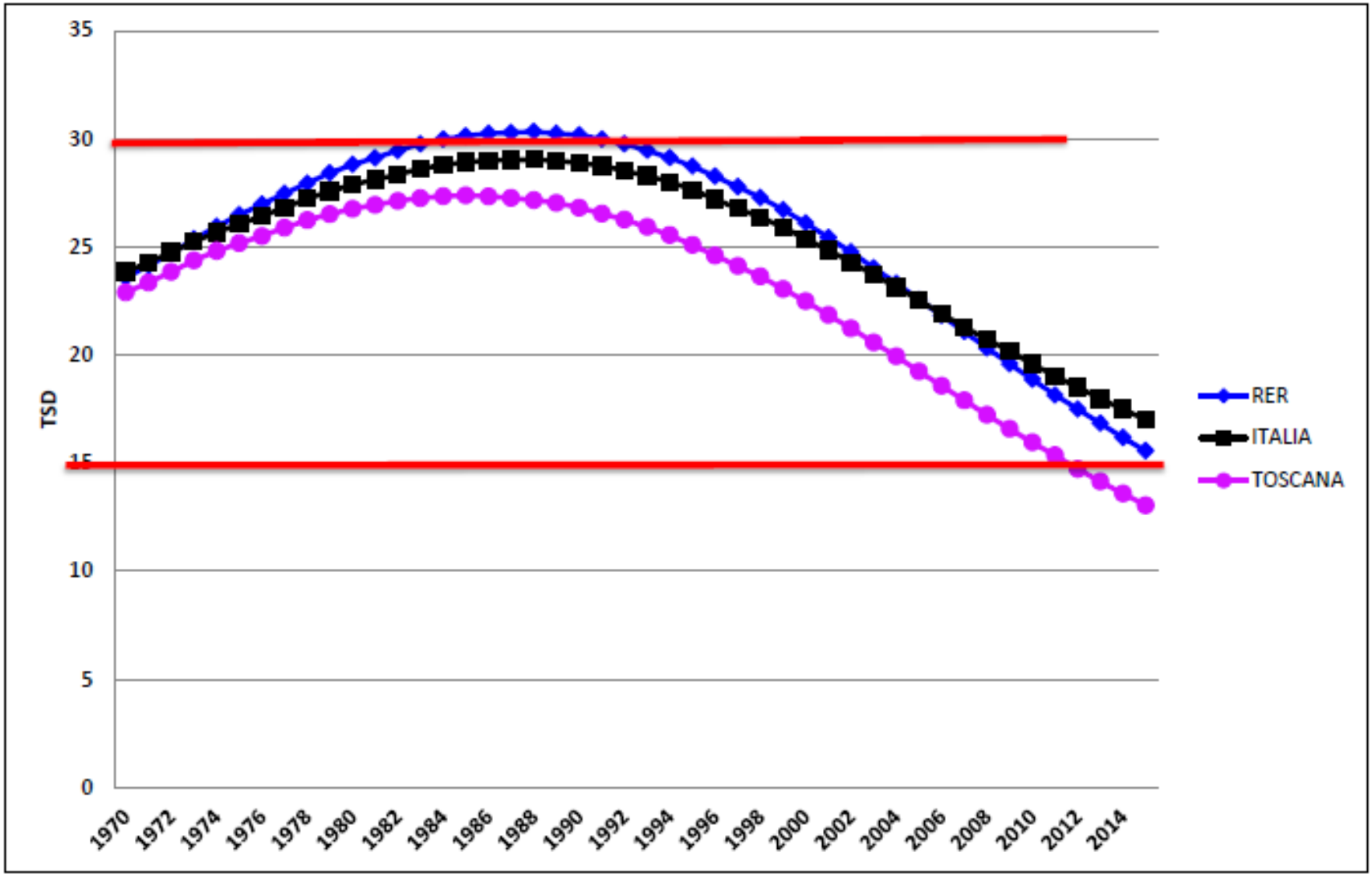

Elaborazione da Tumori.net, Ottobre 2015

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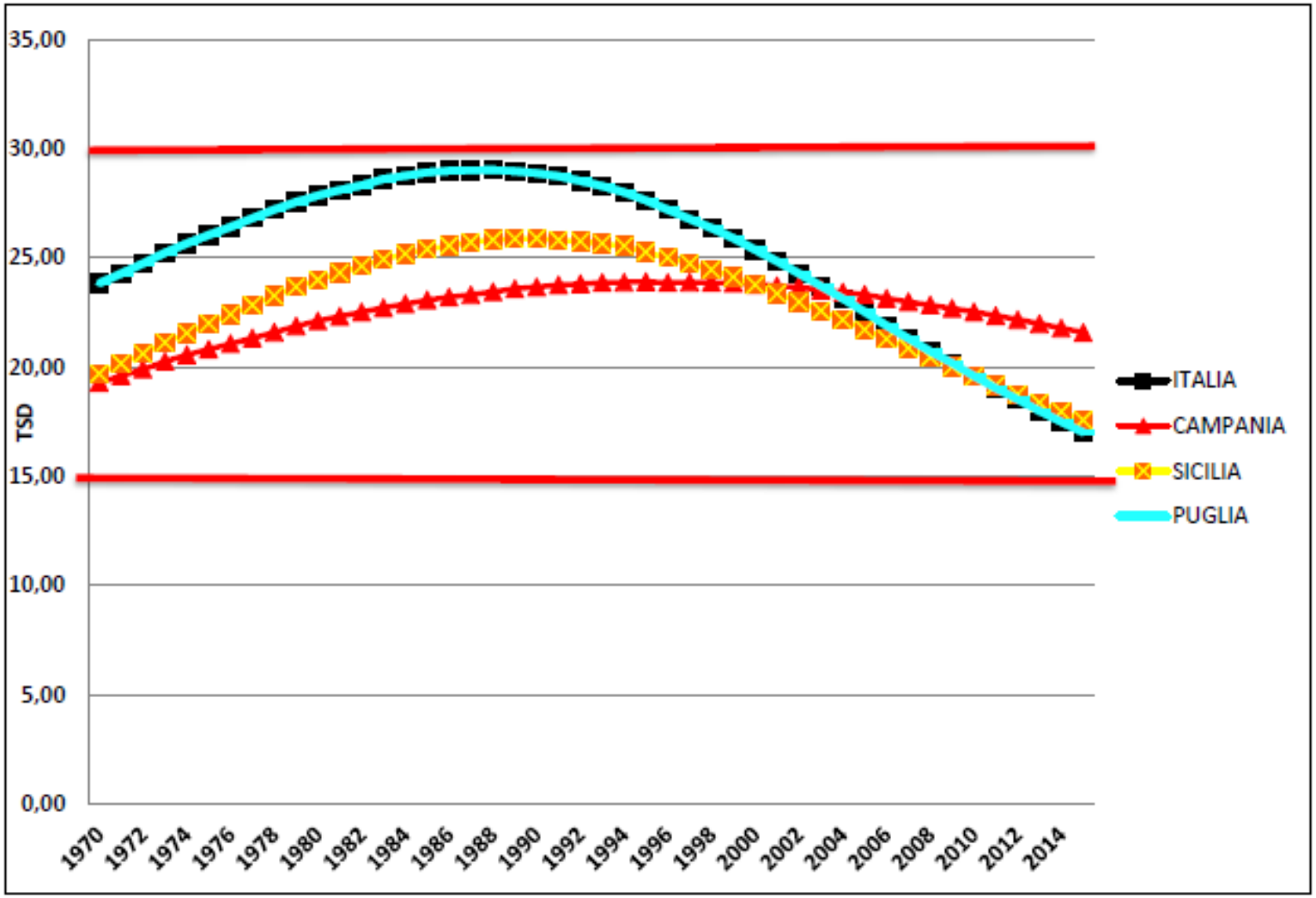


