

# cancro al seno: l'importanza di una corretta diagnosi quali strumenti abbiamo

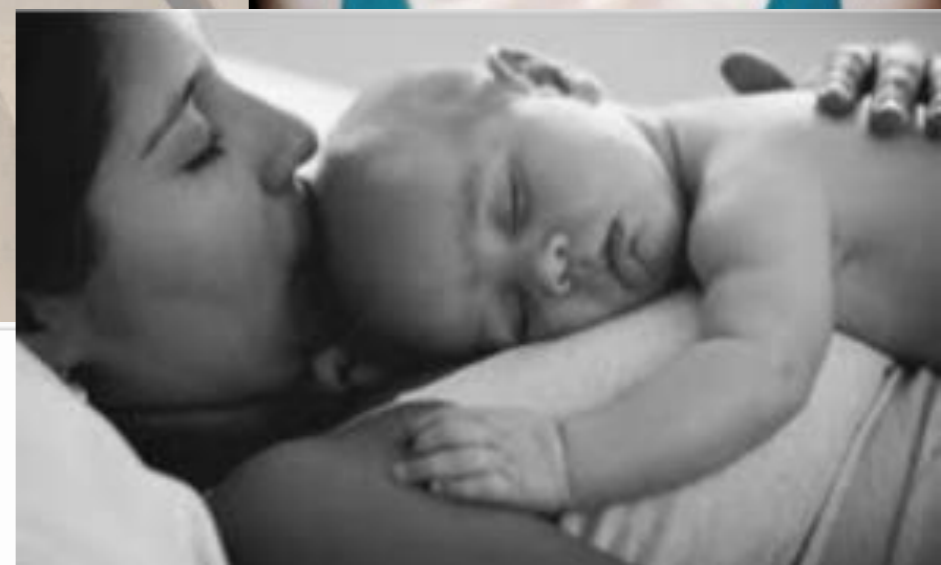


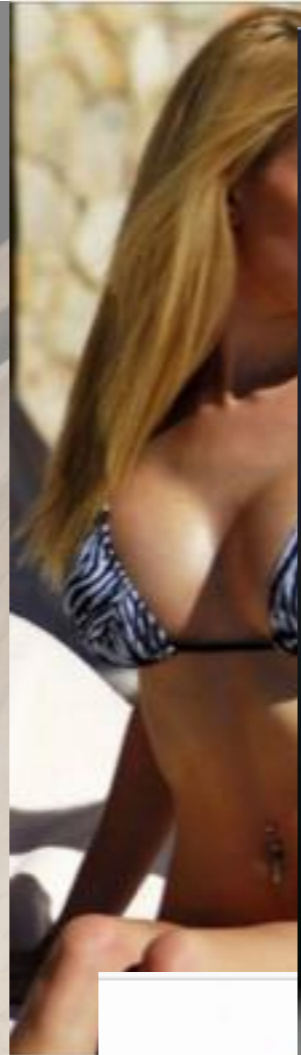
Martina Locatelli  
SOS Radiologia Senologica  
SOC Radiologia Gorizia Monfalcone

# Carcinoma della mammella IL PESO NELLA SOCIETA'

- ✓ IL TUMORE DELLA MAMMELLA È IL PIU' FREQUENTE TUMORE NELLA POPOLAZIONE FEMMINILE
- ✓ IL TUMORE DELLA MAMMELLA È LA PRIMA CAUSA DI MORTE PER TUMORE NELLA POPOLAZIONE FEMMINILE







**Il lutto/1. Al secolo Odette Bedogni, era nata nel 1929. Lavorò al fianco dei grandi della commedia musicale**  
**Delia Scala, addio regina del varietà**

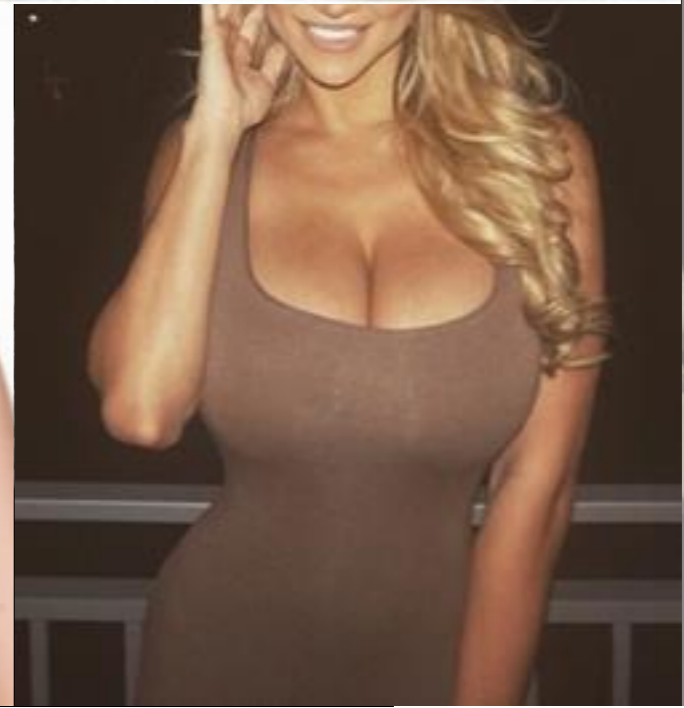
*La showgirl è morta ieri nella casa di Livorno*  
**Personaggio simbolo del teatro e della tv italiana**

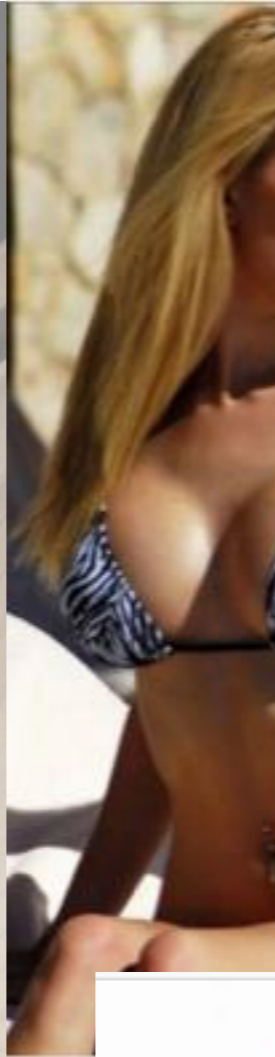
di Paolo Petrone

**ROMA.** È morta, ieri mattina alle 4, Delia Scala (ex Bedogni) con 89 anni. L'ultima grande personaggio di un'epoca è un grande, tra carriera e intimità, romantico, sbarazzino, e stilato, era capace anche di quella ricerca e quella novità. È stata la compagna, in vita ma soprattutto in scena, di Duppino, Totò, Marçino, Raimondo, Ugo, Modugno, Pinelli, Modugno, tra gli altri. La scena del varietà è stata il suo regno. Era una donna di teatro e di grande stile, una donna di spettacolo che ha fatto parte della storia del nostro paese.



Duppino, Modugno, Delia Scala e Carlo Duggino nel 1951





# Bianca Balti si rivela al mondo dopo l'operazione al seno

di Redazione | 3 Gennaio 2023





ELSEVIER

Contents lists available at [ScienceDirect](#)

## The Breast

journal homepage: [www.elsevier.com/brst](http://www.elsevier.com/brst)

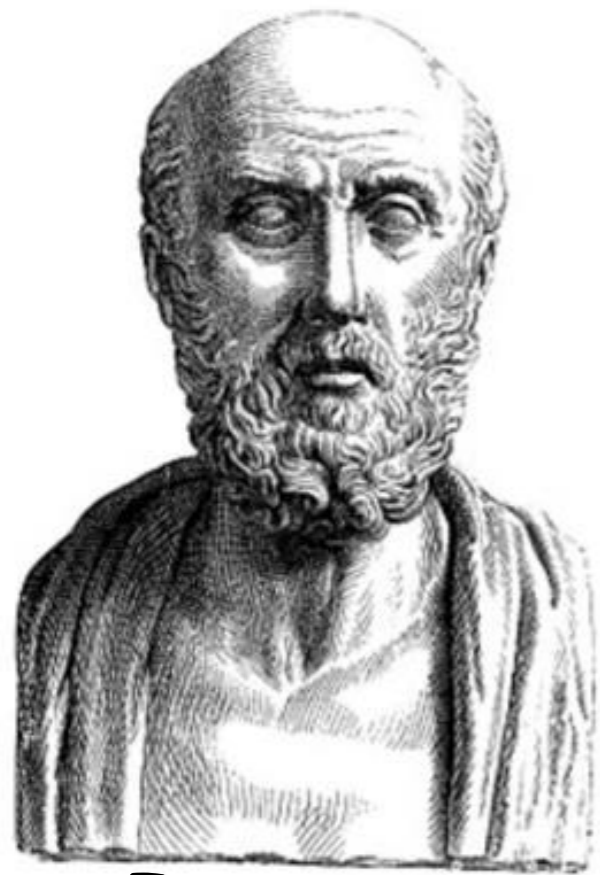
Original article

### The requirements of a specialist breast centre

Breast cancer is the most common cancer in women in the European Union and a rare cancer in men. It comprises a wide range of histopathological subtypes, the most common being invasive carcinoma of no special type (NST), previously named invasive ductal carcinoma, and invasive lobular carcinoma [11].