Elaborazione da Tumori.net, Ottobre 2015

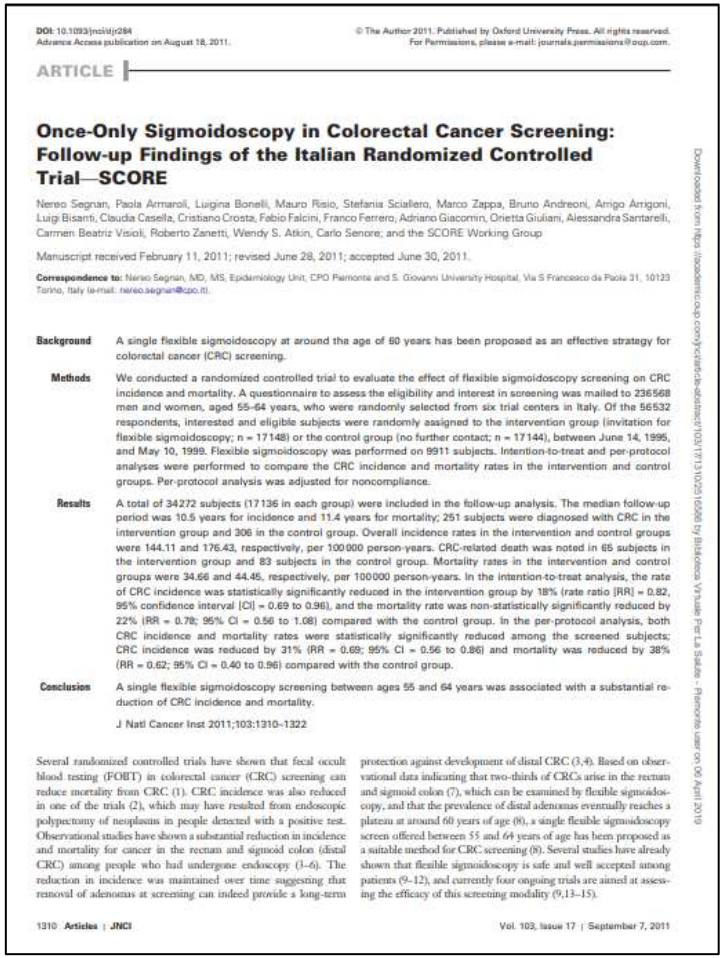
I test di screening offerti da Prevenzione Serena

Tumore del colon retto

- **Test:** FIT/FS
- **Popolazione target**
  ♀♂ FS: 58 anni
- ♀♂ FIT: 59-69 anni
- Periodismo:
  FIT:2 anni
  FS: una tantum

Study design

A 10-year follow-up study of a multicenter randomized controlled trial conducted in Italy to assess whether flexible sigmoidoscopy screening offered once at age 55–64 years could reduce CRC incidence and mortality. The baseline findings of the trial recruitment were reported previously. Intention-to-treat and per-protocol analyses were performed to compare incidence and mortality rates in the intervention and control groups.



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ARTICLE

Once-Only Sigmoidoscopy in Colorectal Cancer Screening: Follow-up Findings of the Italian Randomized Controlled Trial—SCORE

Nereo Segnan, Paola Armaroli, Luigina Bonelli, Mauro Risio, Stefania Sciallero, Marco Zappa, Bruno Andreoni, Arrigo Arrigoni, Luigi Bisanti, Claudia Casella, Cristiano Crosta, Fabio Falcini, Franco Ferrero, Adriano Giacomin, Orietta Giuliani, Alessandra Santarelli, Carmen Beatriz Visioli, Roberto Zanetti, Wendy S. Atkin, Carlo Senore; and the SCORE Working Group

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Background A single flexible sigmoidoscopy at around the age of 60 years has been proposed as an effective strategy for colorectal cancer (CRC) screening.

Methods We conducted a randomized controlled trial to evaluate the effect of flexible sigmoidoscopy screening on CRC incidence and mortality. A questionnaire to assess the eligibility and interest in screening was mailed to 236568 men and women, aged 55–64 years, who were randomly selected from six trial centers in Italy. Of the 56532 respondents, interested and eligible subjects were randomly assigned to the intervention group (invitation for flexible sigmoidoscopy; n = 17148) or the control group (no further contact; n = 17144), between June 14, 1995, and May 10, 1999. Flexible sigmoidoscopy was performed on 9911 subjects. Intention-to-treat and per-protocol analyses were performed to compare the CRC incidence and mortality rates in the intervention and control groups. Per-protocol analysis was adjusted for noncompliance.

Results A total of 34272 subjects (17136 in each group) were included in the follow-up analysis. The median follow-up period was 10.5 years for incidence and 11.4 years for mortality; 251 subjects were diagnosed with CRC in the intervention group and 306 in the control group. Overall incidence rates in the intervention and control groups were 144.11 and 176.43, respectively, per 100000 person-years. CRC-related death was noted in 65 subjects in the intervention group and 83 subjects in the control group. Mortality rates in the intervention and control groups were 34.66 and 44.45, respectively, per 100000 person-years. In the intention-to-treat analysis, the rate of CRC incidence was statistically significantly reduced in the intervention group by 18% (rate ratio [RR] = 0.82, 95% confidence interval [CI] = 0.69 to 0.96), and the mortality rate was non-statistically significantly reduced by 22% (RR = 0.78; 95% CI = 0.56 to 1.08) compared with the control group. In the per-protocol analysis, both CRC incidence and mortality rates were statistically significantly reduced among the screened subjects; CRC incidence was reduced by 31% (RR = 0.69; 95% CI = 0.56 to 0.86) and mortality was reduced by 38% (RR = 0.62; 95% CI = 0.40 to 0.96) compared with the control group.

Conclusion A single flexible sigmoidoscopy screening between ages 55 and 64 years was associated with a substantial reduction of CRC incidence and mortality.

J Natl Cancer Inst 2011;103:1310–1322

Several randomized controlled trials have shown that fecal occult blood testing (FOBT) in colorectal cancer (CRC) screening can reduce mortality from CRC (1). CRC incidence was also reduced in one of the trials (2), which may have resulted from endoscopic polypectomy of neoplasms in people detected with a positive test. Observational studies have shown a substantial reduction in incidence and mortality for cancer in the rectum and sigmoid colon (distal CRC) among people who had undergone endoscopy (3–6). The reduction in incidence was maintained over time suggesting that removal of adenomas at screening can indeed provide a long-term protection against development of distal CRC (3,4). Based on observational data indicating that two-thirds of CRCs arise in the rectum and sigmoid colon (7), which can be examined by flexible sigmoidoscopy, and that the prevalence of distal adenomas eventually reaches a plateau at around 60 years of age (8), a single flexible sigmoidoscopy screen offered between 55 and 64 years of age has been proposed as a suitable method for CRC screening (8). Several studies have already shown that flexible sigmoidoscopy is safe and well accepted among patients (9–12), and currently four ongoing trials are aimed at assessing the efficacy of this screening modality (9,13–15).