**tanti sottotipi**

**13% del costo sanitario per tumore in EU  
il più alto costo per tumore**



Ippocrate

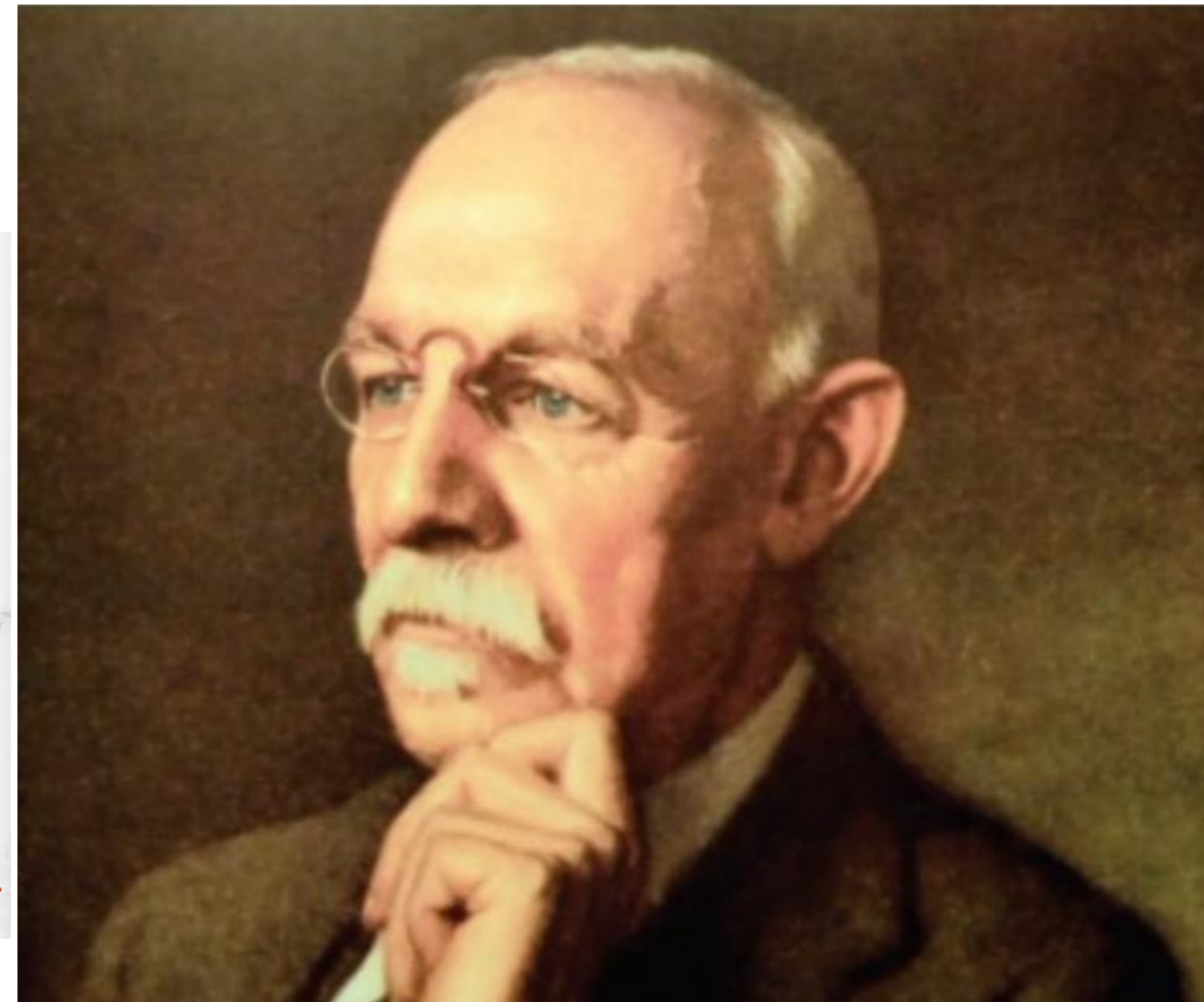


Galeno

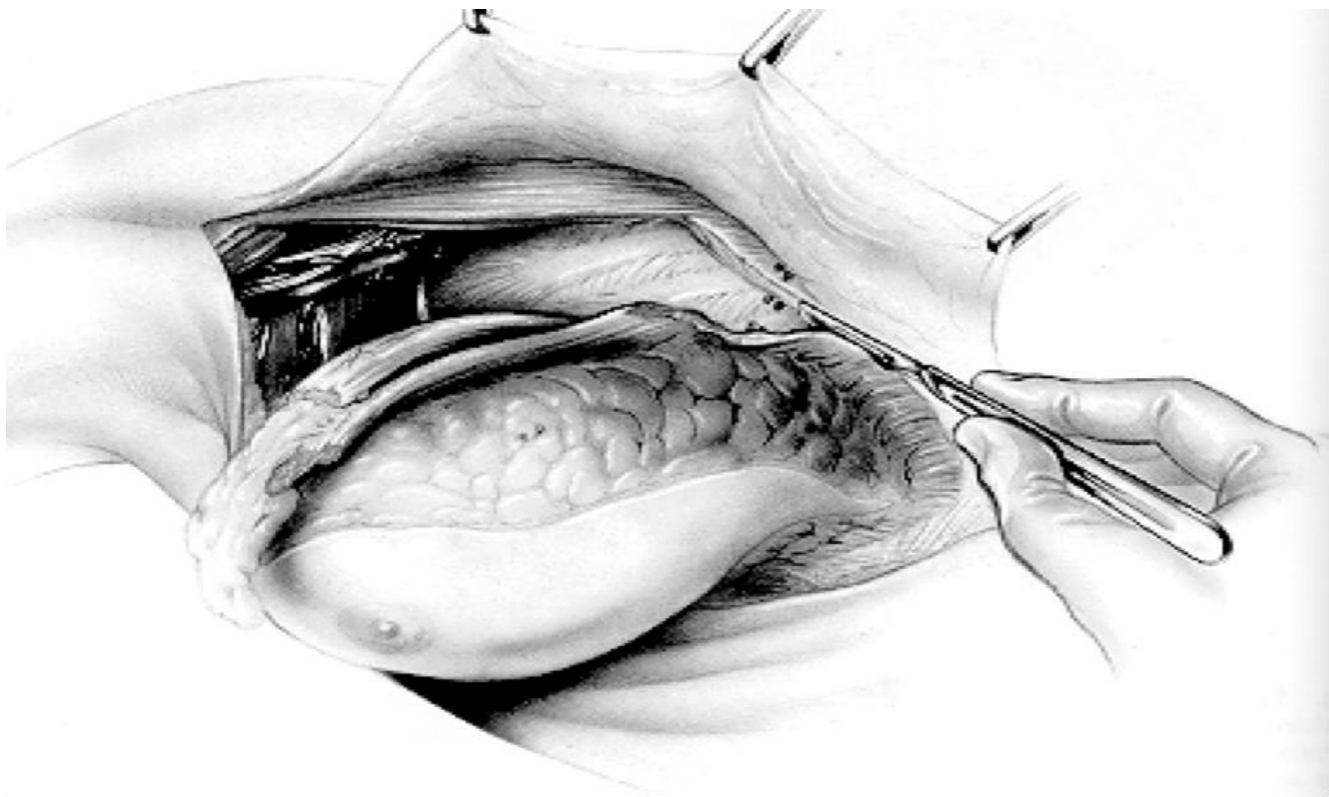
W. S. Halsted, M.D. 1852-1922



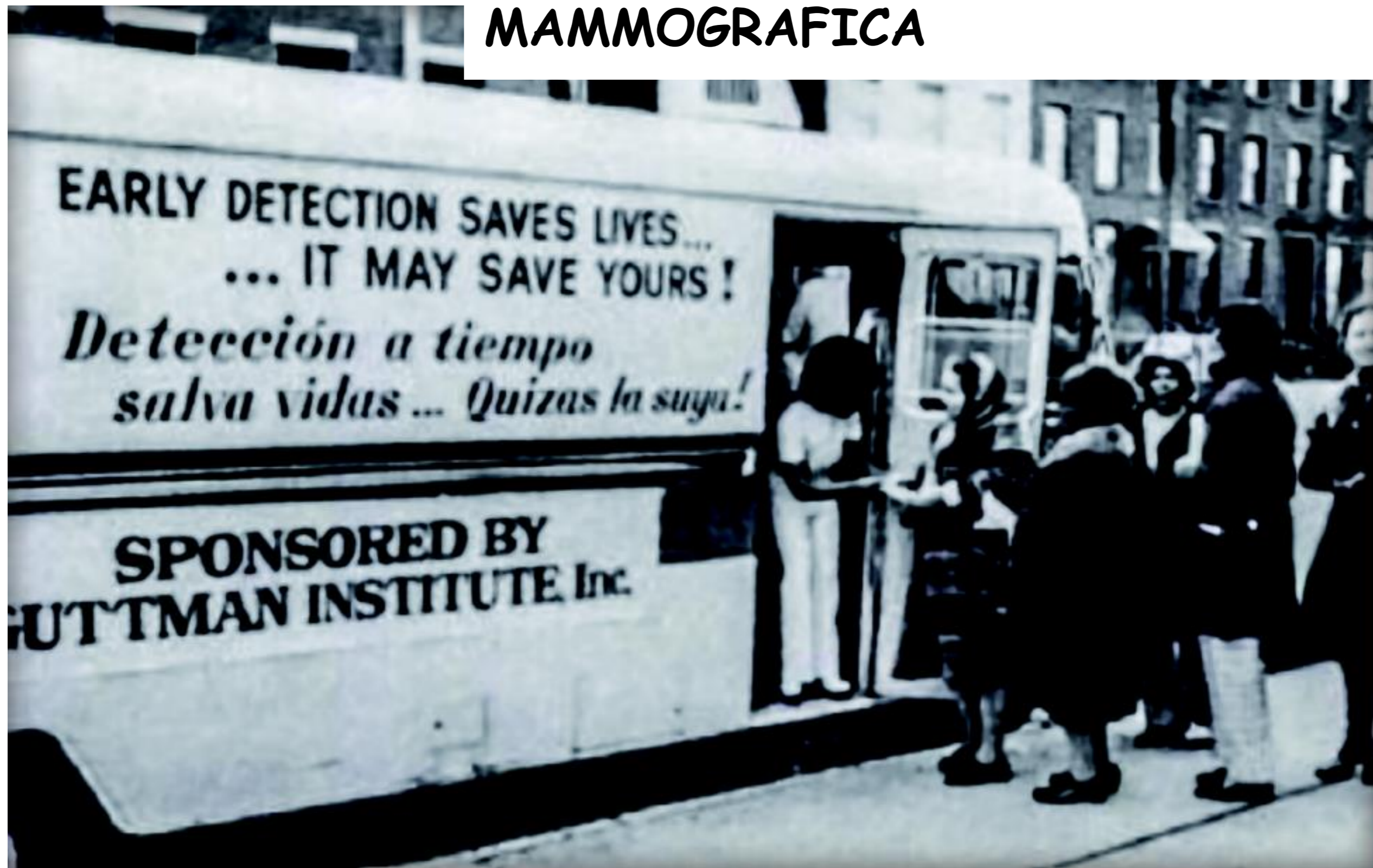
ASPORTAZIONE DELLA MAMMELLA E DEL  
GRANDE E PICCOLO PETTORALE





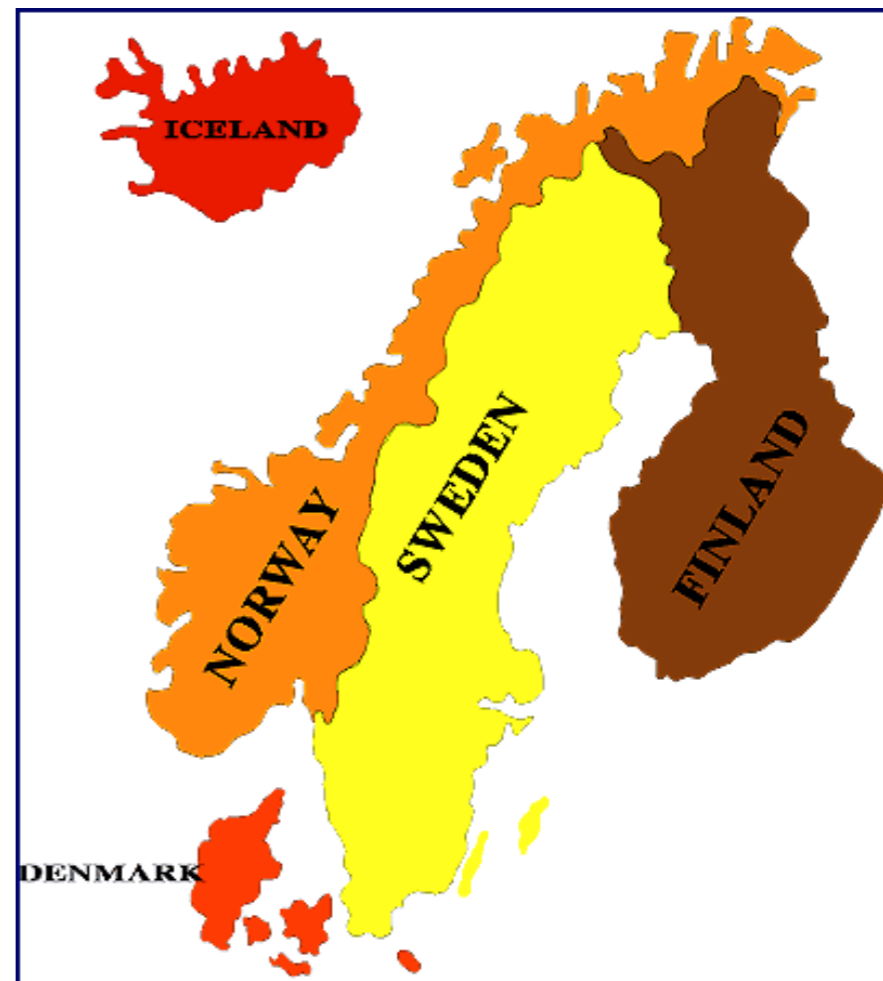


# '50 SVILUPPO APPARECCHIATURA MAMMOGRAFICA



# '50 SVILUPPO APPARECCHIATURA MAMMOGRAFICA

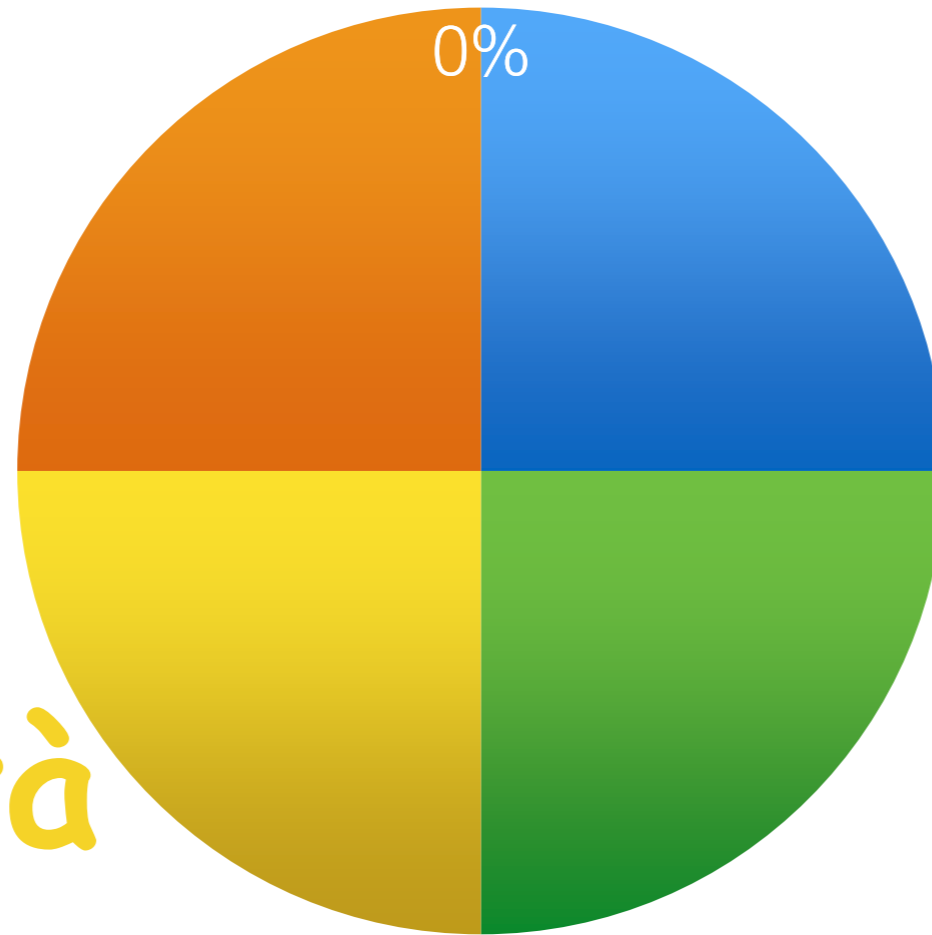
## 1976 MAMMOGRAFIA TEST STANDARD PER INDIVIDUAZIONE CANCRO AL SENO



sopravvivenza qualità della vita

standardizzazione  
organizzazione

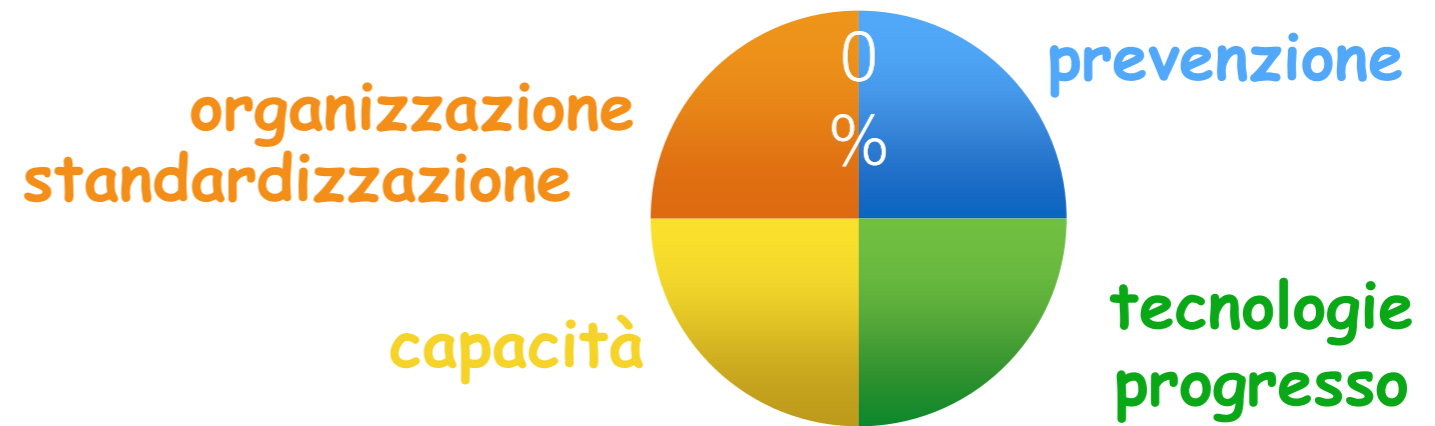
prevenzione



capacità

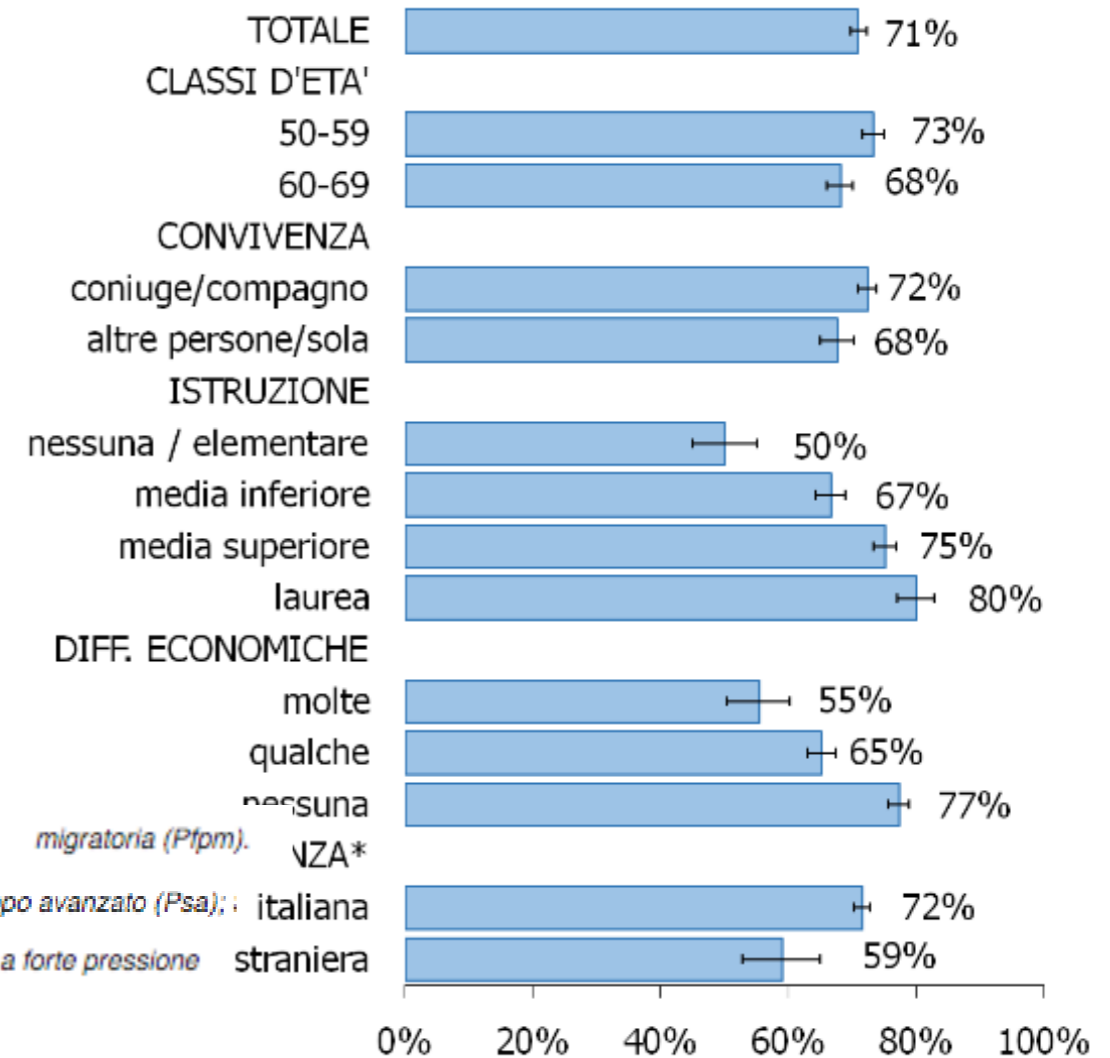
tecnologie  
progresso

# sopravvivenza qualità della vita



The Breast 51 (2020) 65–84

Women with higher socioeconomic status in Europe have a higher breast cancer incidence but lower mortality than women in lower status groups [36]. While higher incidence is linked to reproductive factors, hormonal replacement therapy and higher



\*Italiane: donne con cittadinanza italiana o provenienti da altri Paesi a sviluppo avanzato (Psa); italiana

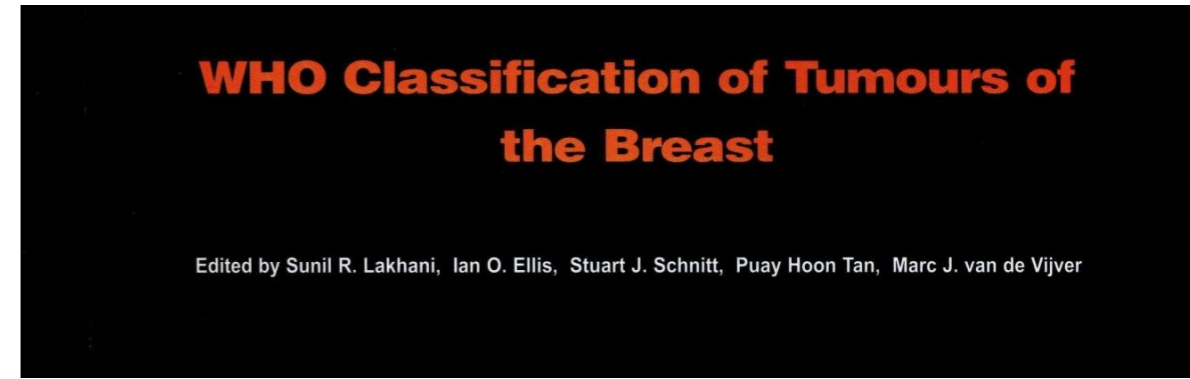
Straniere: donne immigrate da Paesi a forte pressione straniera

B) Passi 2020-2021

ONS



**EUSOBI**  
european society of breast imaging



# standardizzazione

✓ nomenclatura BI-RADS

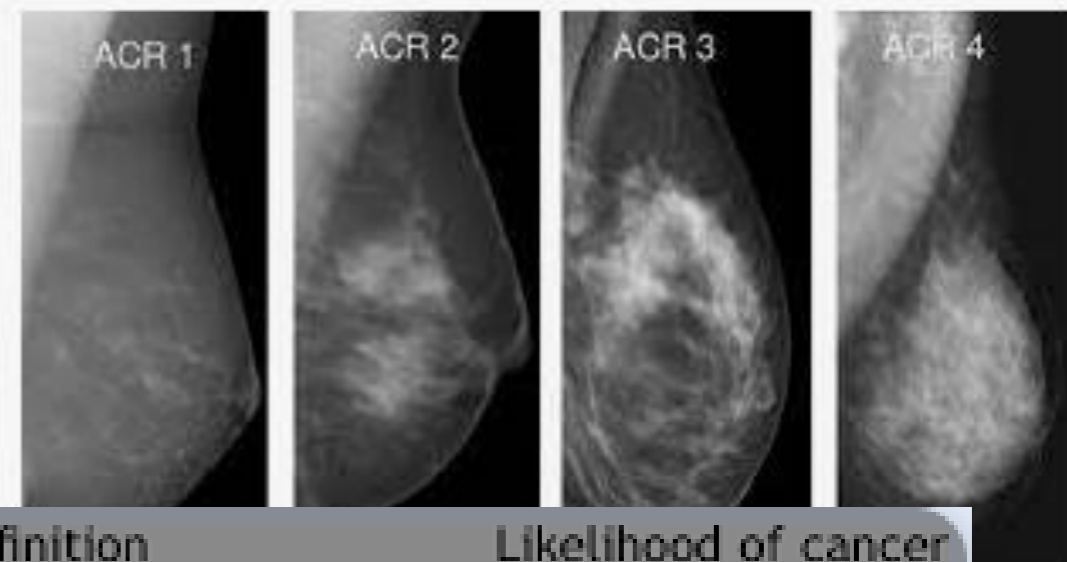
✓ semeiotica

✓ linee guida

✓ gruppi multidisciplinari

✓ PDTA presa in carico

globale integrata



Category	Definition	Likelihood of cancer
BI-RADS 0	Incomplete	N/A
BI-RADS 1	Negative	Essentially 0%
BI-RADS 2	Benign	Essentially 0%
BI-RADS 3	Probably benign	>0%, but ≤2%
BI-RADS 4	Suspicious	>2%, but <95%
BI-RADS 5	Highly suggestive of malignancy	≥95%
BI-RADS 6	Known biopsy-proven malignancy	N/A



Adopted from ACR BI-RADS Atlas, Breast Imaging Reporting and Data System.

gruppo interdisciplinare  
isontino 1997



**gruppi multidisciplinari**  
✓ Standardizzazione (EU-USA)  
✓ nomenclatura BI-RADS  
✓ reti cliniche  
✓ PDTA presa in carico  
globale integrata

### Breast cancer centre/unit and coordination

Minimum volume of 150 newly diagnosed early breast cancer cases a year and treating at least 50 metastatic breast cancer cases a year, coordinated by a core MDT member responsible for the multidisciplinary approach

#### Core MDT

##### Radiology

At least 2 radiologists carrying out at least 1,000 mammographic exams (5,000 if participating in a centralised screening programme), 200 ultrasounds, 50 MRIs and 50 breast guided interventions a year.  
At least 2 radiographers performing at least 1,000 mammograms each a year

##### Pathology

At least 2 pathologists each reporting on a minimum of 50 preoperative samples, 50 early resections and 25 metastatic breast cancer surgical specimens a year

##### Surgery

At least 2 breast surgeons carrying out primary surgery as first operator on at least 50 newly diagnosed breast cancers a year

##### Medical oncology

At least 2 medical oncologists each treating a minimum of 50 early and 25 metastatic breast cancer patients a year

##### Radiation oncology

At least 2 radiation or clinical oncologists each treating at least 50 early breast cancer patients a year. They must also have palliative treatment experience

##### Nursing

At least 2 breast care nurses working full time on breast cancer care seeing at least 50 early and 25 metastatic breast cancer patients a year

##### Data management

A data manager responsible for data collection and analysis and organisation of audit meetings



Position paper on screening for breast cancer by the European Society of Breast Imaging (EUSOBI) and 30 national breast

capacità

fare tutto non  
significa

gruppi multidisciplinari  
✓ reti cliniche  
✓ PDTA presa in carico  
globale integrata

fare bene

The Breast 51 (2020) 65–84

**Minimum caseload for core MDT members:**

Breast radiologist: 1000 mammographic exams (5000 for breast radiologists participating in a centralised screening)

Breast surgeon: 50 primary breast surgeries per year

**Need for certified and subspecialty-trained radiologists in the context of breast centres**

Quality assurance programmes regarding breast radiology units/sections are also encouraged in the context of forthcoming new European guidelines for BC screening, diagnosis and treatment.



prevenzione

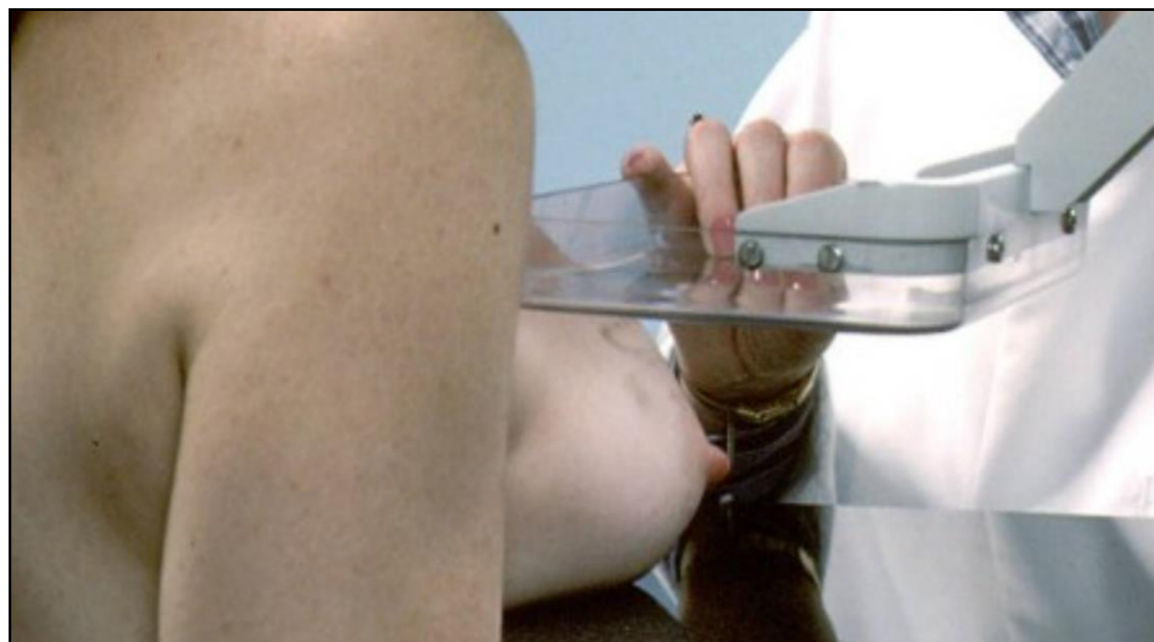
primaria

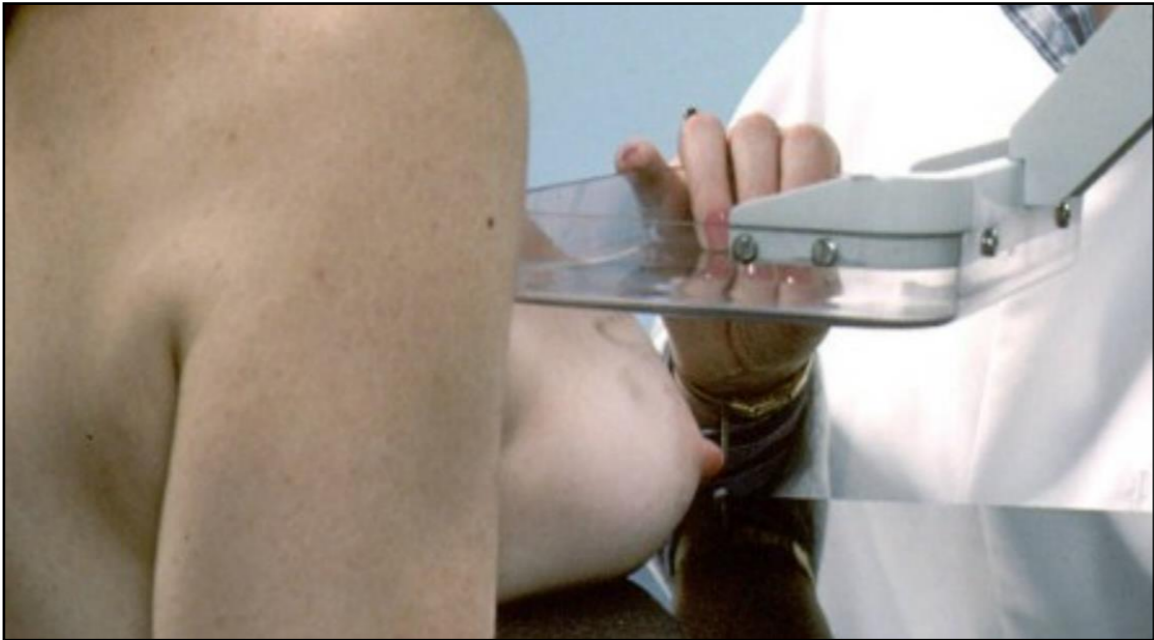
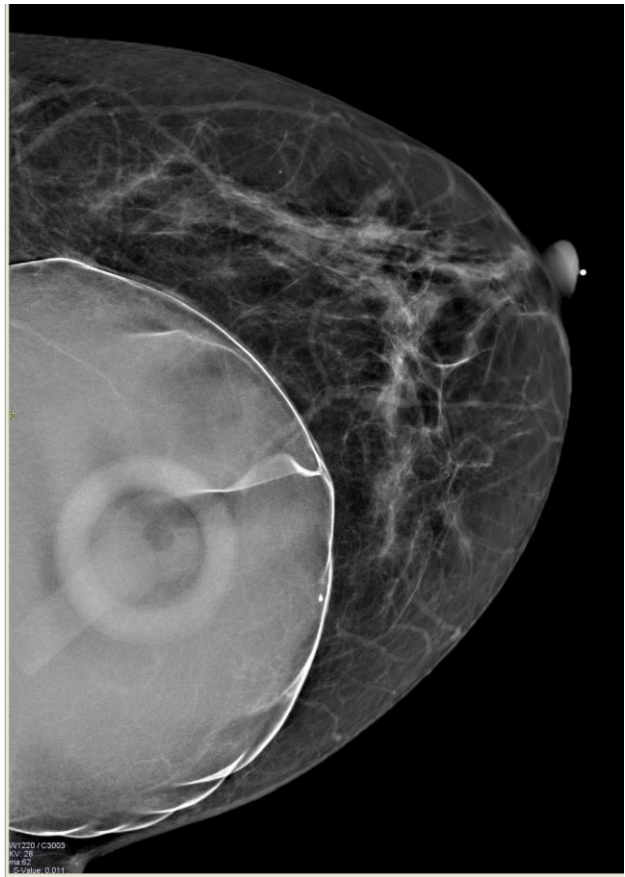
secondaria



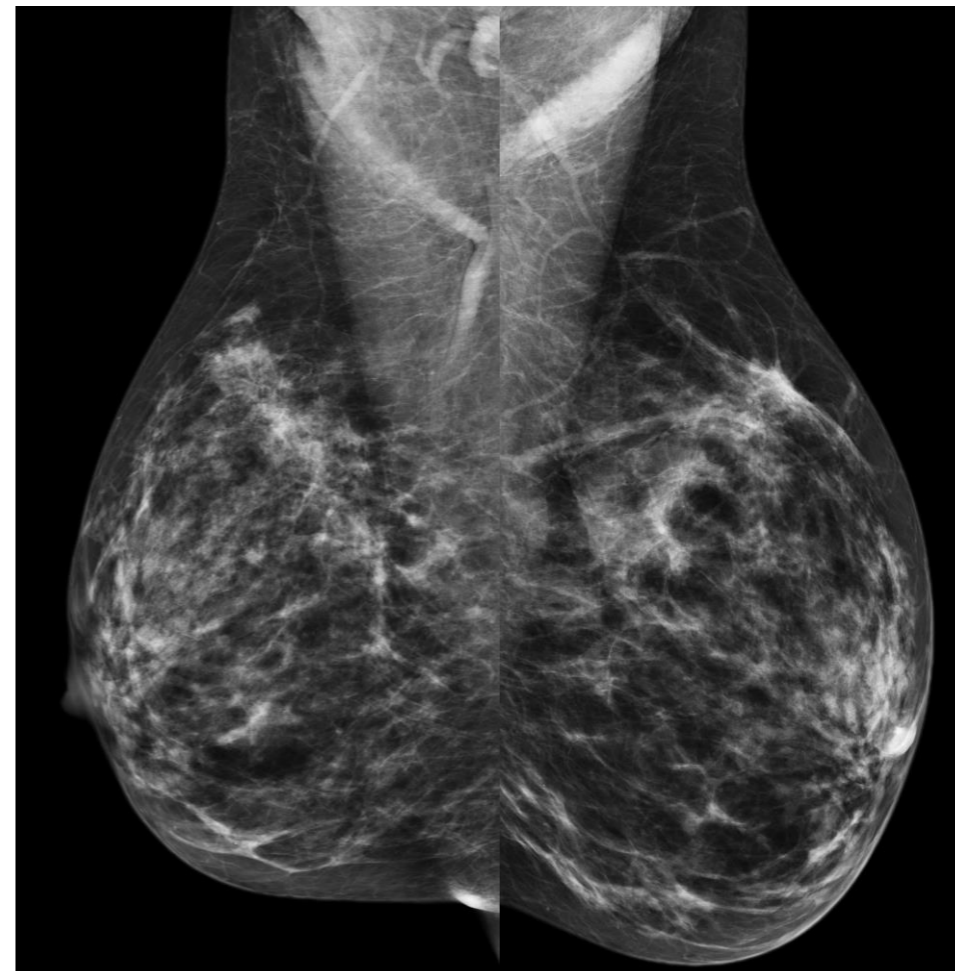
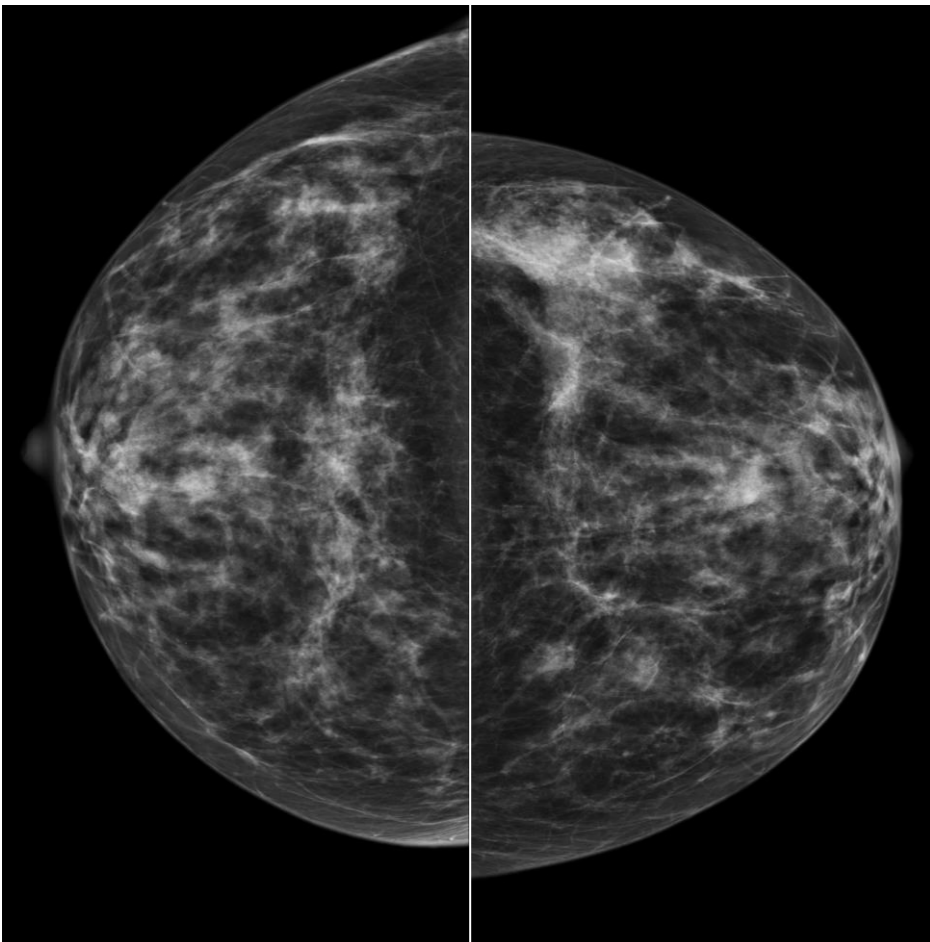
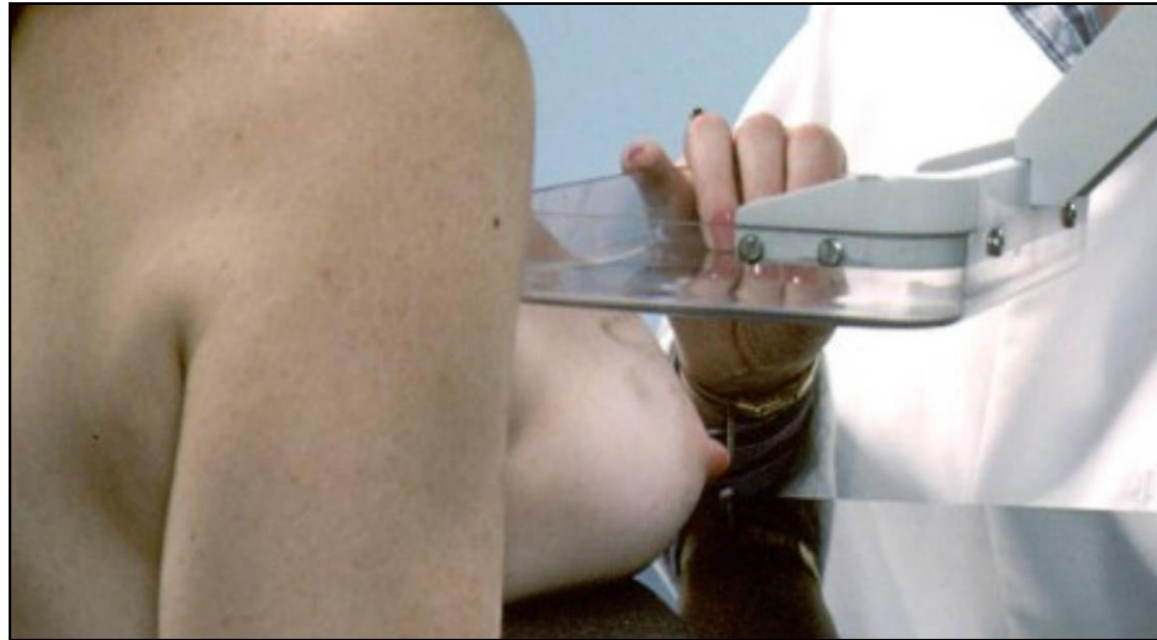
prevenzione

secondaria mammografia





screening=doppia lettura



# quando fare la mammografia??

## INCIDENZA ANNUA DEL TUMORE AL SENO PER CLASSI DI ETÀ<sup>2</sup>

CLASSI ETÀ CASI DI TUMORE AL SENO OGNI 100 MILA DONNE

• 20-24	<b>1,51</b>
• 25-29	<b>8,59</b>
• 30-34	<b>26,54</b>
• 35-39	<b>66,27</b>
• 40-44	<b>142,75</b>
• 45-49	<b>215,32</b>
• 50-54	<b>228,79</b>
• 55-59	<b>254,47</b>
• 60-64	<b>293,22</b>
• 65-69	<b>334</b>
• 70-74	<b>283,55</b>
• 75-79	<b>309,13</b>
• 80-84	<b>311,30</b>
• 85+	<b>278,17</b>