SCORE TRIAL:
Arezzo, Biella, Genova, Milano,Rimini, Torino,

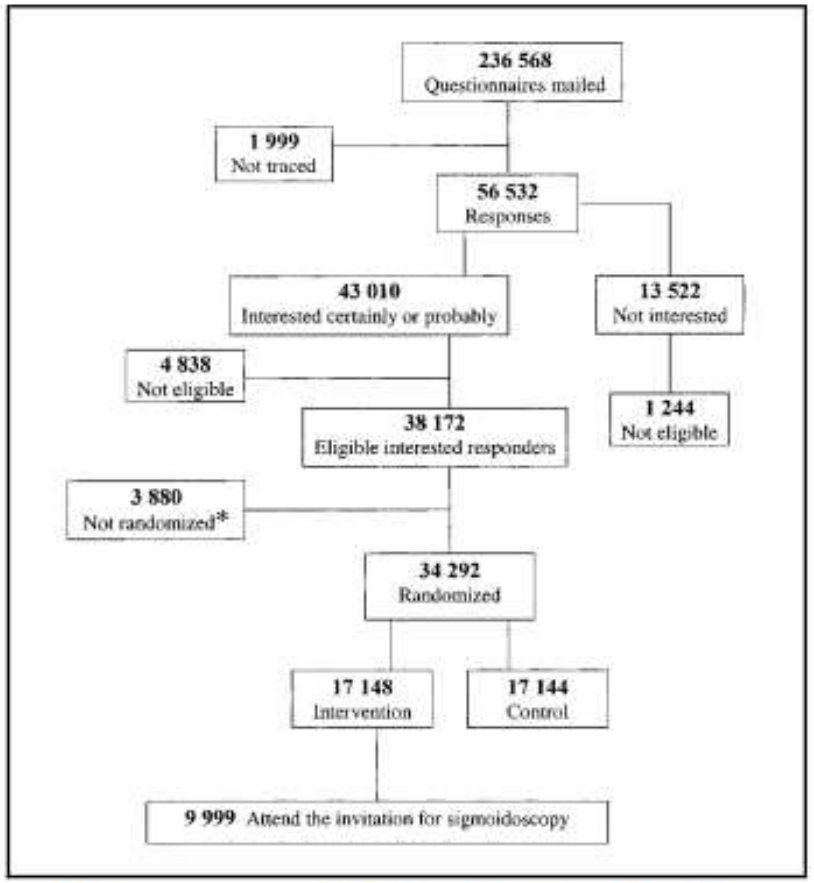

Fig. 1. Trial flow diagram. *Because of the low compliance observed in Genova during the initial recruitment period among subjects who responded that they would probably have the test if invited, they were no longer randomized at this center beginning in December 1996.

Table 1. Characteristics of the study population

Characteristic	N (%) Intervention N = 17 148	Control N = 17 144
Sex		
Men	8576 (50.0)	8658 (50.0)
Women	8572 (50.0)	8586 (50.0)
Age at randomization		
55–59	9574 (55.8)	9676 (56.4)
60–64	7574 (44.2)	7468 (43.6)
Interest in screening		
Definitely yes	9558 (55.7)	9517 (55.5)
Probably yes	7590 (44.3)	7627 (44.5)
Family history of colorectal cancer*		
Negative	15 247 (88.9)	15 321 (89.4)
Positive	1901 (11.1)	1823 (10.6)
Colorectal endoscopy in the past†		
No	15 666 (91.4)	15 791 (92.1)
Yes	1482 (8.6)	1357 (7.9)

*One first-degree relative with colorectal cancer (people with ≥2 first-degree relatives with colorectal cancer were excluded from randomization.
†Colorectal endoscopy, sigmoidoscopy, or colonoscopy performed between 3 and 25 years before study entry.

Table 1. CRC incidence and mortality among the SCORE trial subjects by intention-to-treat analysis*

CRC incidence	Control group† 173 437 person-years§ No. of subjects with CRC	Control group† 173 437 person-years§ Rate per 100 000 person-years (95% CI)	Intervention group‡ 174 177 person-years§ No. of subjects with CRC	Intervention group‡ 174 177 person-years§ Rate per 100 000 person-years (95% CI)	Intervention vs control group RR (95% CI)
All sites	306	176.43 (157.73 to 197.35)	251	144.11 (127.34 to 163.06)	0.82 (0.69 to 0.96)
Distal‖	198	114.16 (99.32 to 131.22)	152	87.27 (74.44 to 102.30)	0.76 (0.62 to 0.94)
Proximal¶	108	62.27 (51.57 to 75.19)	99	56.84 (46.68 to 69.21)	0.91 (0.69 to 1.20)
Advanced CRC#					
All sites	152	87.64 (74.76 to 102.74)	112	64.30 (53.43 to 77.38)	0.73 (0.57 to 0.94)
Distal‖	90	51.89 (42.21 to 63.80)	69	39.61 (31.29 to 50.16)	0.76 (0.56 to 1.04)
Proximal¶	62	35.75 (27.87 to 45.85)	43	24.69 (18.31 to 33.29)	0.69 (0.47 to 1.02)

CRC mortality	Control group† 186 745 person-years** No. of deaths	Control group† 186 745 person-years** Rate per 100 000 person-years (95% CI)	Intervention group‡ 187 532 person-years** No. of deaths	Intervention group‡ 187 532 person-years** Rate per 100 000 person-years (95% CI)	Intervention vs control group RR (95% CI)
All deaths among subjects diagnosed with CRC††					
All sites	94	50.34 (41.12 to 61.61)	71	37.86 (30.00 to 47.77)	0.75 (0.55 to 1.02)
Distal‖	55	29.45 (22.61 to 38.36)	40	21.33 (15.65 to 29.08)	0.72 (0.48 to 1.09)
Proximal¶	39	20.88 (15.26 to 28.58)	31	16.53 (11.52 to 23.50)	0.79 (0.49 to 1.27)
CRC deaths					
All sites	83	44.45 (35.84 to 55.11)	65	34.66 (27.18 to 44.20)	0.78 (0.56 to 1.08)
Distal‖	48	25.70 (19.37 to 34.11)	35	18.66 (13.40 to 25.99)	0.73 (0.47 to 1.12)
Proximal¶	35	18.74 (13.46 to 26.10)	30	16.00 (11.18 to 22.88)	0.85 (0.52 to 1.39)
Non-CRC deaths‡‡	1150	615.61 (581.23 to 652.45)	1137	606.30 (572.06 to 642.58)	0.98 (0.91 to 1.07)

* CRC incidence and mortality were analyzed by all sites, distal, and proximal cancers. CI = confidence interval; CRC = colorectal cancer; RR = rate ratio; SCORE = Screening for Colon Rectum.

† Control group includes 17 136 subjects who were not invited for flexible sigmoidoscopy screening.

‡ Intervention group includes 17 136 invited for flexible sigmoidoscopy screening.

§ Person-years at December 31, 2007, or at the date of the event for subjects who were diagnosed with CRC, or emigrated, or died.

‖ Distal CRC were those coded as 153.2 (descending colon), 153.3 (sigmoid colon), 154.0 (rectosigmoid junction), 154.1 (rectum), 154.2 (anal canal).

¶ Proximal CRCs included codes 153.0 (hepatic flexure), 153.1(transverse colon), and 153.4–153.8 (cecum, appendix, ascending colon, splenic flexure, other specified sites of the large intestine).

Cancer was classified as advanced if the Union for International Cancer Control stage was III or IV (21).

** Person-years at December 31, 2008 (Turin, Biella, Milan, Rimini, Arezzo), or December 31, 2007 (Genoa), or at the date of the event for subjects who died or emigrated.

†† All deaths, related or unrelated to CRC, among subjects diagnosed with CRC.

‡‡ Non-CRC-related deaths.

Table 2. CRC incidence and mortality among the SCORE trial subjects by per-protocol analysis*

Incidence	Control† 173 437 person-years§ No. of subjects with CRC	Control† 173 437 person-years§ Rates per 100 000 person-years (95% CI)	Intervention† Not screened 72 832 person-years§ No. of subjects with CRC	Intervention† Not screened 72 832 person-years§ Rates per 100 000 person-years (95% CI)	Intervention† Screened 101 345 person-years§ No. of subjects with CRC	Intervention† Screened 101 345 person-years§ Rates per 100 000 person-years (95% CI)	Rate ratio (95% CI) adjusted‖ Screened vs control group
All sites	306	176.43 (157.73 to 197.35)	125	171.63 (144.03 to 204.51)	126	124.33 (104.41 to 148.05)	0.69 (0.56 to 0.86)
Distal¶	198	114.16 (99.32 to 131.22)	81	111.21 (89.45 to 138.27)	71	70.06 (55.52 to 88.40)	0.60 (0.46 to 0.80)
Proximal#	108	62.27 (51.57 to 75.19)	44	60.41 (44.96 to 81.18)	55	54.27 (41.67 to 70.69)	0.85 (0.61 to 1.19)
Advanced CRC**							
All sites	152	87.64 (74.76 to 102.74)	64	87.87 (68.78 to 112.27)	48	47.36 (35.69 to 62.85)	0.54 (0.39 to 0.76)
Distal¶	90	51.89 (42.21 to 63.80)	46	63.16 (47.31 to 84.32)	23	22.70 (15.08 to 34.15)	0.52 (0.31 to 0.86)
Proximal#	62	35.75 (27.87 to 45.85)	18	24.71 (15.57 to 39.23)	25	24.67 (16.67 to 36.51)	0.56 (0.36 to 0.87)

Mortality	Control† 186 745 person-years†† No. of deaths	Control† 186 745 person-years†† Rates per 100 000 person-years (95% CI)	Intervention† Not screened (78 586 person-years†† No. of deaths	Intervention† Not screened (78 586 person-years†† Rates per 100 000 person-years (95% CI)	Intervention† Screened (108 946 person-years†† No. of deaths	Intervention† Screened (108 946 person-years†† Rates per 100 000 person-years (95% CI)	Rate ratio (95% CI) adjusted‖ Screened vs control group
All deaths among subjects diagnosed with CRC‡‡							
All sites	94	50.34 (41.12 to 61.61)	38	48.35 (35.18 to 66.44)	33	30.29 (21.53 to 42.61)	0.58 (0.38 to 0.87)
Distal¶	55	29.45 (22.61 to 38.36)	26	33.08 (22.52 to 48.58)	14	12.85 (7.61 to 21.70)	0.50 (0.26 to 0.94)
Proximal#	39	20.88 (15.26 to 28.58)	12	15.27 (8.67 to 26.88)	19	17.44 (11.12 to 27.34)	0.66 (0.39 to 1.12)
CRC deaths							
All sites	83	44.45 (35.84 to 55.11)	35	44.54 (31.97 to 62.02)	30	27.54 (19.25 to 39.38)	0.62 (0.40 to 0.96)
Distal¶	48	25.70 (19.37 to 34.11)	23	29.27 (19.45 to 44.03)	12	11.01 (6.25 to 19.39)	0.38 (0.20 to 0.74)
Proximal#	35	18.74 (13.45 to 26.10)	12	15.27 (8.67 to 26.89)	18	16.52 (10.41 to 26.22)	0.78 (0.45 to 1.35)
Non-CRC deaths§§	1160	615.81 (581.23 to 652.45)	603	767.31 (708.32 to 830.91)	534	490.15 (450.29 to 533.54)	0.97 (0.85 to 1.09)

* CRC incidence and mortality were analyzed by all sites, distal, and proximal cancers. CI = confidence interval; CRC = colorectal cancer; RR = rate ratio; SCORE = Screening for Colon Rectum.

† Control group includes 17 136 subjects not invited for flexible sigmoidoscopy screening.

‡ Intervention group includes 17 136 invited for flexible sigmoidoscopy screening: 7225 not screened and 9911 screened subjects.

§ Person-years at December 31, 2007, or at the date of the event for subjects who were diagnosed with CRC or emigrated, or died.

‖ Cuzick et al. method (26).

¶ Distal CRC were those coded as 153.2 (descending colon), 153.3 (sigmoid colon), 154.0 (rectosigmoid junction), 154.1 (rectum), 154.2 (anal canal).

Proximal CRCs included codes 153.0 (hepatic flexure), 153.1 (transverse colon), and 153.4–153.8 (cecum, appendix, ascending colon, splenic flexure, other specified sites of the large intestine).

** Cancer was classified as advanced if the Union for International Cancer Control stage was III or IV (21).

†† Person-years at December 31, 2008 (Turin, Biella, Milan, Rimini, Arezzo), or December 31, 2007 (Genoa), or at the date of the event for subjects who died or emigrated.

‡‡ All deaths related or unrelated to CRC.

§§ Non-CRC-related deaths.

I test di screening offerti da Prevenzione Serena

Tumore della cervice uterina

- **Test:** Pap-test / HPV test
- **Popolazione target**
  Pap-test: ♀ 25-29
  HPV-test: ♀ 30-64
- Periodismo:
  Pap-test: 3 anni
  HPV test: 5 anni

British Journal of Cancer (2005) 93, 376 – 378

www.bjcancer.com

Short Communication

Impact of the introduction of organised screening for cervical cancer in Turin, Italy: cancer incidence by screening history 1992–98

G Ronco[*,1], S Pilutti[1], S Patriarca[1], G Montanari[1], B Ghiringhello[2], R Volante[3], L Giordano[1], R Zanetti[1], E Mancini[1], N Segnan[1] and the Turin Cervical Screening Working Group[4]

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After an organised cervical screening programme was introduced in Turin in 1992, the age-adjusted cervical cancer incidence ratio in 1992–98 was 0.81 (95% confidence interval (CI) 0.59–1.09) for invited vs not invited women and 0.25 (95% CI 0.13–0.50) for attenders vs non attenders. An organised screening programme can further reduce cervical cancer incidence in an area where substantial spontaneous activity was previously present.

British Journal of Cancer (2005) **93,** 376–378. doi:10.1038/sj.bjc.6602705 www.bjcancer.com
Published online 12 July 2005

Keywords: cervical cancer; screening; organised programme; effectiveness

Table 1 Person-years, number of cervical cancers, incidence density and incidence density ratio (IDR) among not invited and invited women and, within invited, among attenders and nonattenders

	Person-years	Cancer cases[a]	Crude incidence (per 10^5 py)	Age-standardised incidence[b]	IDR[c]	95% CI
Not invited	1 265 075	118	9.3	8.6	1.0	
Invited	918 862	72	7.8	6.9	0.81	0.59 – 1.09
Invited nonattenders	570 186	61	10.7	9.5	1.0	
Invited attenders	348 676	11	3.2	3.0	0.25	0.13 – 0.50

[a]Cases with morphology specified as nonsquamous or staged as microinvasive excluded. [b]Standardised on the world population truncated 24 – 69 years, per 100 000 py. [c]Adjusted for age in 5-year groups by Poisson regression.

Table 2 Cervical cancers diagnosed among attenders

	Person-years	Cancer cases[a]	Crude incidence (per 10^5 py)	Age-standardised incidence[b]
After non-normal cytology	30 973	7	22.6	23.0
After normal cytology				
Independently of time	317 702	4	1.3	1.2
Within 3.5 years after last normal cytology	295 414	2	0.7	0.4
Over 3.5 years after last normal cytology	22 288	2	9.0	11.1

[a]Cases with morphology specified as nonsquamous or staged as microinvasive excluded. [b]Standardised on the world population truncated 24 – 69 years, per 100 000 py.

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Changes in cervical cancer incidence following the introduction of organized screening in Italy

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0091-7435/

AIRTUM

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Table 2
Number of ICCs, observed age-standardized (European pop.) IRs (per 100,000 women-year) according to years from full-activation of OCSPs[a], and corresponding IRRs[b]. Italy, 1995–2008, women aged 25–74 years.

	Years from full-activation of OCSPs[a]			
	Before	After		
	−5 to −1	0 to 2	3 to 5[c]	6 to 8[d]
Women-year	10,539,420	8,485,811	7,990,911	4,266,825
Total ICC (no.)	**1345**	**976**	**787**	**449**
Observed IR	12.5	11.4	10.1	10.3
Reference IR	–	12.5	12.6	12.7
IRR (95% CI)	1[e]	0.91 (0.84–0.99)	0.80 (0.73–0.88)	0.75 (0.67–0.85)
ICC stage				
Micro-invasive[f] (no.)	262	228	199	136
Observed IR	2.6	2.8	2.7	3.2
Reference IR	–	2.6	2.8	3.1
IRR (95% CI)	1[e]	1.08 (0.90–1.30)	0.98 (0.81–1.18)	1.04 (0.82–1.31)
Fully-invasive (no.)	798	578	445	239
Observed IR	7.4	6.7	5.7	5.5
Reference IR	–	7.4	7.5	8.1
IRR (95% CI)	1[e]	0.90 (0.81–1.01)	0.76 (0.67–0.86)	0.68 (0.58–0.80)
Unknown ICC (no.)	285	170	143	74
Observed IR	2.5	1.9	1.8	1.6
Reference IR	–	2.5	2.4	2.6
IRR (95% CI)	1[e]	0.76 (0.62–0.93)	0.73 (0.59–0.90)	0.63 (0.47–0.84)
ICC histological type				
Squamous cell (no.)	1033	776	597	342
Observed IR	9.6	9.1	7.7	7.9
Reference IR	–	9.6	9.7	10.7
IRR (95% CI)	1[e]	0.94 (0.85–1.04)	0.79 (0.71–0.88)	0.74 (0.64–0.84)
Adenocarcinoma[g] (no.)	209	141	148	75
Observed IR	2.0	1.7	1.9	1.7
Reference IR	–	2.0	2.0	2.0
IRR (95% CI)	1[e]	0.84 (0.67–1.05)	0.95 (0.76–1.19)	0.85 (0.62–1.14)
Other/unspecified type (no.)	103	59	42	32
Observed IR	0.9	0.7	0.5	0.7
Reference IR	–	0.9	0.9	1.0
IRR (95% CI)	1[e]	0.75 (0.53–1.04)	0.57 (0.38–0.84)	0.70 (0.44–1.10)