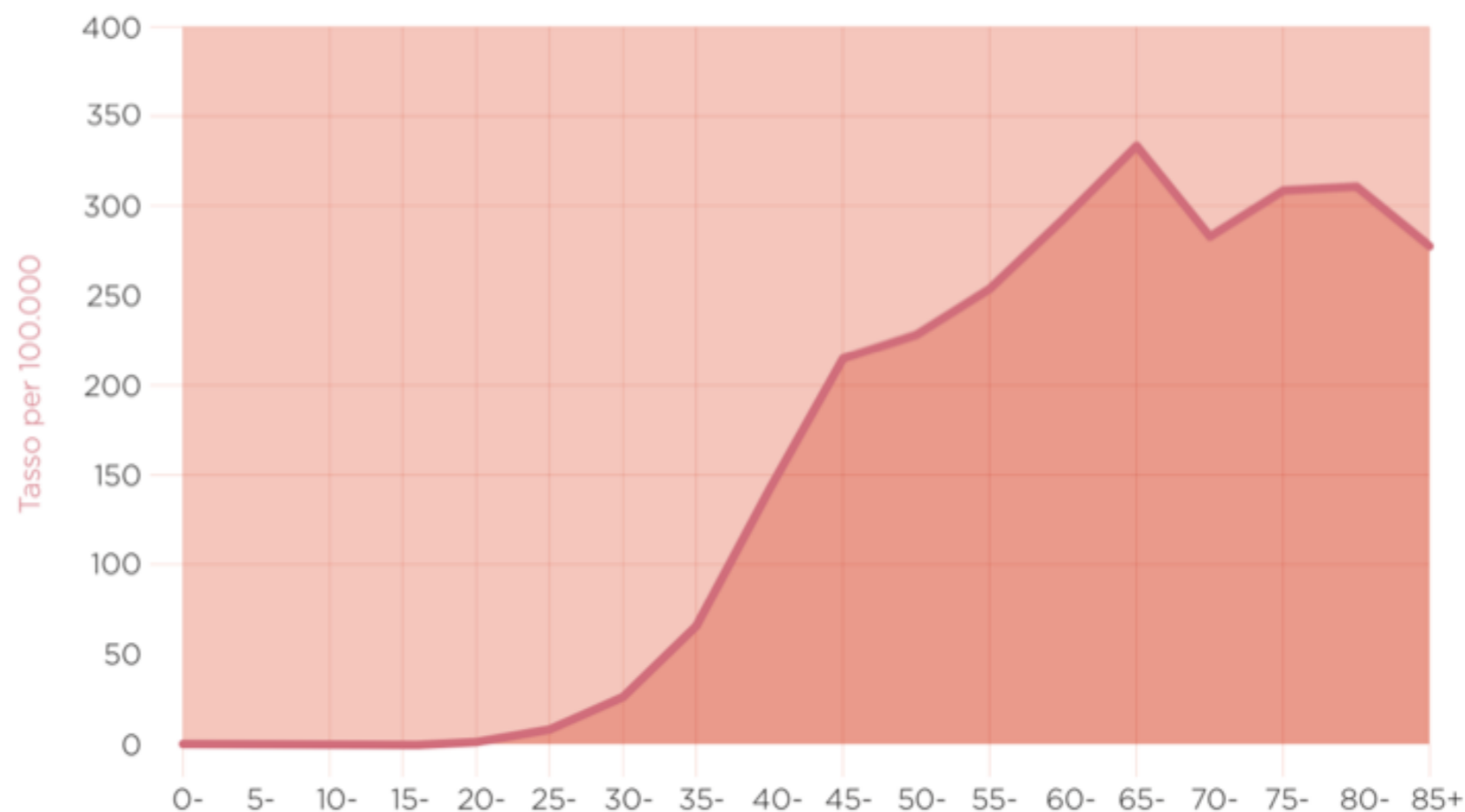


Tabella 1. Raccomandazioni secondo le Linee Guida ECIBC

età di 40–45 anni: <u>nessuno screening</u>
età di 45–49 anni: <u>screening con mammografia ogni 2–3 anni</u>
età di 50–69 anni: <u>screening con mammografia ogni 2 anni</u>
età di 70–74 anni: <u>screening con mammografia ogni 3 anni</u>

### Mammography: EUSOBI recommendations for women’s information



Br J Cancer. 2022 Mar 9; 126(4): 673–688.

Published online 2021 Nov 26. doi: [10.1038/s41416-021-01521-8](https://doi.org/10.1038/s41416-021-01521-8)

PMCID: PMC8854566

PMID: [34837076](https://pubmed.ncbi.nlm.nih.gov/34837076/)

Benefits and harms of annual, biennial, or triennial breast cancer mammography screening for women at average risk of breast cancer: a systematic review for the European Commission Initiative on Breast Cancer (ECIBC)

**mammografia digitale  
screening organizzato vs spontaneo o opportunistico  
rischio FP o sovradiagnosi**

50-70 aa



OK /2aa

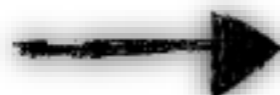
40-50 aa



???./1aa (densità-velocità)

US???

70-75 aa



OK/2-3 aa

**linee guida ≠ discussione sempre in corso**

## Mammography: an update of the EUSOBI recommendations on information for women

Insights Imaging (2012) 3:7–10  
DOI 10.1007/s13244-011-0127-y

# fino a quando??

## Mammography: EUSOBI recommendations for women's information

### What about screening mammography for women over 75?

The continuous increase in life expectancy prevents defining a clear cut upper age limit for screening mammography. A general suggestion is to continue screening with mammography for elderly women as long as their health is not significantly compromised by illness that drastically reduces life expectancy [41, 42]. Discuss this decision with your radiologist.

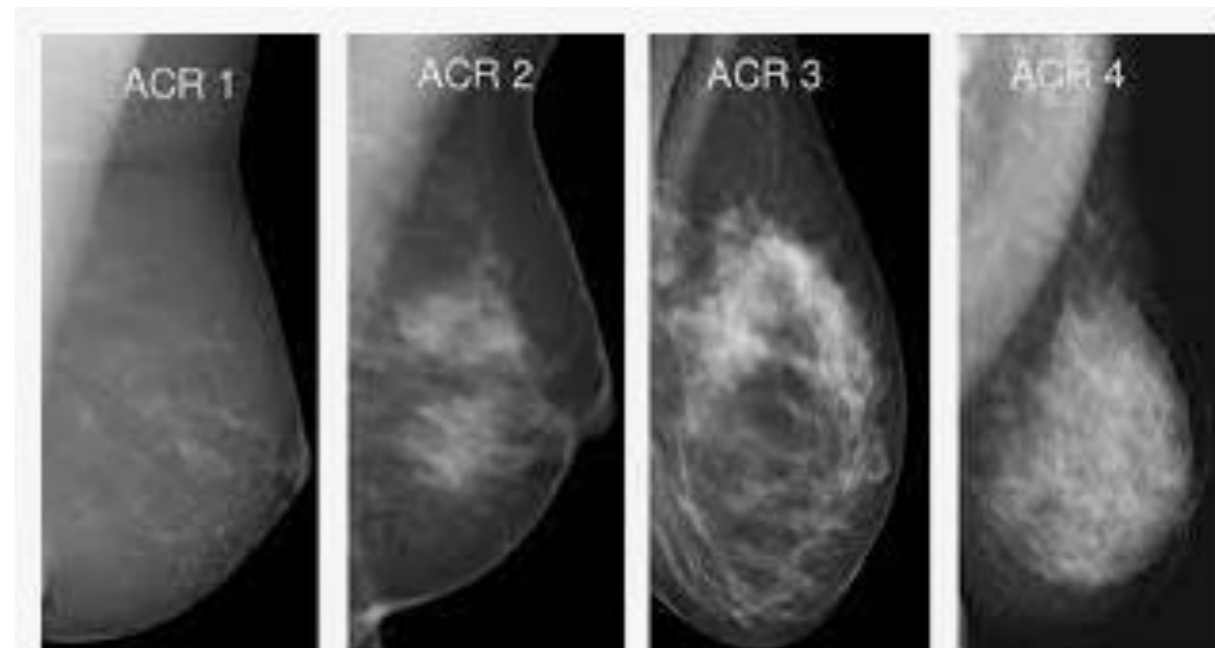


**finché aspettativa di vita > 10 aa**

# Breast cancer screening in women with extremely dense breasts recommendations of the European Society of Breast Imaging (EUSOBI)

Breast | [Open access](#) | [Published: 08 March 2022](#) | 32, 4036–4045 (2022)

- a. The breasts are almost entirely fatty (about 10% of the screening population [3])
- b. There are scattered areas of fibroglandular density (about 42% of the screening population)
- c. The breasts are heterogeneously dense, which may obscure small masses (about 40% of the screening population)
- d. The breasts are extremely dense, which lowers the sensitivity of mammography (about 8% of the screening population)





# Breast cancer screening in women with extremely dense breasts: recommendations of the European Society of Breast Imaging (EUSOBI)

Breast | Open access | Published: 08 March 2022 | 32, 4036–4045 (2022)

provide initial evidence to suggest that, for some women, ultrasound may be beneficial [24,25,26,27,28,29]. Within Europe, supplemental ultrasound has been structurally implemented in Austria for women with dense breasts (BI-RADS classes c and d). In the timeframe from 2014 to 2017, the program showed a sensitivity of 71% and a specificity of 99%. The breast cancer detection rate was similar to EU standards. However, currently, the added value of supplemental ultrasound regarding cancer detection is limited [30].

US?

Accordingly, so far, these results have been insufficient for EUSOBI to recommend that average-risk women undergoing mammographic screening should be informed about their breast density [16].

informare??

That MRI indeed detects breast cancers earlier is also apparent from the number of cancers detected at the subsequent mammographic screening round, which was 2.0/1,000, as compared to 6.8/1,000 in the regular population of women with extremely dense breasts.

Furthermore, the next MRI screen (2 years later) yielded a supplemental detection rate of only 5.9/1,000, all of which were stage 0/1 and node-negative; providing further evidence that relevant cancers are detected predominantly earlier. Moreover, the number of benign lesions leading to recall becomes much smaller in the follow-up round (28.4/1,000), and therefore, the PPV remained stable (PPV = 23.5% in follow-up) [32].

Accordingly, so far, these results have been insufficient for EUSOBI to recommend that average-risk women undergoing mammographic screening should be informed about their breast density [16].

This reluctance was explained by the following facts:

- We were not convinced that the benefit/risk ratio of supplemental screening for women with extremely dense breasts was positive.
- Many European countries do not offer any form of supplemental screening.
- Informing women about their density, in absence of high-level scientific evidence for screening alternatives, could increase anxiety and reduce screening participation.

ansia??

However, this policy is now to change.

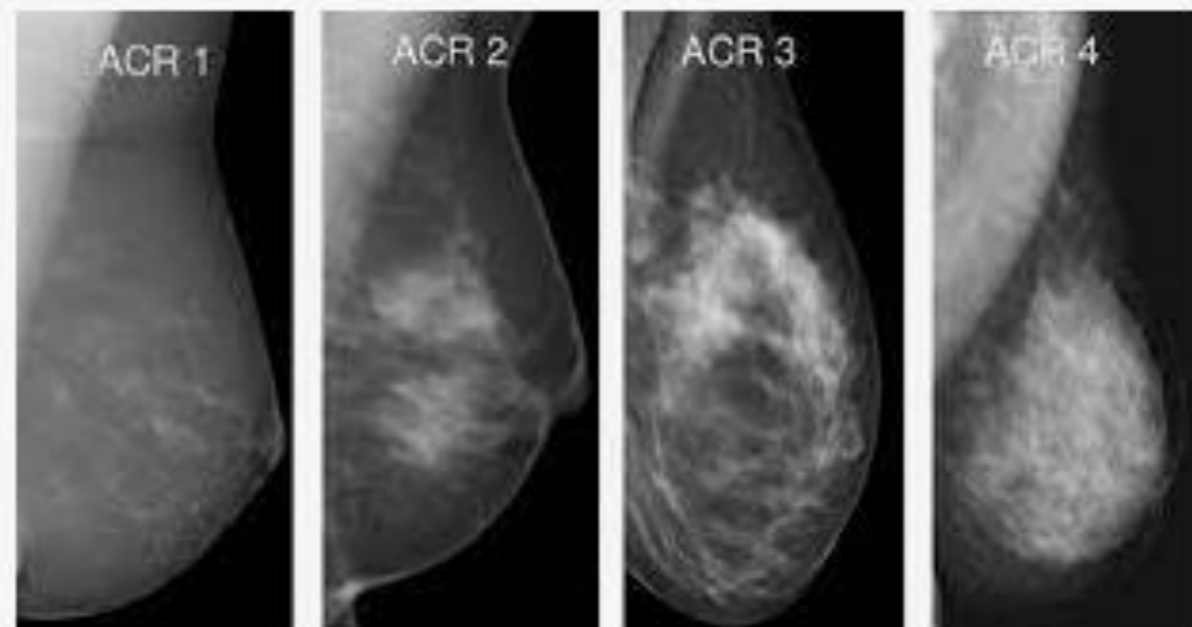
## Breast cancer screening in women with extremely dense breasts recommendations of the European Society of Breast Imaging (EUSOBI)

### Screening in women with extremely dense breasts Recommendations of the European Society of Breast Imaging

- EUSOBI now recommends that women should be appropriately informed about their individual breast density – and on the diagnostic and prognostic implications of having dense breasts – by all (European) organizations that offer breast screening, in order to help them make well-balanced choices.
- EUSOBI now recommends that supplemental screening is recommended in women with extremely dense breasts.
- EUSOBI now recommends that such supplemental screening should be done preferably with MRI, because for the time being, level I evidence is available only for MRI screening. EUSOBI recommends such supplemental MRI screening to be offered to women with extremely dense breasts, from age 50 to 70, and at least every 4 years, preferably every 2 to 3 years. MRI can be used as a stand-alone screening technique (without mammography).
- EUSOBI recommends that, where MRI screening is unavailable for reasons explained below, ultrasound in combination with mammography may be used as an alternative. In these cases, however, EUSOBI recommends informing women adequately about the different performance levels of different non-mammographic screening methods.
- EUSOBI acknowledges the fact that before a population-wide use of non-mammographic screening methods (screening ultrasound and screening breast MRI) is put to practice in women with extremely dense breasts, the necessary quality assurance systems and benchmarks must be established for these non-mammographic screening methods similar to those that are in place for mammographic screening. This will take some time to prepare and to implement; in view of the degree of underdiagnosis associated with pure mammographic screening in women with extremely dense breasts, EUSOBI recommends national societies to act on this now, and with high priority. The EUSOBI guidelines on breast MRI or on screening ultrasound could serve as suitable templates.
- EUSOBI underscores that, even in the absence of national programs that offer MRI screening as part of national healthcare, women should be informed about this recommendation in an unbiased and objective way according to the principle of “shared decision making”.

EUSOBI wishes to underscore that “shared decision making” will likely result in more individualized screening approaches. This may interfere with current measures of effectiveness of screening programs that consider overall participation rates as an important indicator of quality. Of course, demonstrating a reduction of mortality on a population wide level requires high participation rates – but this should not lead to discouraging tools that may not yet be broadly available or acceptable, but can effectively avoid premature death from breast cancer in individual women.