Abbreviations: ICC, invasive cervical cancer; OCSP, organized cervical screening program; IR, incidence rate; IRR, incidence rate ratio; 95% CI, 95% confidence interval.
Bold: total cases; Italics: sub-groups.
[a] Calendar year during which at least 40% of target women had been invited to the OCSPs.
[b] Ratio between the observed IR in periods after full-activation of OCSPs vs. the IR observed in the period before OCSPs in the corresponding areas.
[c] Siracusa cancer registry not included.
[d] Siracusa, Firenze, Latina, Veneto cancer registries not included.
[e] Reference.
[f] Stages (FIGO) IA1, IA2, and IA (not otherwise specified).
[g] It includes adeno-squamous ICCs.

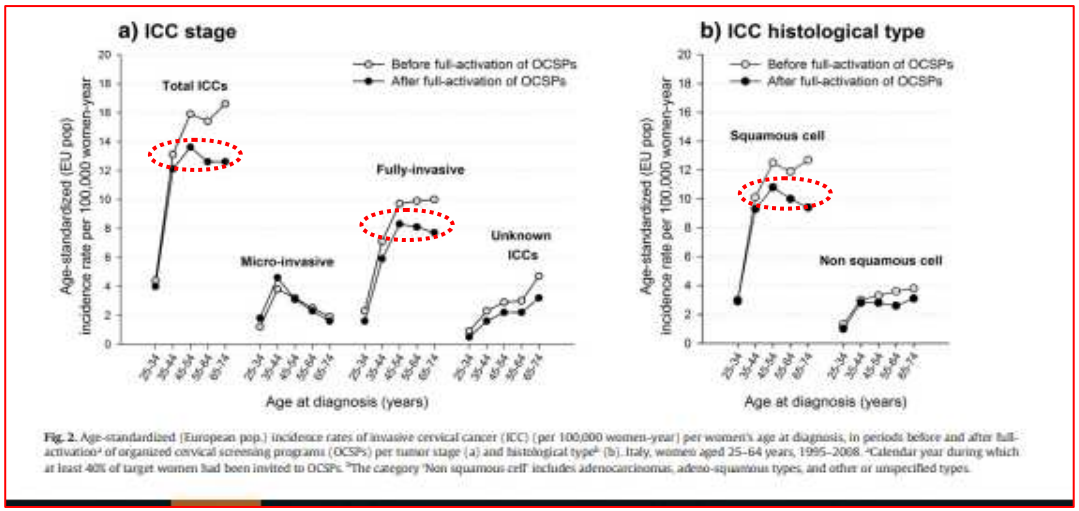

Fig. 2. Age-standardized (European pop.) incidence rates of invasive cervical cancer (ICC) (per 100,000 women-year) per women's age at diagnosis, in periods before and after full-activation[a] of organized cervical screening programs (OCSPs) per tumor stage (a) and histological type[b] (b). Italy, women aged 25–64 years, 1995–2008. [a]Calendar year during which at least 40% of target women had been invited to OCSPs. [b]The category 'Non squamous cell' includes adenocarcinomas, adeno-squamous types, and other or unspecified types.

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Screening patterns within organized programs and survival of Italian women with invasive cervical cancer

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ABSTRACT

Objectives. To evaluate screening patterns within organized cervical screening programs (OCSPs) and survival of women with invasive cervical cancer (ICC).

Methods. A population-based study was conducted in Italian areas covered by cancer registries and OCSPs. The study included all women aged 25–65 years diagnosed with ICC between 1995 and 2008, and their screening histories within OCSPs were retrieved. Hazard ratios (HR) of death and 95% confidence intervals (CI) were computed according to screening pattern, using Cox models adjusted for age, ICC stage, and major confounders.

Results. Among 3268 women with ICC, 20% were never-invited to OCSP, 36% were never-compliant with OCSP's invitation, 33% were compliant and had a screen-detected ICC within OCSP (i.e., after a positive cytology), and 11% were compliant but had a non-screen-detected ICC. Screen-detected ICCs were more frequently micro-invasive (42%) compared to non-screen-detected ones (14%). Compared to women with screen-detected ICC, the adjusted HRs of death were 1.9 (95% CI 1.5–2.4) for those never-invited, 2.0 (95% CI 1.6–2.5) for never-compliant, and 1.7 (95% CI 1.3–2.4) for compliant women having non-screen-detected ICC.

Conclusion. Prolonged survival, beyond down-staging, of women with ICC detected within OCSPs in Italy, further calls for improvements of OCSPs' invitational coverage and participation.

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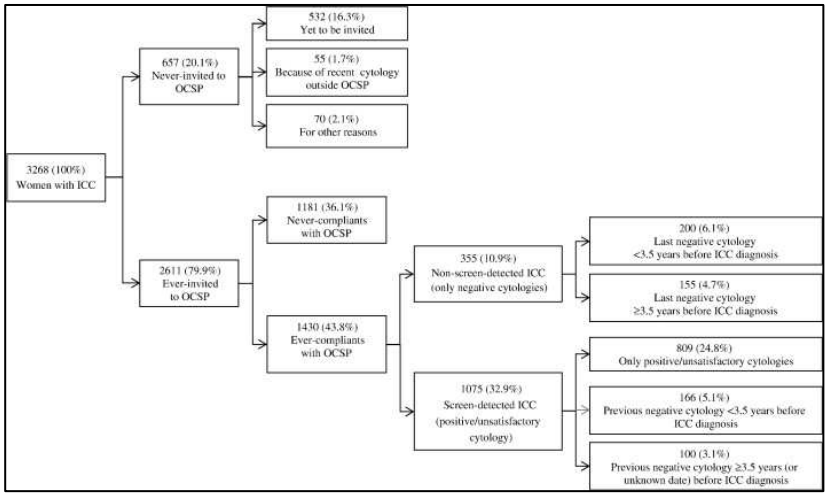
- Women with ICC were classified according to the following screening patterns (Fig. 1):
- • Never-invited (i.e., not yet having received an invitation to OCSP)
- • Ever-invited (i.e., having received an invitation to OCSP)
- • Never-compliants (i.e., invited with no cytology within OCSP)
- • Ever-compliants (i.e., invited with at least one cytology within OCSP)
  - • Compliants with OCSP invitation who had a screen-detected ICC (i.e., with atleast a positive/unsatisfactory cytology). Within this group, women were classified according to time elapsed from the date of the last negative cytology, if any, and ICC diagnosis (b3.5 or ≥3.5 years).
  - • Compliants with OCSP invitation who had a non-screen-detected ICC (i.e., with only negative cytologies). Within this group, women were classified according to the time elapsed from the date of the last negative cytology to ICC diagnosis (b3.5 or ≥3.5 years) The time elapsed from OCSP's start to ICC diagnosis was approximated by the difference between the calendar year of ICC diagnosis and the year of OCSP start in the relative area (Appendix A).



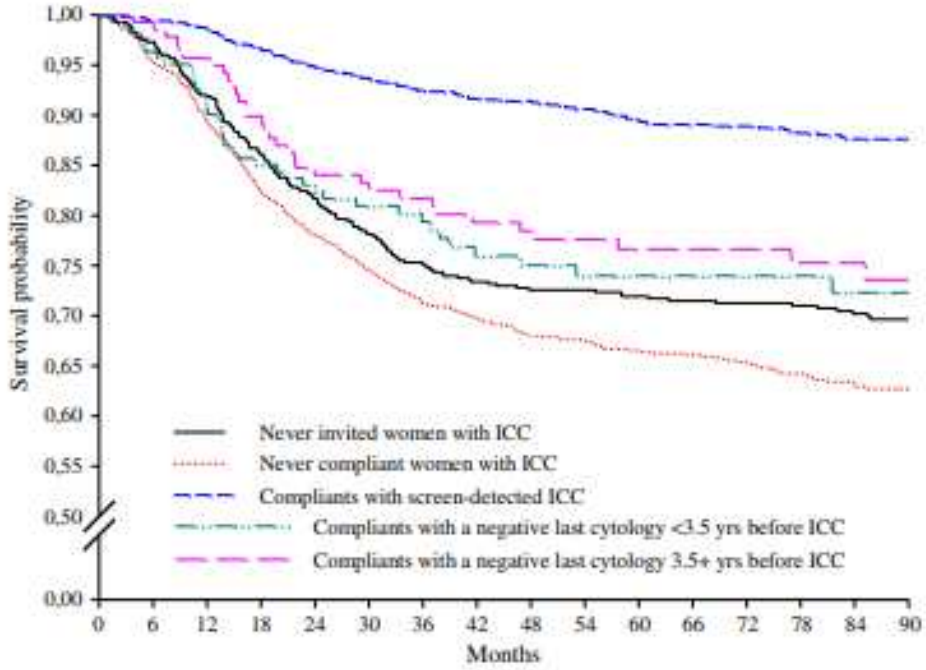
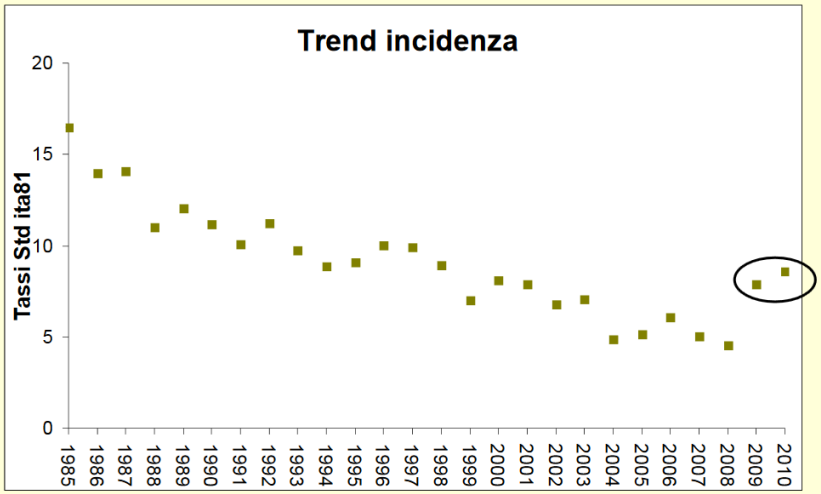


Fig. 2. Kaplan–Meier survival curves of 2911 women with invasive cervical cancer (ICC), according to screening history within organized cervical screening programs (OCSPs) (Log-rank test = 170.14, p-value <0.01). Italy 1995–2008.

Le nuove popolazioni/nuove sfide

Le nuove popolazioni/nuove sfide

Trend incidenza del carcinoma della cervice a Torino 1985-2010

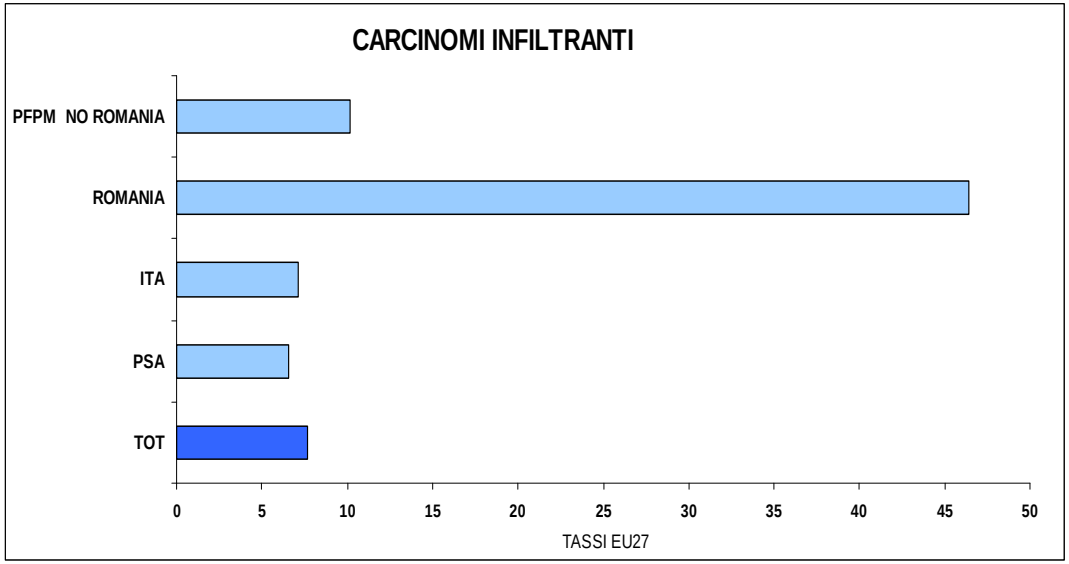


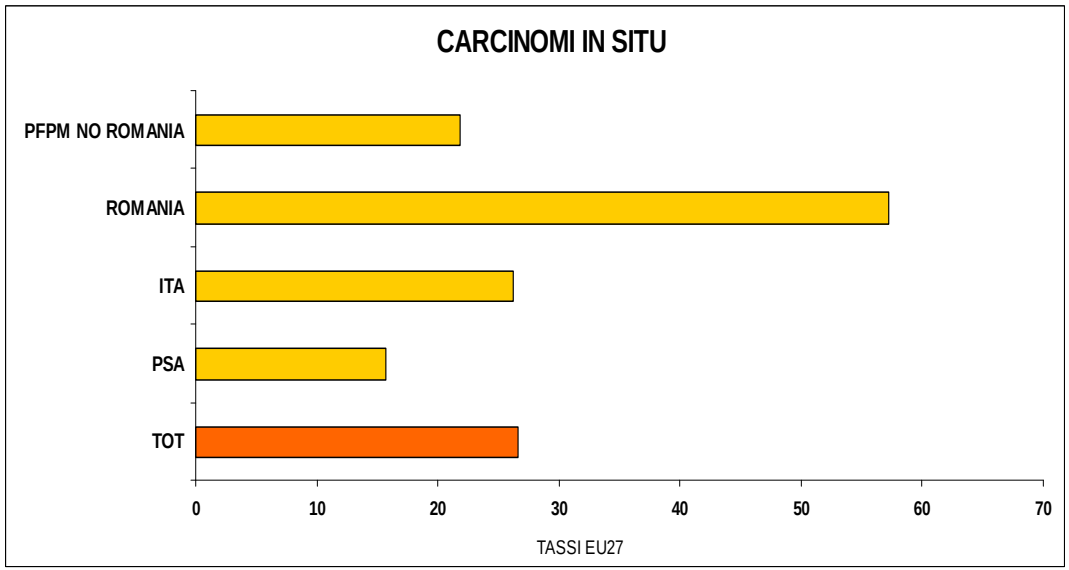
Casi incidenti 2009-2010 Cittadinanza

	Italiane	Straniere
N.casi	81	17
Tassi incidenza St. M.	5.5	10.0

RSI 2009-2010 donne straniere e donne italiane:**144.7 %**
(I.C. 95%:62-171)

TASSI STANDARDIZZATI EU27
DEL CARCINOMA DELLA CERVICE
PIEMONTE 2013-2014





PSA = PAESI A SVILUPPO AVANZATO

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Health Policy

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Inequalities in cervical cancer screening utilisation and results: A comparison between Italian natives and immigrants from disadvantaged countries

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Dall'analisi dei dati del servizio Epidemiologia Screening – CRPT, che gestisce e coordina il programma organizzato, risulta che **le donne straniere residenti partecipano allo screening cervicale in misura inferiore rispetto alle donne italiane (circa -4,6%)** e questo divario aumenta all'aumentare dell'età.