Breast density is an independent risk factor for the development of breast cancer and also decreases the sensitivity of mammography for screening. Consequently, women with extremely dense breasts face an increased risk of late diagnosis of breast cancer. These women are, therefore, underserved with current mammographic screening programs. The results of recent studies reporting on contrast-enhanced breast MRI as a screening method in women with extremely dense breasts provide compelling evidence that this approach can enable an important reduction in breast cancer mortality for these women and is cost-effective. Because there is now a valid option to improve breast cancer screening, the European Society of Breast Imaging (EUSOBI) recommends that women should be informed about their breast density. EUSOBI thus calls on all providers of mammography screening to share density information with the women being





## ALTO RISCHIO



### ***SCREENING DELLE DONNE AD ALTO RISCHIO***

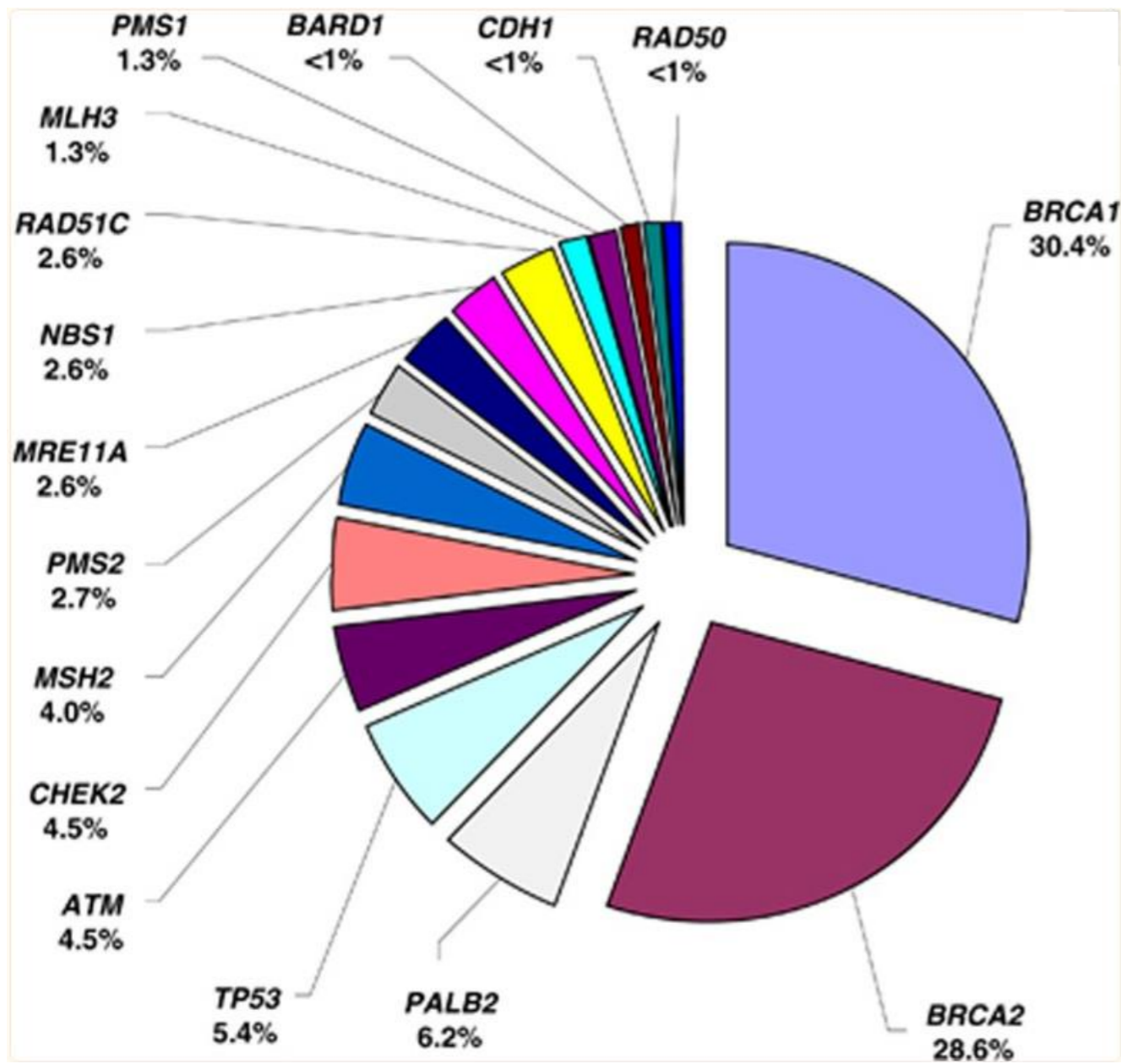
Nelle donne ad alto rischio per importante storia familiare di carcinoma mammario o perché portatrici di mutazione dei geni BRCA1 e/o BRCA-2 i controlli strumentali vengono da pratica clinica iniziati all'età di 25 anni o 10 anni prima dell'età di insorgenza del tumore nel familiare più giovane.

La Risonanza Magnetica Mammaria (RM) con mezzo di contrasto (MdC) con cadenza annuale di screening, trova indicazione<sup>33</sup> nelle donne ad alto rischio definite come segue:

- mutazione BRCA1 o BRCA2;
- rischio lifetime 20–25% secondo i comuni modelli di predizione del rischio;
- sindrome di Li-Fraumeni, Cowden o Bannayan-Riley-Ruvalcaba;
- pregressa radioterapia toracica tra i 10 e i 30 anni;

**≥ 25 aa  
10 aa prima  
di parente**

**RMN/a**



Next-generation sequencing for the diagnosis of hereditary breast and ovarian cancer using genomic capture targeting multiple candidate genes

[Eur J Hum Genet.](https://doi.org/10.1038/ejhg.2014.16) 2014 Nov; 22(11): 1305–1313.

Published online 2014 Feb 19. doi: [10.1038/ejhg.2014.16](https://doi.org/10.1038/ejhg.2014.16)

MyPeBS mette a confronto lo screening personalizzato basato sul rischio con lo screening standard



Storia medica personale e familiare



Densità mammaria



Analisi del DNA di un campione di saliva

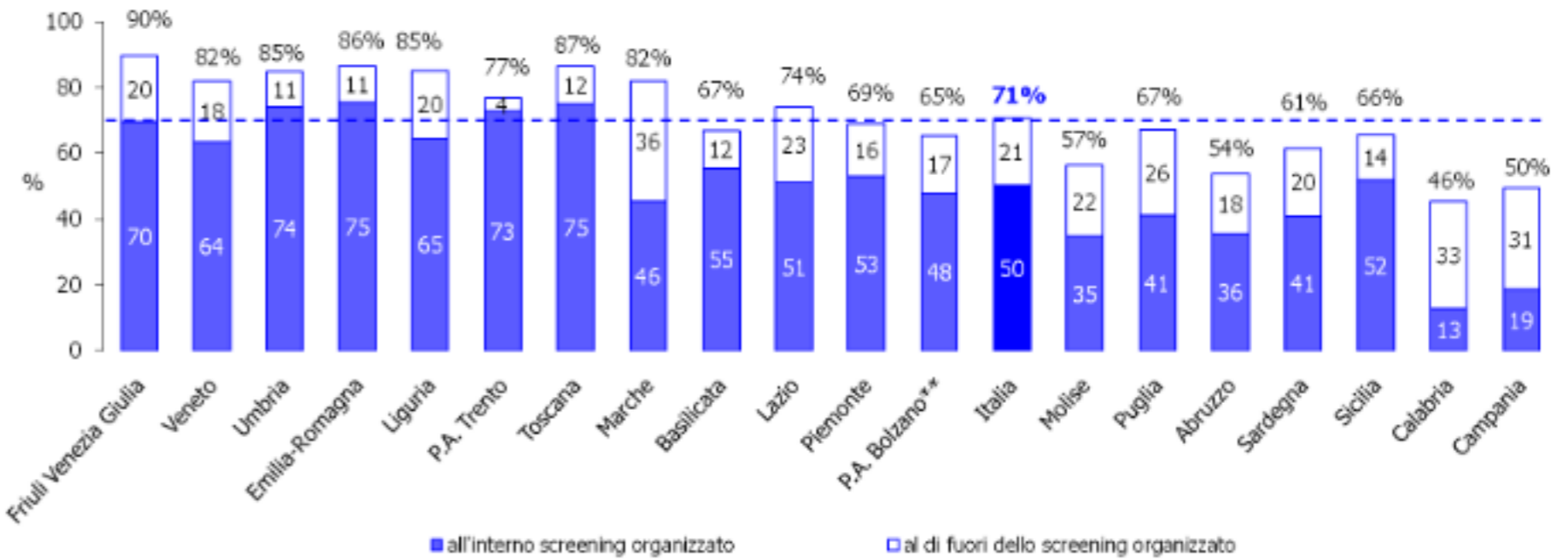
LIVELLO DI RISCHIO	ESAMI		
	Mammografia	Ecografia	Risonanza Magnetica
<b>Rischio BASSO</b>	Dopo 4 anni		
<b>Rischio MEDIO</b>	Ogni 2 anni	Ogni 2 anni*	
<b>Rischio ALTO</b>	Ogni anno	Ogni anno*	
<b>Rischio MOLTO ALTO</b>	Ogni anno		Ogni anno**

\* Solo se la densità mammaria è elevata

\*\* Fino al compimento dei 60 anni

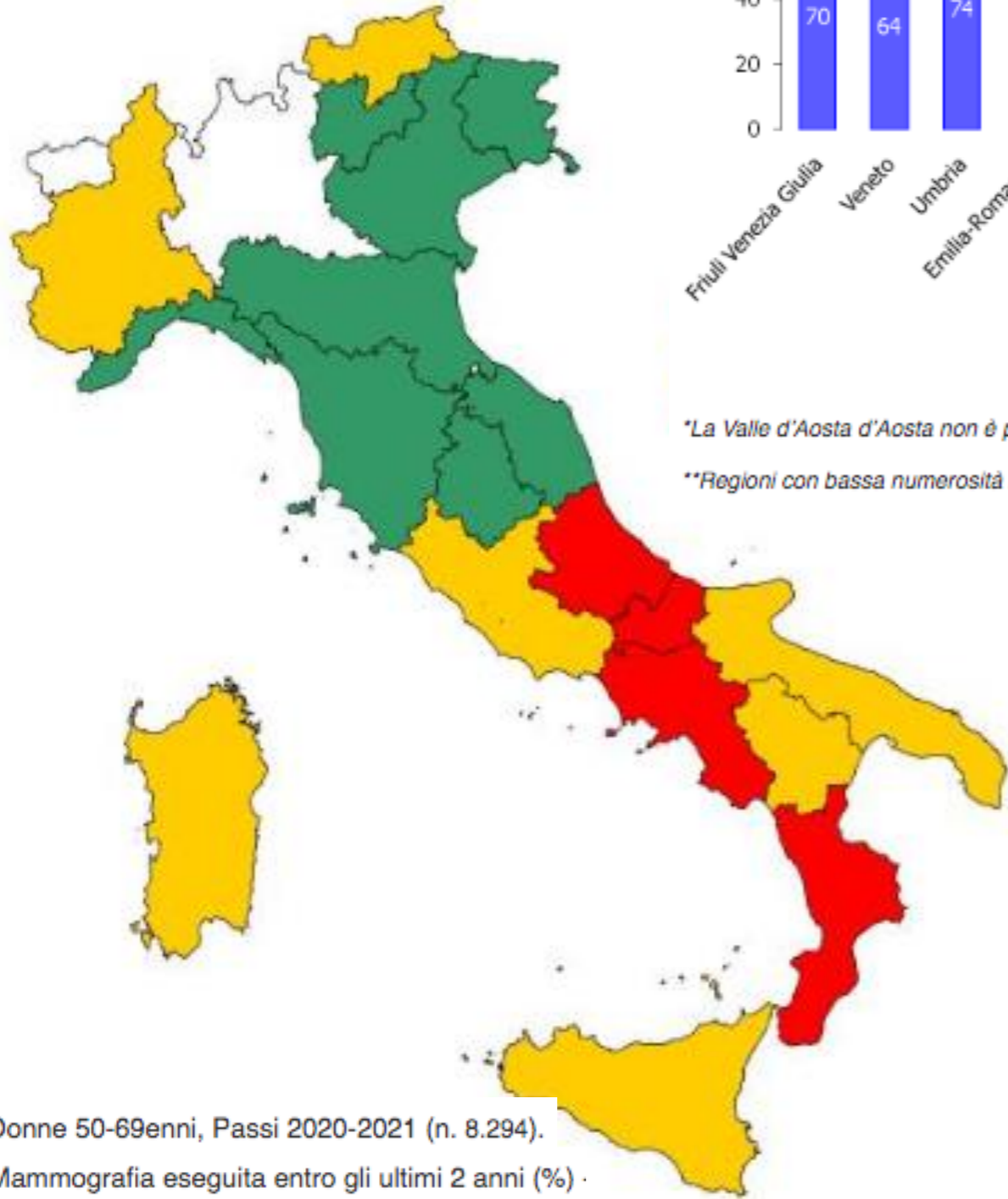
Figura 3. Mammografia eseguita entro gli ultimi 2 anni (%) - Donne 50-69enni.

B) Passi 2020-2021\*



\*La Valle d'Aosta d'Aosta non è presente nei grafici a causa della bassa numerosità per il 2020-2021 ma contribuisce al valore nazionale di entrambi i periodi.

\*\*Regioni con bassa numerosità nel 2020-2021 (n<100).



Donne 50-69enni, Passi 2020-2021 (n. 8.294).

Mammografia eseguita entro gli ultimi 2 anni (%)

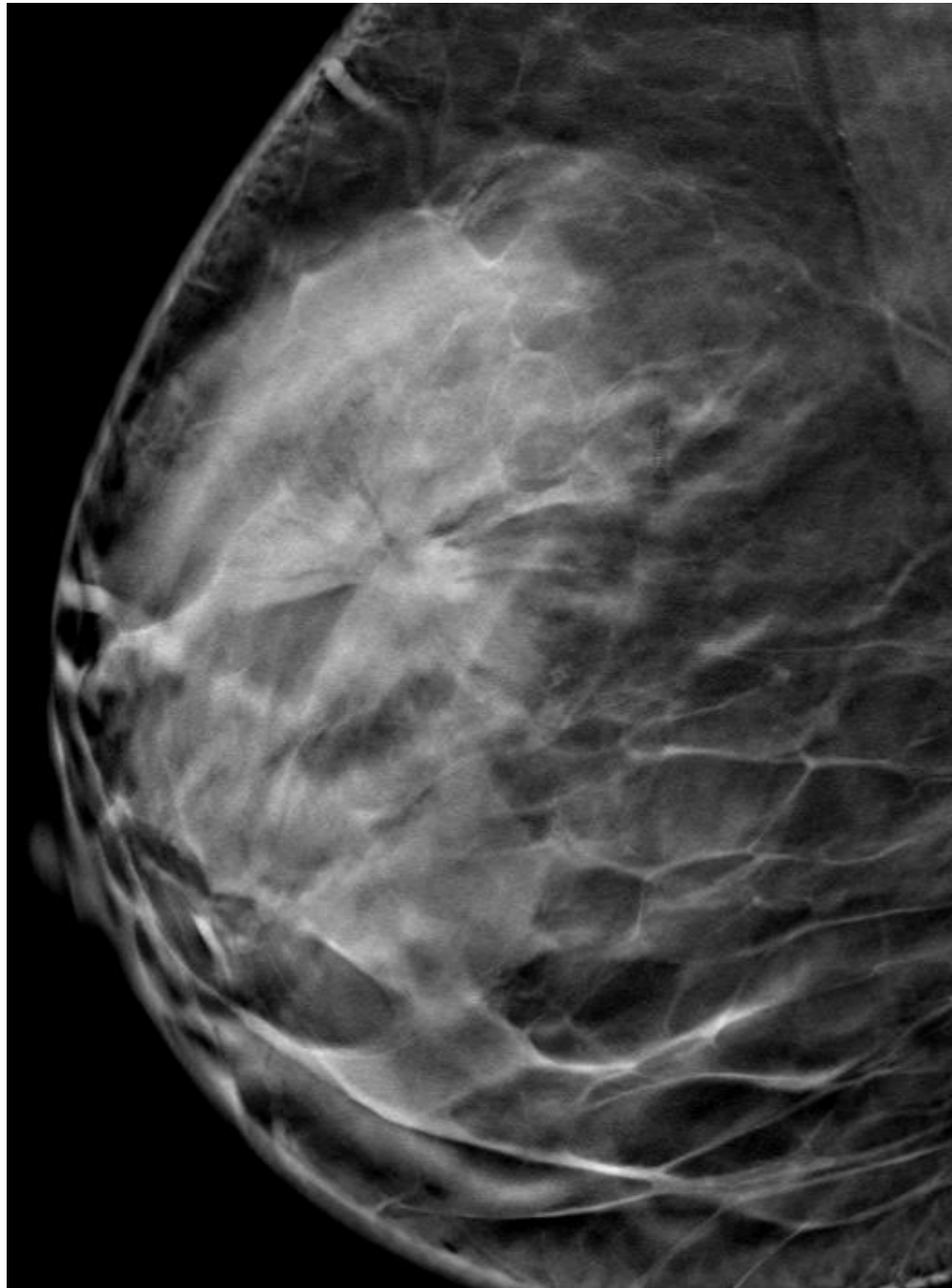
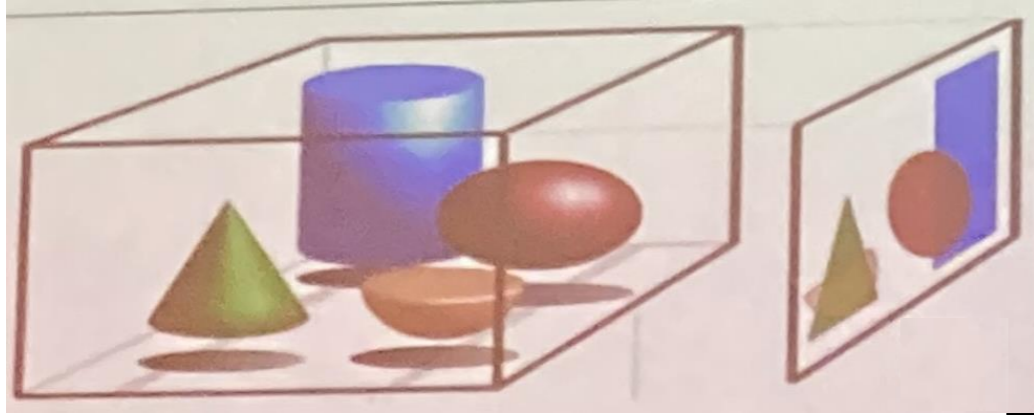
## **Mammography: an update of the EUSOBI recommendations on information for women**

Insights Imaging (2012) 3:7–10  
DOI 10.1007/s13244-011-0127-y

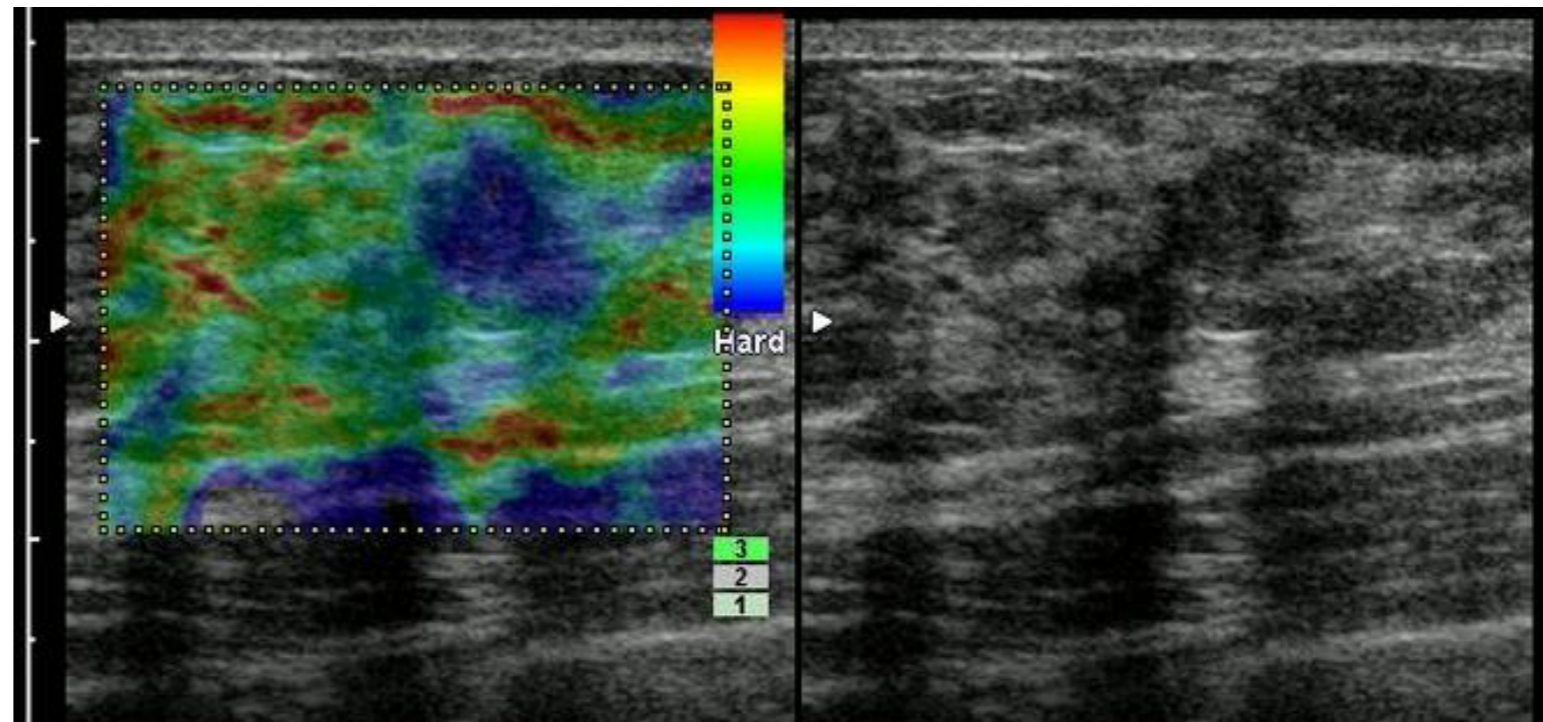
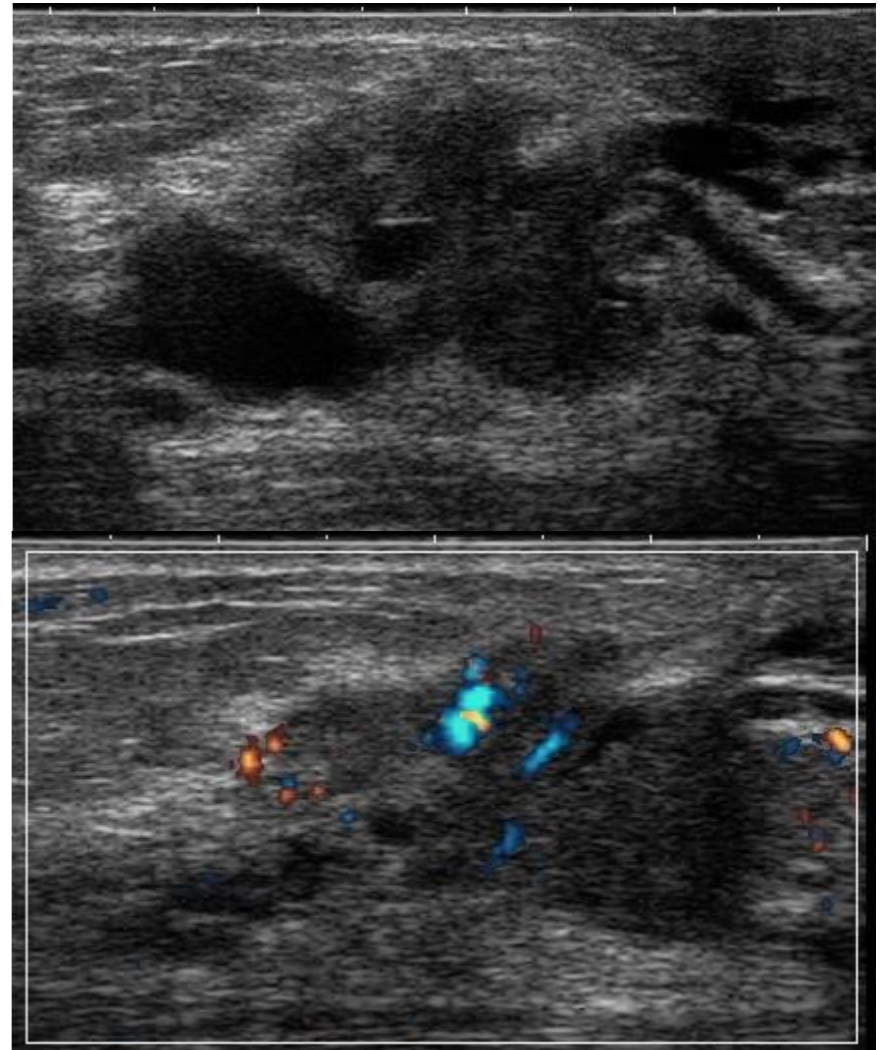
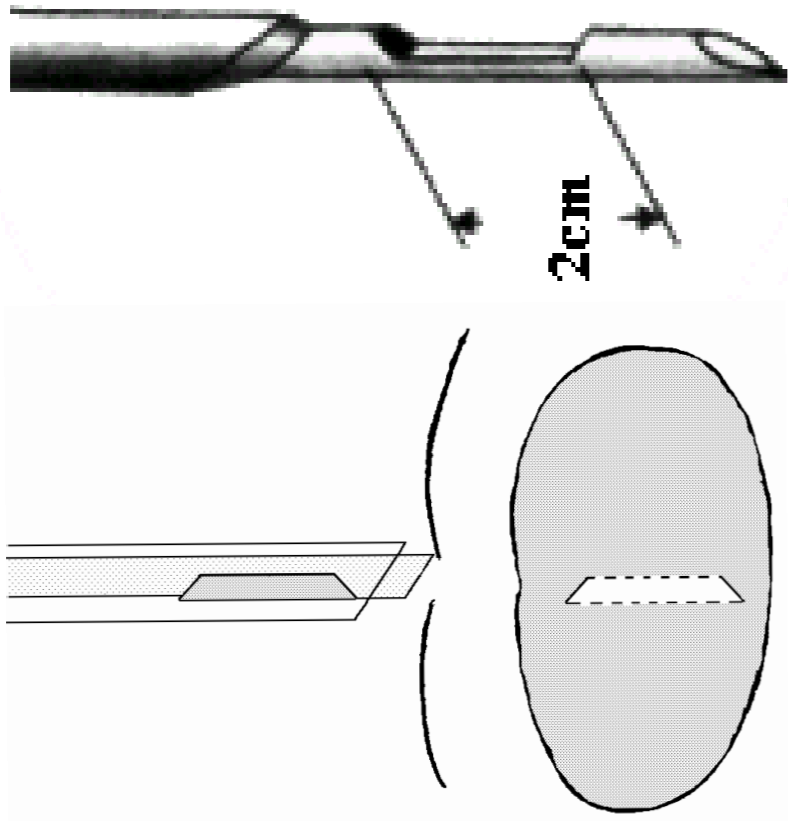
**esito mammografia??**

## **Mammography: EUSOBI recommendations for women's information**

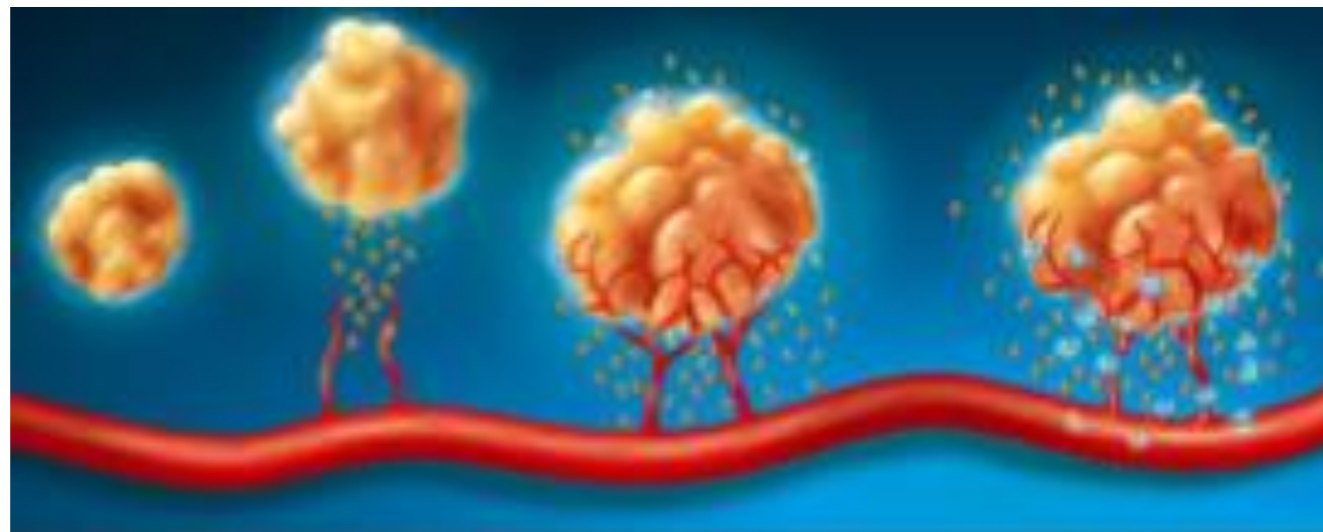
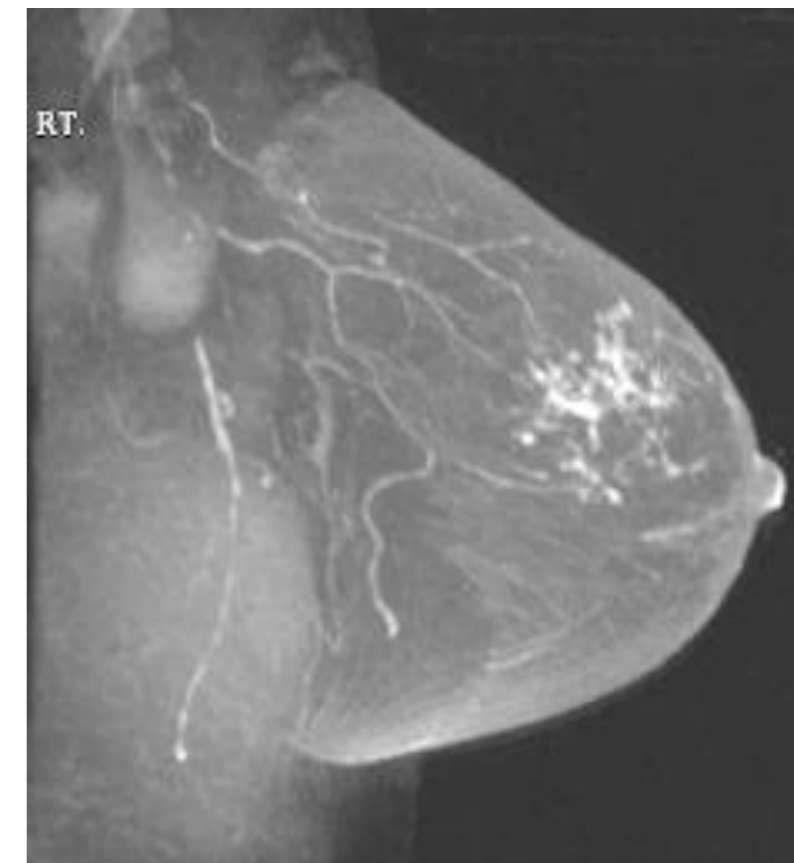
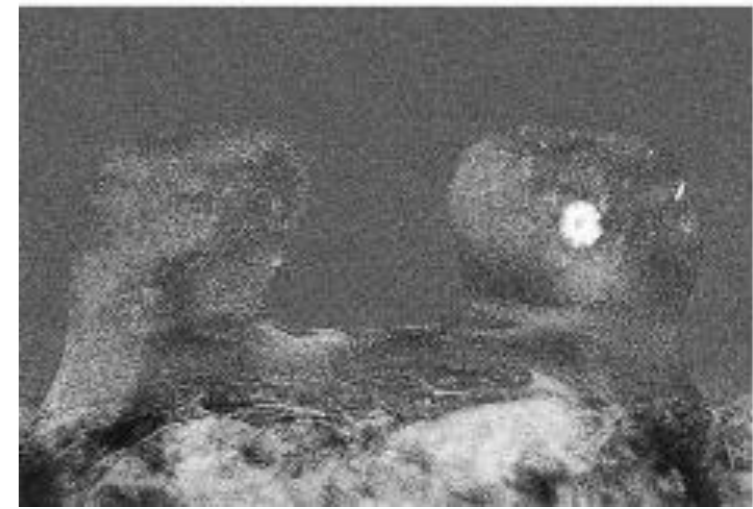
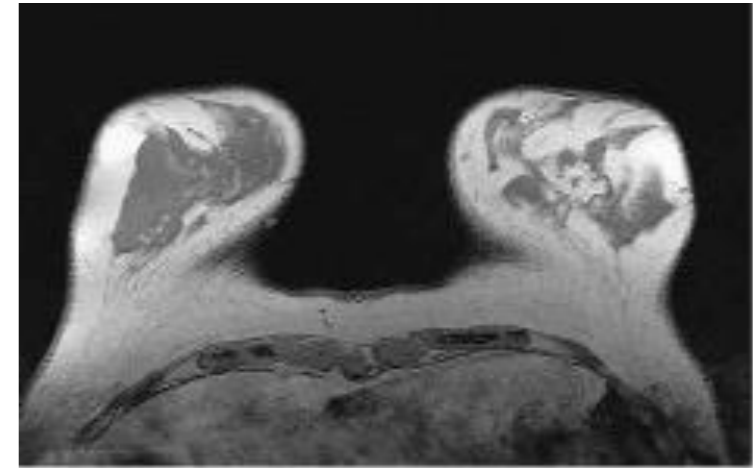
cating this result. If something suspicious is found, the woman is recalled for a tailored further assessment that can be variably composed of additional mammographic views, tomosynthesis, ultrasound, MRI, CESM or needle biopsy. When this assessment is concluded, a formal written report will be prepared by the radiologist and given to the woman during a dedicated interview for complete information.





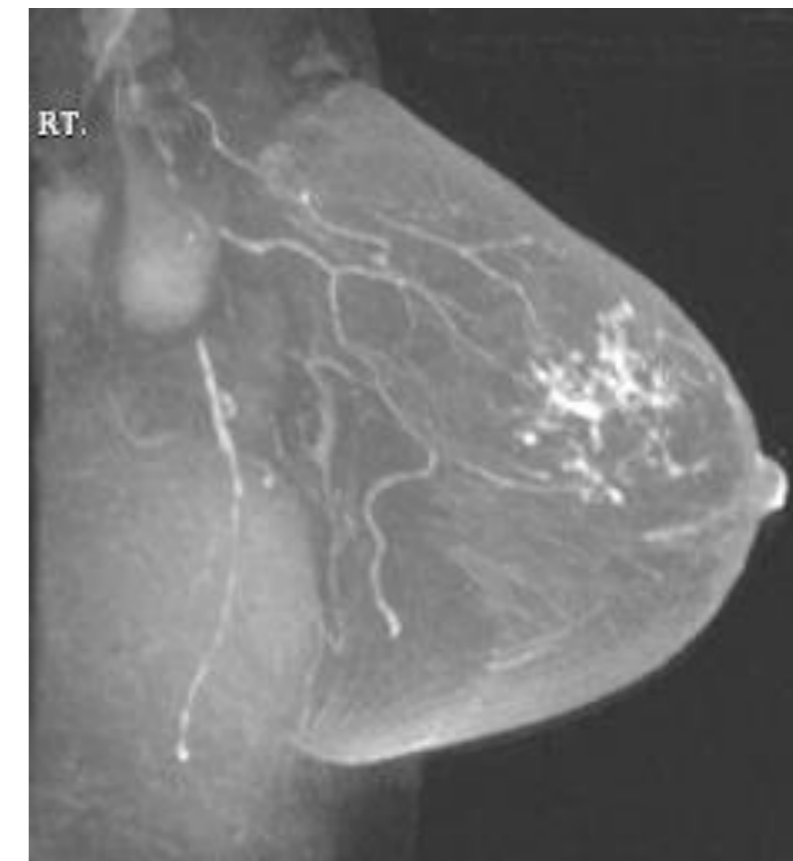
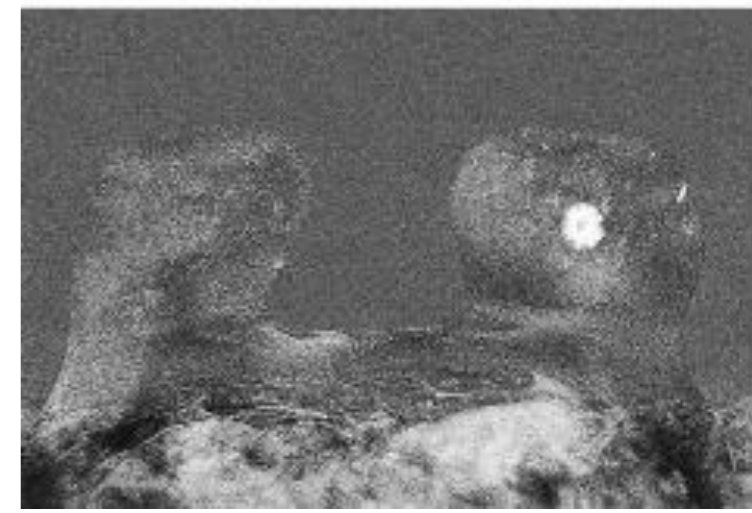
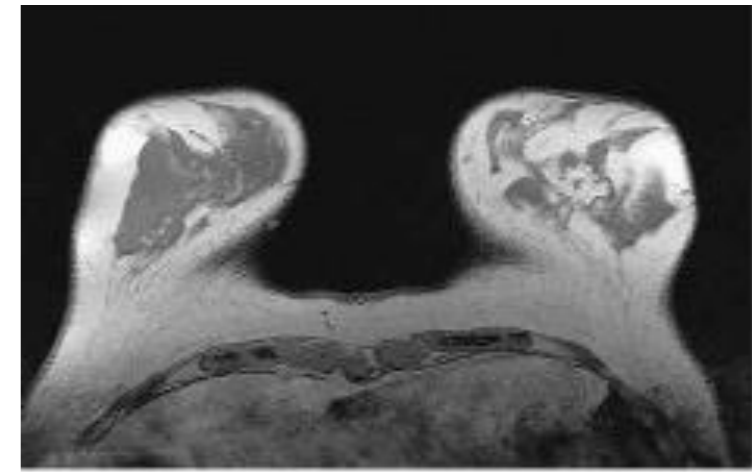