Table 1
Cervical screening invitation and participation among LMIC[a] and HIC[b] women, Piedmont 2001–2013.

		Invited Population[c]		Participation Rate[c]	
		N. of invitations	%	N. of exams	%
LMIC and HIC group, by area of origin					
LMIC group	Africa	97,627	2.16	40,797	41.79
	Asia	32,134	0.71	11,314	35.21
	Central/Eastern Europe	227,201	5.03	103,642	45.62
	Central/Southern America + Caribbean	72,430	1.60	33,090	45.69
Total		429,392	9.50	188,843	43.98
HIC group	Italy	4,017,764	88.93	1,955,373	48.67
	Other HIC	70,989	1.57	31,312	44.11
Total		4,088,753	90.50	1,986,685	48.59
LMIC and HIC group, by age class					
LMIC group	25–34 years	164,069	3.63	69,431	42.32
	35–44 years	138,057	3.06	63,472	45.98
	45–54 years	84,870	1.88	39,514	46.56
	55–64 years	42,396	0.94	16,426	38.74
Total		429,392	9.51	188,843	43.98
HIC group	25–34 years	884,618	19.58	377,023	42.62
	35–44 years	1,121,472	24.82	534,798	47.69
	45–54 years	1,053,354	23.31	537,170	51.00
	55–64 years	1,029,309	22.78	537,694	52.24
Total		4,088,753	90.49	1,986,685	48.59
Overall Total		4,518,145	100.00	2,175,528	48.15

[a] Low and Middle Income Countries.
[b] High Income Countries.
[c] As units of observation screening episodes were considered.

Popolazione in continua evoluzione …screening e registri in continua evoluzione…

- **Protocolli**
- **Tecnologie**
- **Popolazioni e loro sottogruppi**
- **Cresciute consapevolezze**
- **Nuovi confronti (polmone? prostata?)**
- **Framework legislativi**
- **Esigenze economiche**

Il futuro della collaborazione

- Which pre-cancerous lesions should be included in cancer registration?
  - CIN3/AIS of the cervix uteri
  - AIN3, VAIN3, VIN3
  - Carcinoma in situ of the breast
  - In situ and advanced adenomas or polyps of the colon & rectum
- The detection mode into the cancer registry data
  - Invited
    - Non-participant
    - Participant
      - Screen-detected
      - Interval case (a case detected during a screening interval)
  - Not invited
- Incidence date, stage, TNM, multiple primaries in the various phases of the diagnostic and clinical process

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Review

To accelerate cancer prevention in Europe: Challe
cancer registries

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Box 3. The contribution of programme managers of cancer registries in accelerating prevention.

- ➢ Increase timeliness in data production, analysis and dissemination, (ideally, 1-year latency, feasible with modern information technology facilities).
- ➢ Complete European continental coverage (now slightly less than 50%), extending coverage for mid-sized registries and merging the smaller ones, at the regional or national level or joining them in networks where not geographically adjacent.
- ➢ Make patient data more (and more quickly) available to clinicians and researchers.
- ➢ Seek active collaboration with research and public health cohorts using data on exposure.

CRs should develop (and being rewarded) a sort of general publication plan of their results, for example, a quinquennial preceding the deadlines of CI5C. Such a plan should, at least, focus on the following:

- **age- and gender-specific trends** of specific (also in situ) cancers and subtypes;
- evaluation of cancer burden for **patient groups exposed to high early diagnostic pressure** (e.g. through planned or opportunistic screening) that may also hide true changes in underlying risk determinants (also affected by primary prevention); (e.g. melanoma, thyroid, breast, lung, prostate)
- **the cancers caused by identifiable risk factor(s) that are amenable to preventive actions**, taking into account the early detection and the occurrence of metachronous cancers, especially those related to tobacco, alcohol, UV, asbestos, infections (e.g. cervical, stomach and liver cancer) and obesity
- **overall progress against cancers, when earlier detection leads to higher incidence and survival**, often falsely attributed to better care. Case-control and cohort designs cannot prevent intrinsic scrutiny-dependent bias in the incidence data, unless CR data also comprise the stage at diagnosis and be accompanied by mortality data and thus avoid misleading results and inappropriate public health recommendations.

I[illegible]ione tra archivi di dati correnti

Banche biologiche

Lifestyle information

...

Registro Tumori

Altri ...

Anagrafe/Censimento

Registro screening

Registro Vaccinazioni HPV

Schede di Dimissione Ospedaliera

- Per generare nuove ipotesi
- Dare origini a nuove collaborazioni
- Diventare 'agents of change' (Zanetti, 2018)
- Adempiere alle norme legislative (massa critica)

La comunicazione

- Imparare (insieme) a migliorare la comunicazione con l'utenza ed i media.

- Spiegare ai media come si interpretano i dati raccolti.

IlFattoQuotidiano.it / **BLOG** di Elisabetta Ambrosi

Tumore al seno, i medici facciano chiarezza su quello che ormai è l'incubo di tutte le donne

Donne | 13 Febbraio 2018

COMMENTI (175)

Più informazioni su: Cancro al Seno

Elisabetta Ambrosi

Un tempo il seno era, per noi donne, soprattutto un oggetto di **seduzione**, una zona erogena da stimolare durante un rapporto d'amore e di sesso. Un organo con cui si avere talvolta un rapporto complicato, troppo piccolo, troppo basso, ma comunque qualcosa

LA STAMPA SALUTE

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Tumori al seno in aumento nelle under 40. Il chirurgo lancia l'allarme

L'età delle vittime di cancro al seno si abbassa sempre più, e il prof. Borriello, direttore dell'Unità Operativa di Chirurgia Plastica all'ospedale Pellegrini di Napoli lancia l'allarme: "Sempre più giovani le donne colpite da carcinoma mammario costrette a ricorrere alla mastectomia"