**sensibile  
multiparametrica  
multiplanare  
funzionale**

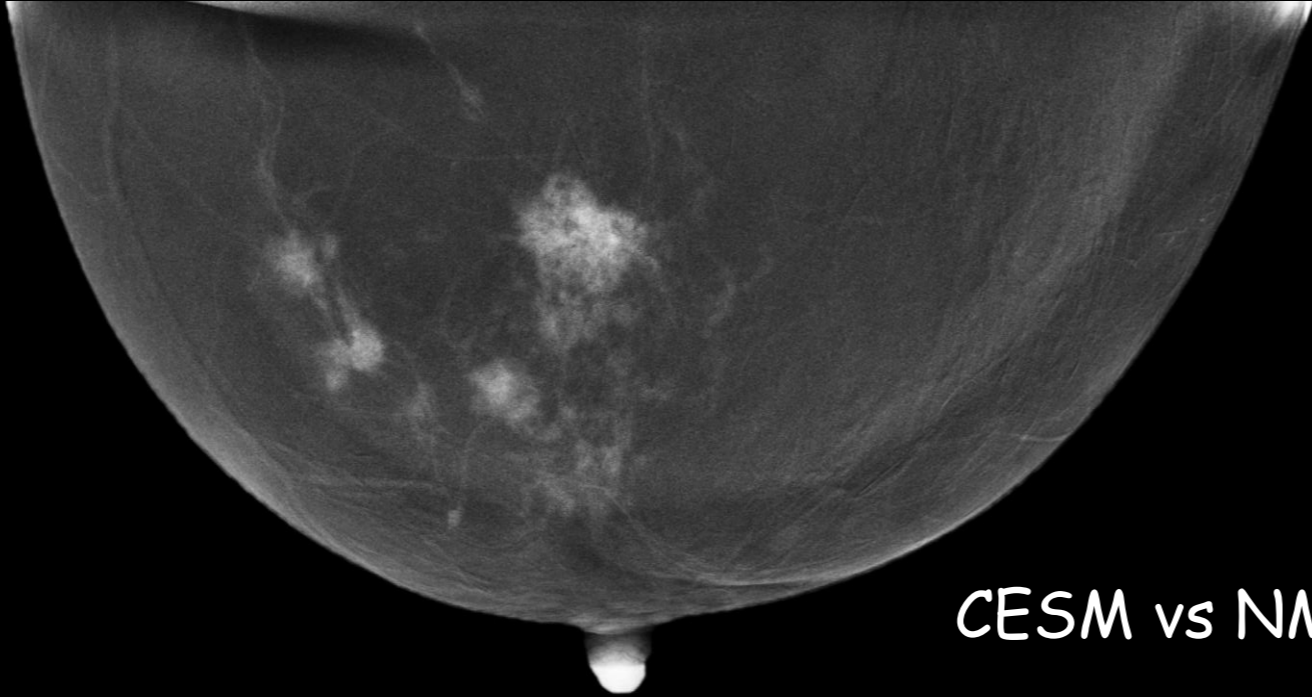
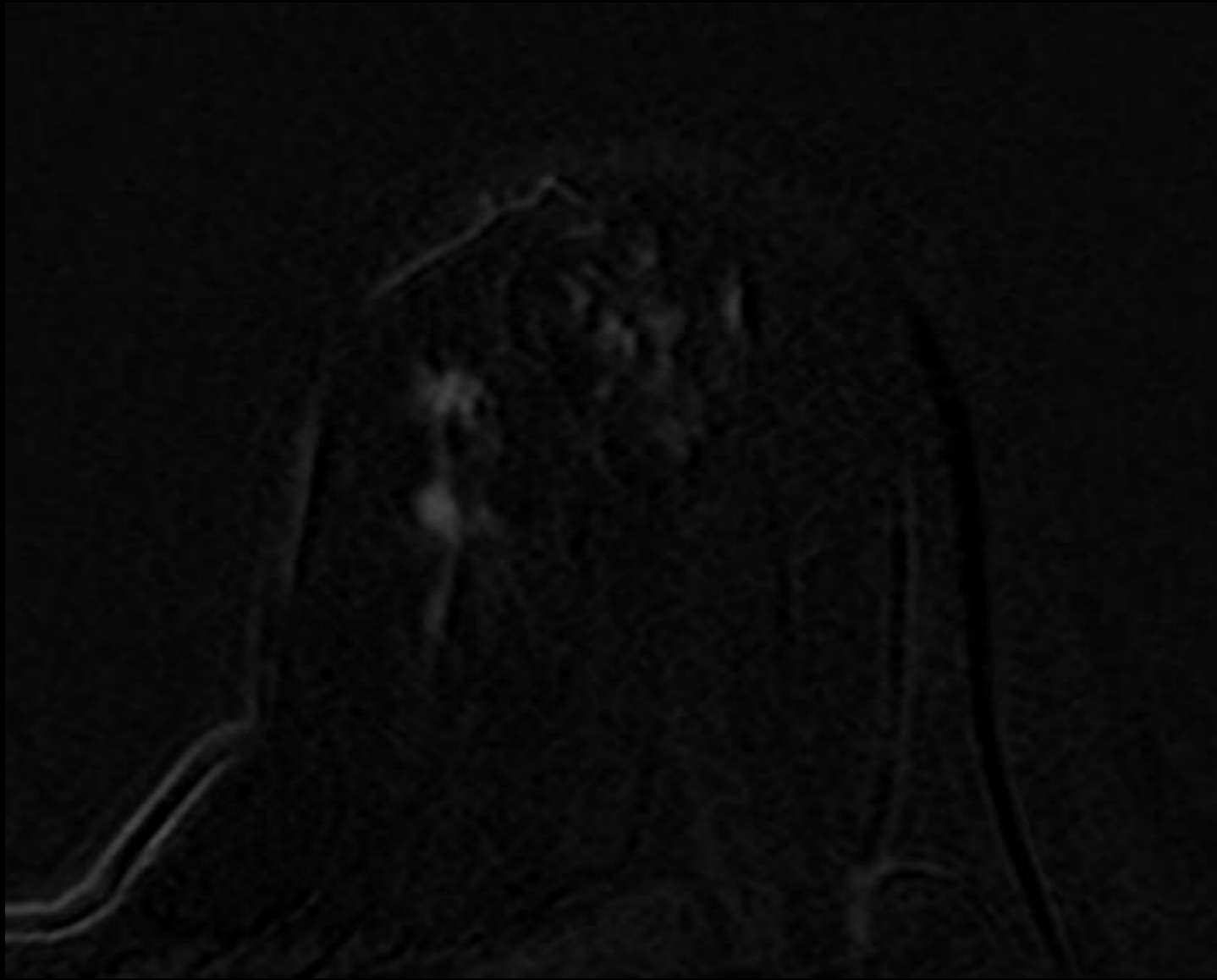


falsi positivi  
lunga  
costosa  
scomoda

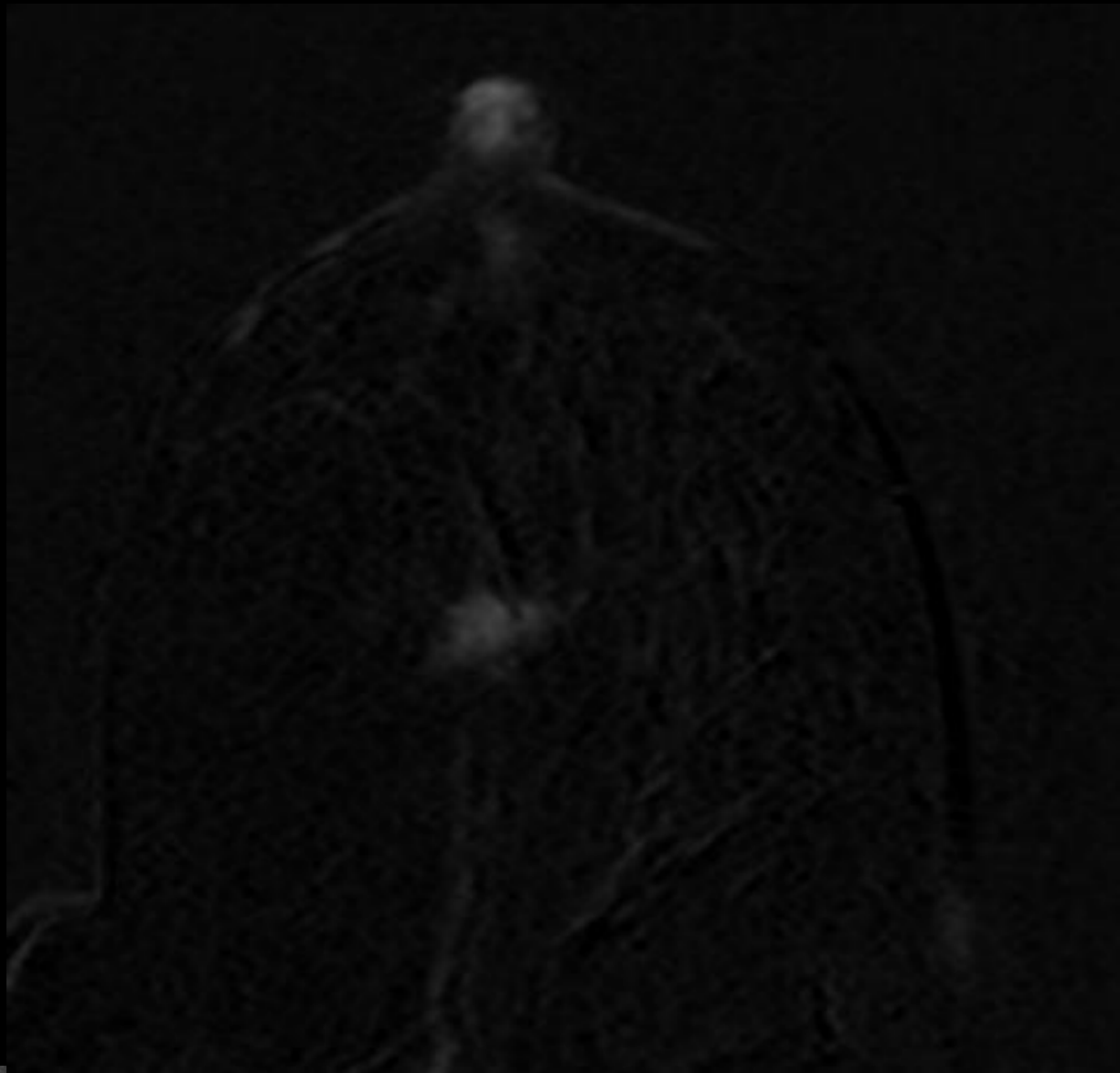
sensibile  
multiparametrica  
multiplanare  
funzionale



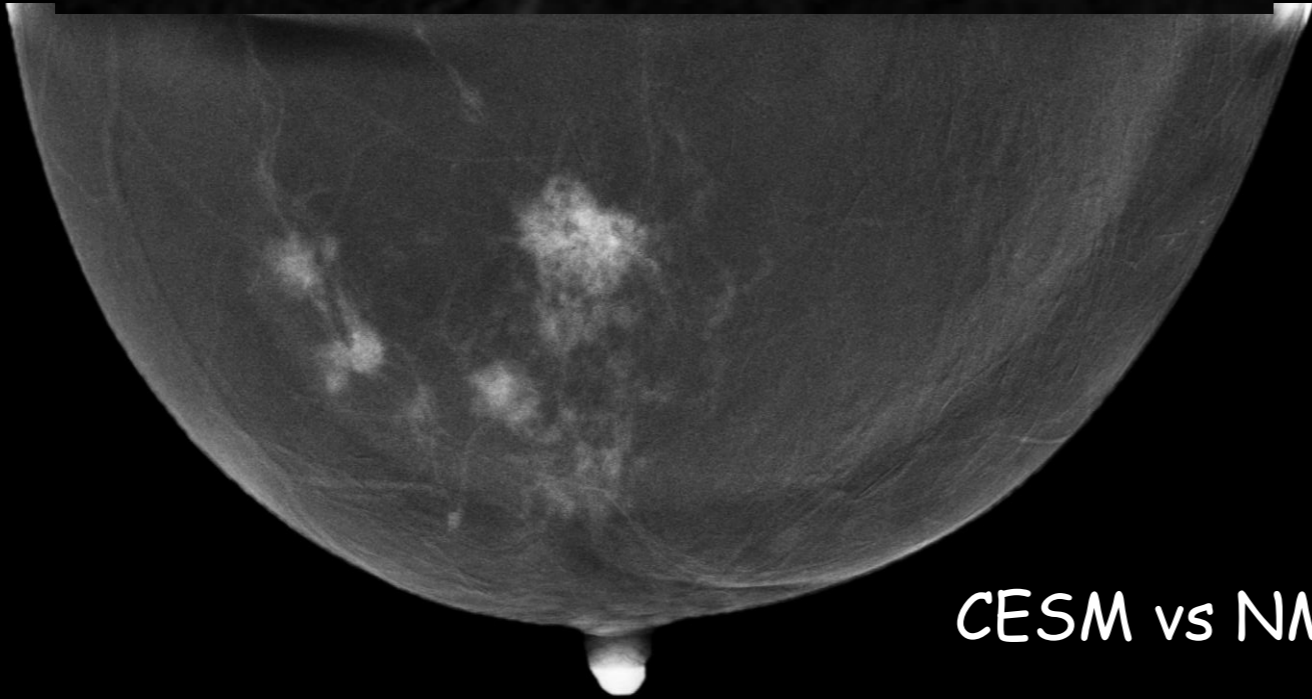
rapida



CESM vs NMR



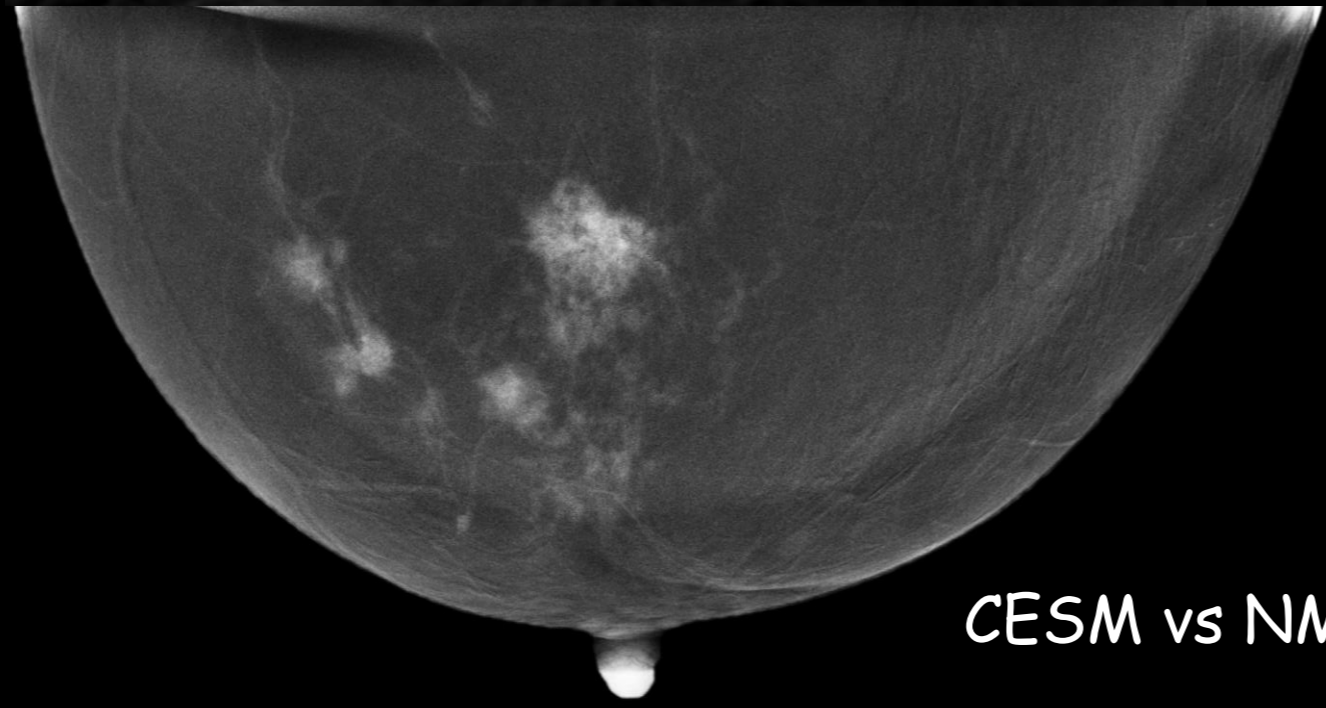
rapida  
accessibile



CESM vs NMR

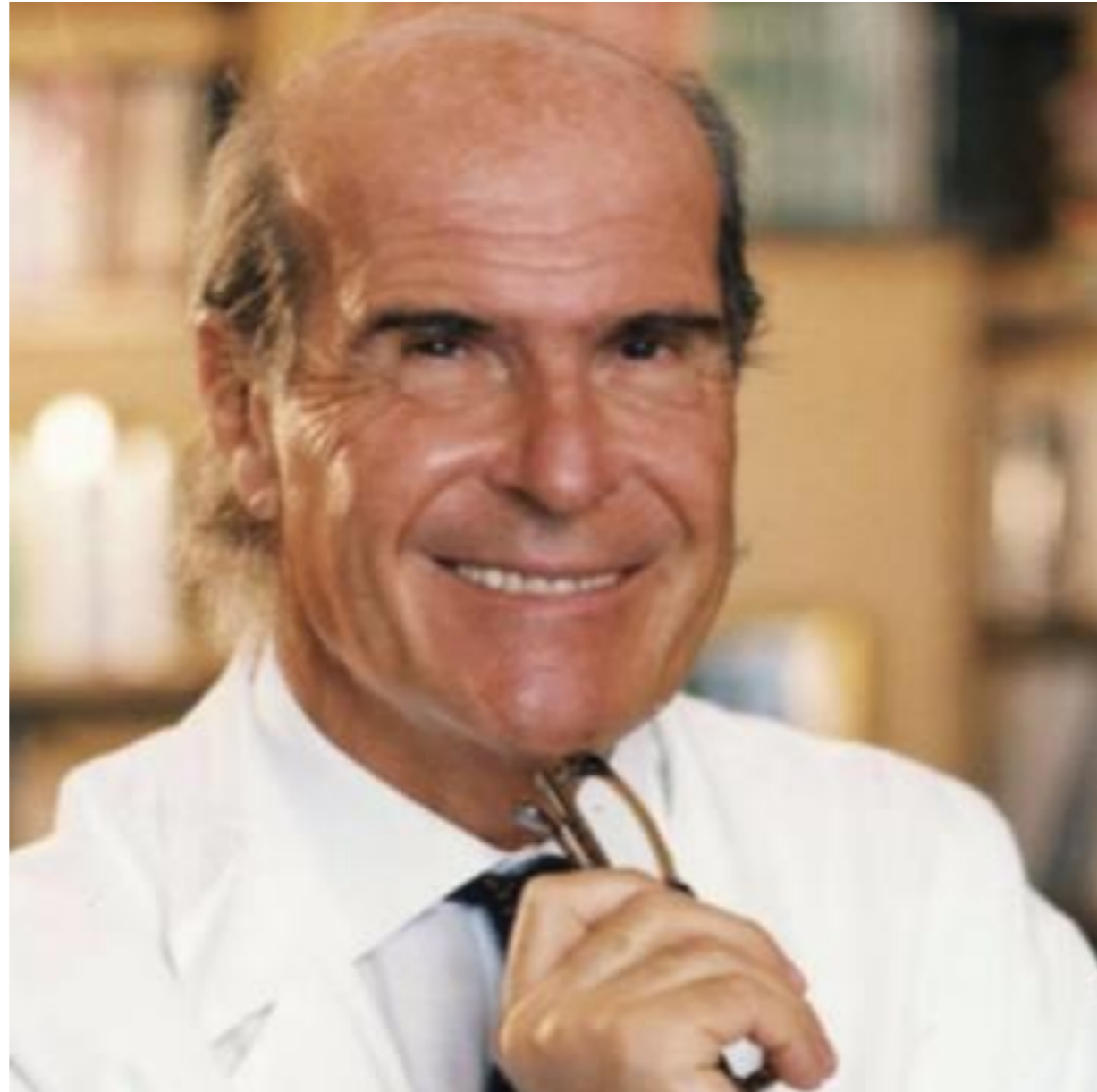


rapida  
accessibile  
economica  
tollerabile da pazienti



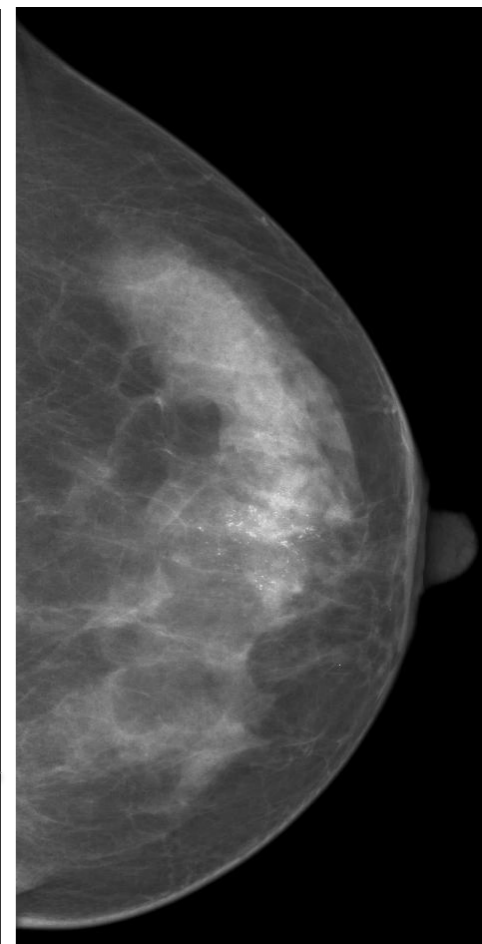
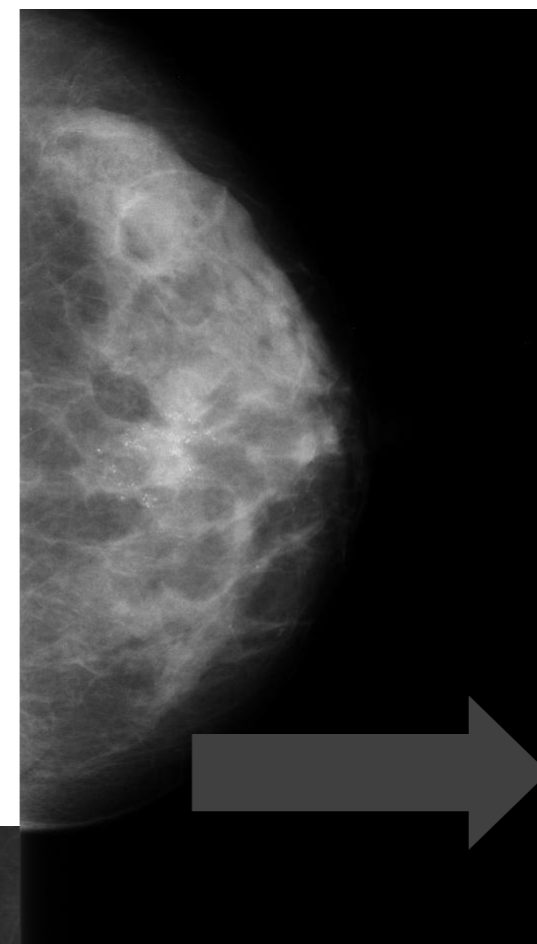
CESM vs NMR

# tecnologie progresso



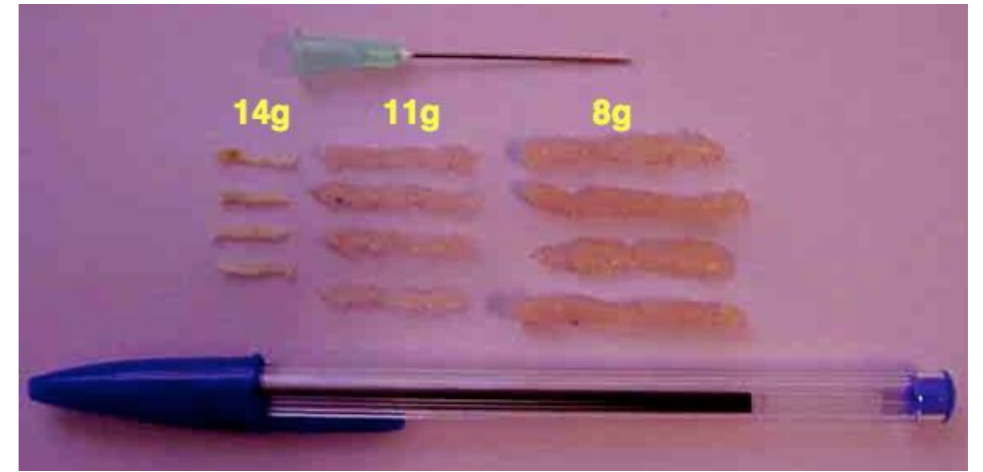
# tecnologie progresso

mammografia digitale  
età apparecchiature  
monitor





# tecnologie progresso



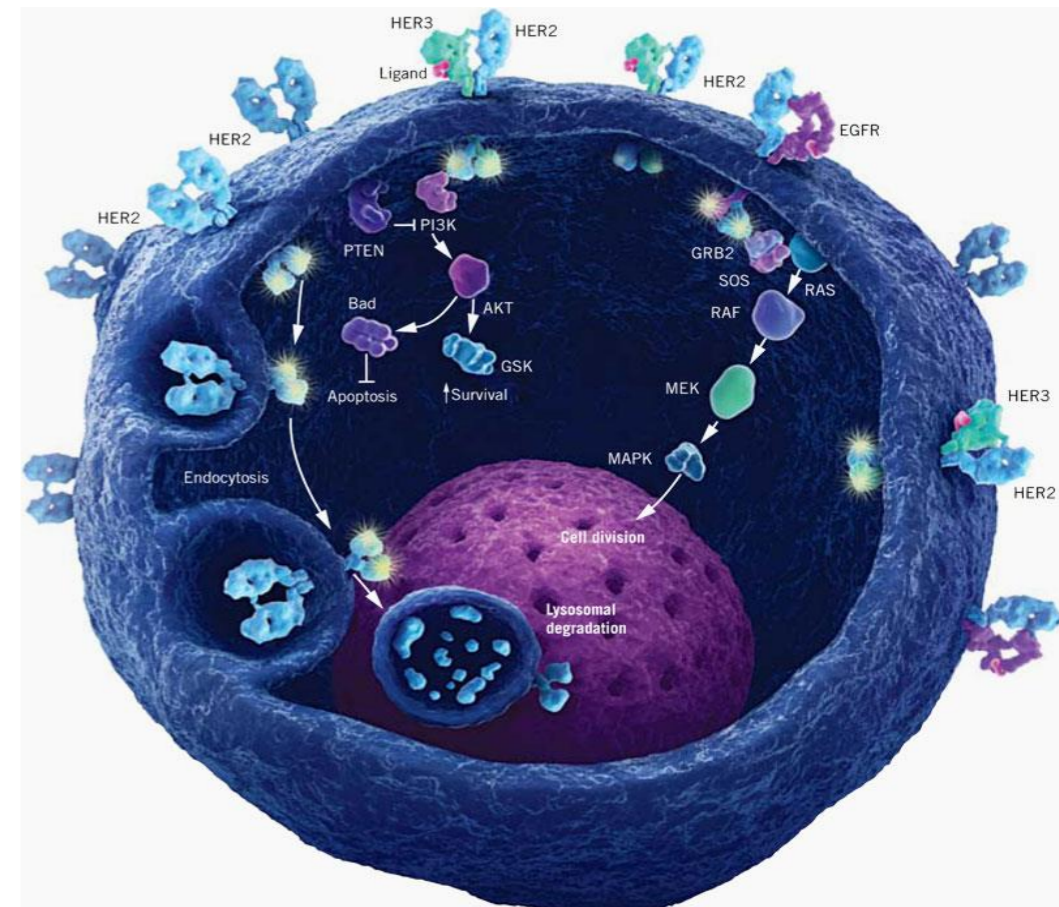
citologia

istologia

in situ vs infiltrante

recettori ER PgR  
mitosi

AND  
Ki67  
HER2



fine anni '70 microistologico

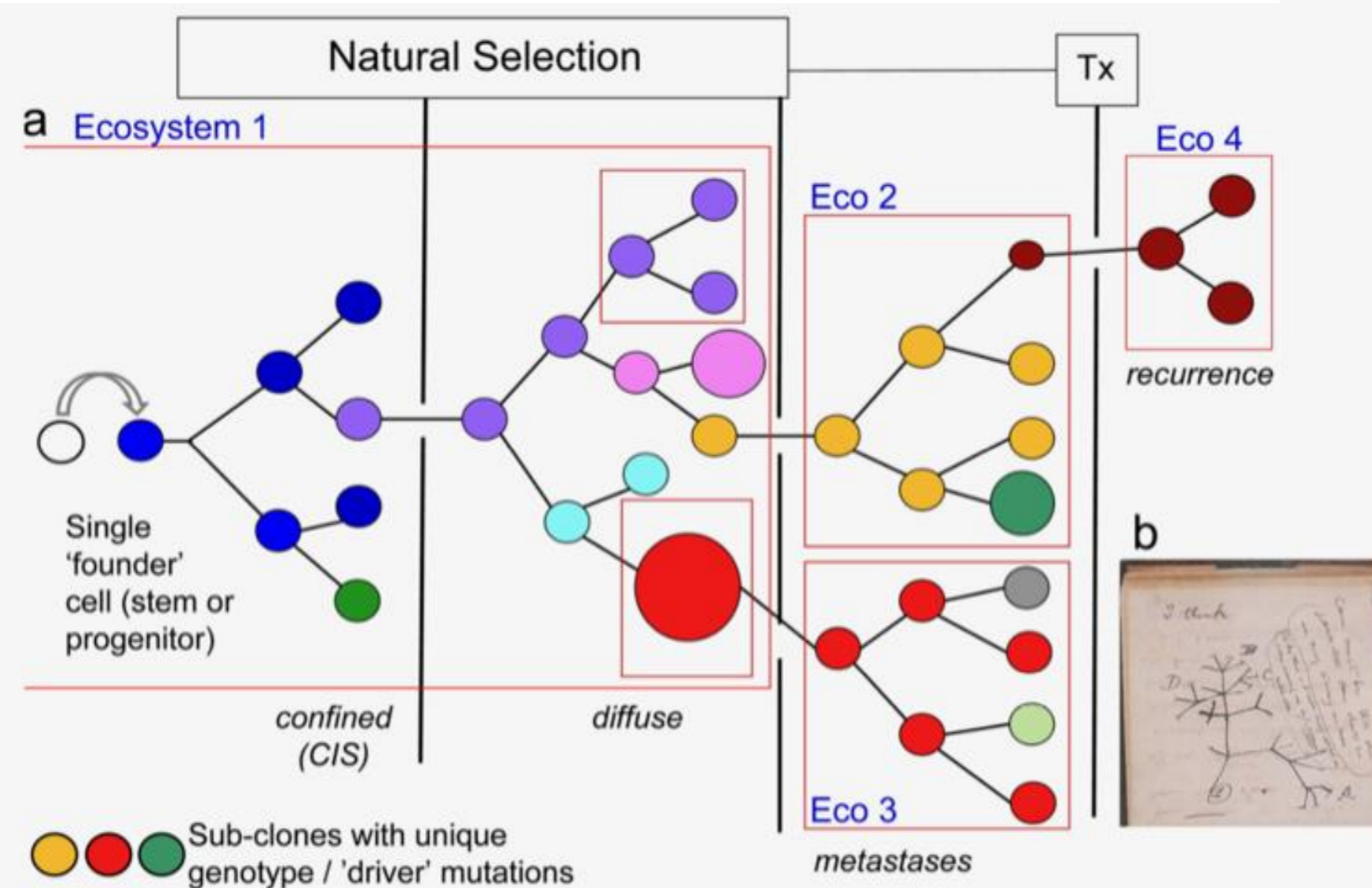
'70-'80 immunoistochimica

'90 recettori routine

Published in final edited form as:

Nature. ; 481(7381): 306–313. doi:10.1038/nature10762.

## CLONAL EVOLUTION IN CANCER



**Figure 2.**

(a) Branching clonal architecture of clonal evolution in cancer. Selective pressures allow some mutant sub-clones to expand while others go extinct.

(b) Darwin's evolutionary tree of speciation (from his 1837 notebook B). Eco 1–4 (red boxes) different tissue ecosystems/habitats. Tx, therapy. CIS, carcinoma in situ.

## 3.12 Mammella

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MAMMELLA	
Incidenza	Nel 2020, sono attese circa 55.000 nuove diagnosi nelle donne
Mortalità	Nel 2020, sono stimati 12.300 decessi
Sopravvivenza netta a 5 anni dalla diagnosi	87%
Sopravvivenza di ulteriori 5 anni condizionata ad aver superato il primo anno dopo la diagnosi	89%
Prevalenza	Sono 834.200 le donne viventi in Italia dopo una diagnosi di tumore della mammella

La sopravvivenza a 5 anni dell'87% è una delle più alte registrate in Europa.

media FVG  
2019 89%

media EU  
2000-2007 82%

The Breast 51 (2020) 65–84



#### 4.7. Communication of diagnosis, treatment plan and waiting times

- A diagnosis must be given to the patient in a face to face meeting as soon as possible and must not be given by letter or on the telephone, unless there are exceptional circumstances. A preliminary communication on the diagnosis can be given to the patient by each specialist according to their competence.



pz è soggetto attivo  
reagisca positivamente  
coinvolgimento familiari

# GRUPPO SENOLOGICO

**gruppo interdisciplinare isontino 1997**





**grazie**

Martina Locatelli  
SOS Radiologia Senologica  
SOC Radiologia Gorizia Monfalcone