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Tumore al seno & ovaio

Home → Tumore al seno e ovaio → Tumori seno: dal 2000 +27% nelle under 50

Tumori seno: dal 2000 +27% nelle under 50

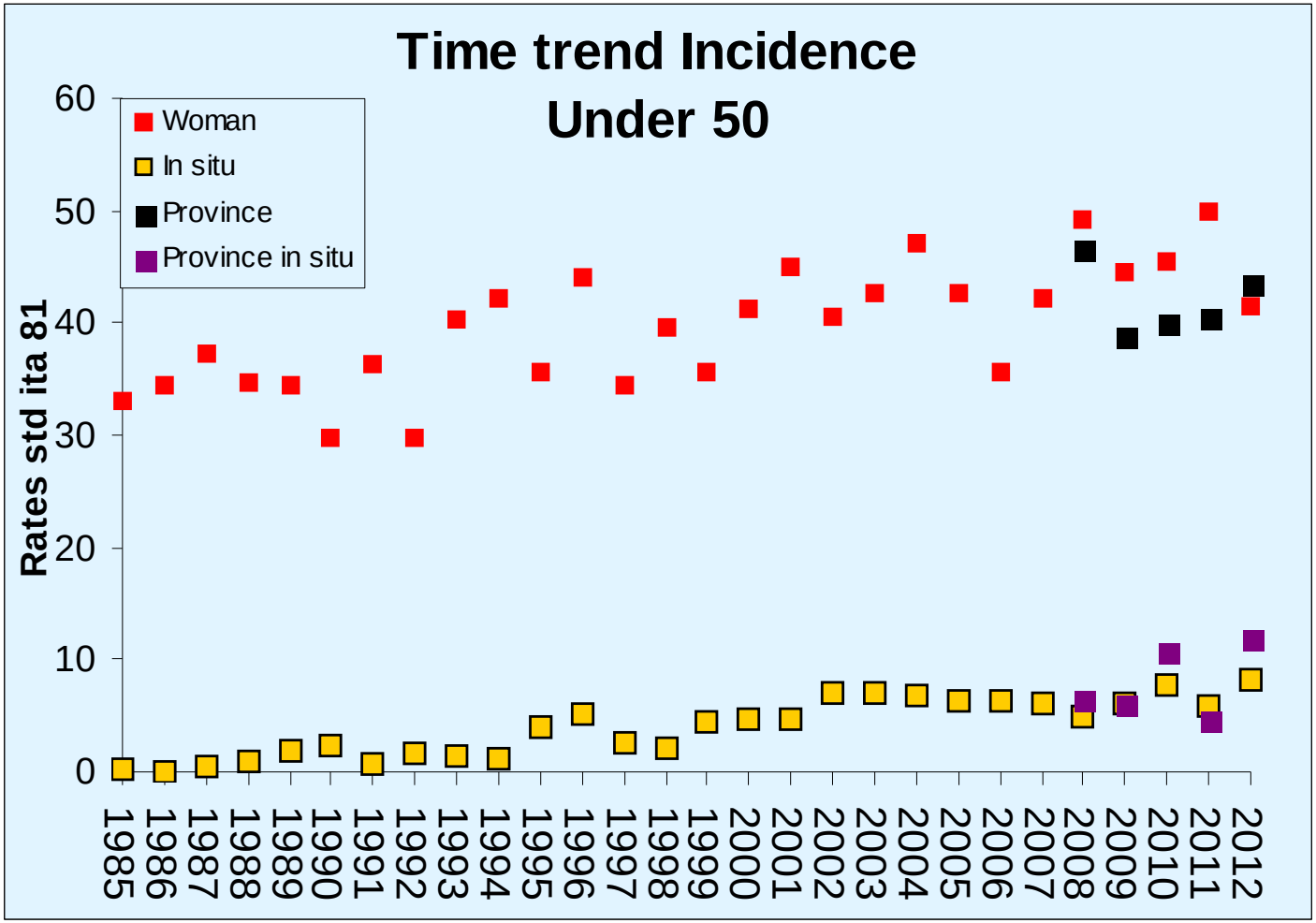
TUMORE AL SENO E OVAIO nov 12,2015 · 0 Comments

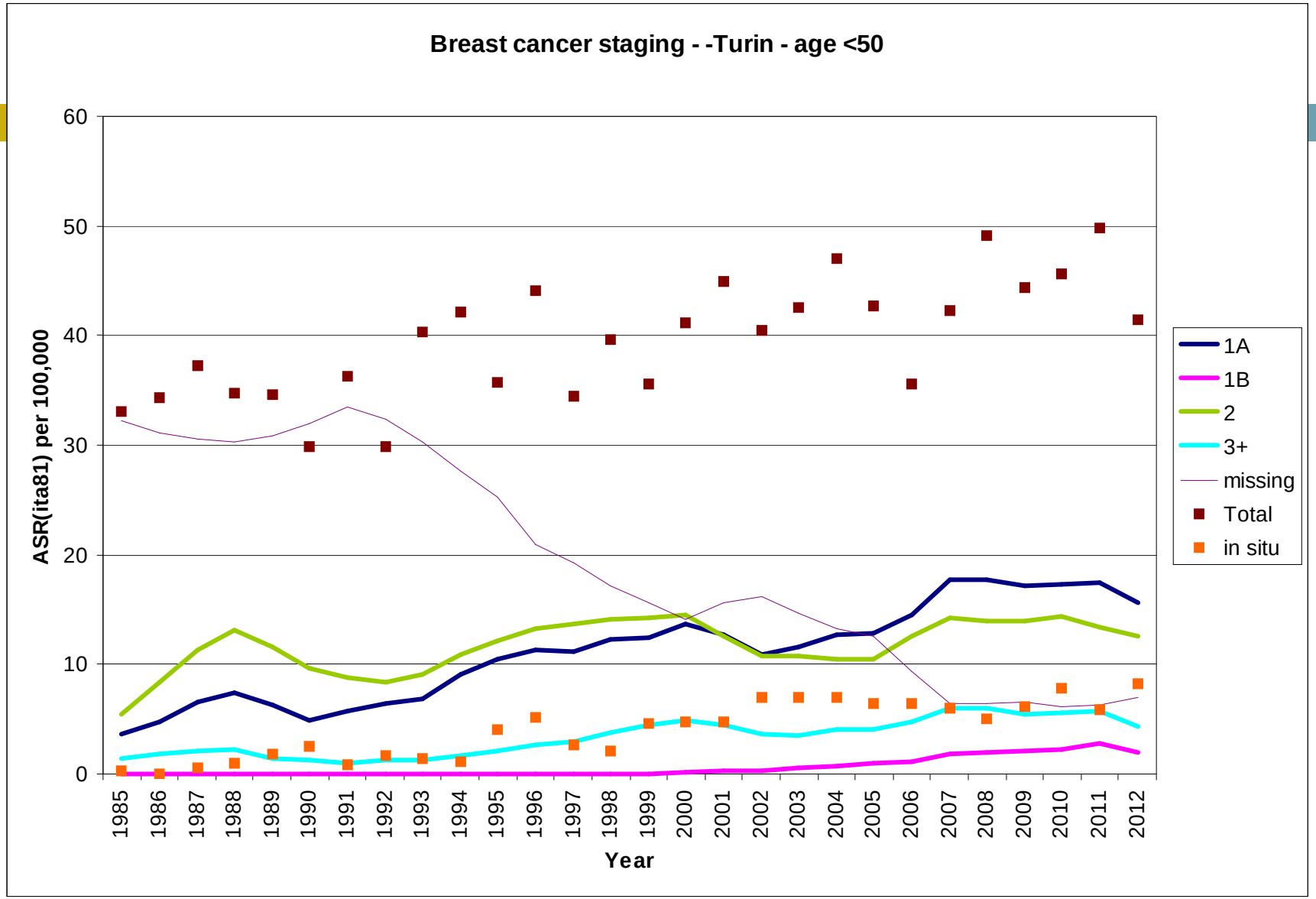
Aumentano i casi di tumore del seno nelle donne under 50. In 15 anni nel nostro Paese si è registrato un incremento del 27% passando da 7.921 casi nel 2000 a 10.105 quest'anno. Per questo motivo diventa essenziale rivedere i criteri di accesso alla mammografia ed estendere il test a tutte le donne a partire dai 45 anni. A lanciare l'appello sono gli oncologi riuniti nell'International Meeting on New Drugs in Breast Cancer, al Regina Elena di Roma con la partecipazione di più di 200 esperti da tutto il mondo.

"Lo screening nella fascia dai 50 ai 69 anni ha contribuito in maniera determinante a ridurre di quasi il 40% la mortalità per cancro del seno nell'ultimo ventennio – spiega Francesco Cognetti, direttore dell'Oncologia Medica del Regina Elena di Roma e presidente del Convegno giunto alla quarta edizione – L'età del primo esame va abbassata per tutte le donne a 45 anni e i controlli devono proseguire fino ai 74. Oggi solo due Regioni, Emilia-Romagna e Piemonte, hanno ampliato in maniera strutturata la fascia d'età da coinvolgere nei programmi di screening, come suggerito dal Piano nazionale prevenzione". Nel 2015 sono stimati in Italia circa 48.000 nuovi casi di tumore del seno, 692.955 donne vivono con una diagnosi per questa patologia.

LEGGI LA RIVISTA

Torino e provincia




Breast cancer staging - -Turin - age <50
ASR(ita81) per 100,000
60
50
40
30
20
10
0
1985
1986
1987
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2009
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2011
2012
Year
1A
1B
2
3+
missing
Total
in situ

AMERICAN JOURNAL OF PUBLIC HEALTH Dec., 1946

Record Linkage*

HALBERT L. DUNN, M.D., F.A.P.H.A.

Chief, National Office of Vital Statistics, U. S. Public Health Service, Federal Security Agency, Washington, D. C.

EACH person in the world creates a Book of Life. This Book starts with birth and ends with death. Its pages are made up of the records of the principal events in life. Record linkage is the name given to the process of assembling the pages of this Book into a volume.

Grazie per l'attenzione.