



L'imagerie de dépistage: un modèle de disparité entre les pays

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44^{ES} JOURNÉES DE LA
SOCIÉTÉ **F**RANÇAISE
DE **S**ÉNOLOGIE ET
DE **P**ATHOLOGIE
MAMMAIRE

Déclaration de conflits d'intérêts



Programmes vaudois de dépistage du cancer

unisanté

Centre universitaire de médecine générale
et santé publique • Lausanne

Programmes vaudois de dépistage du cancer



**Réseau du
sein Lausanne**

Hirslanden Lausanne
Clinique de La Source



imagerie du flon
centre d'imagerie de la femme

Pourquoi moi ?



**DO entre 50 et 74 ans
+ US si seins densité D
+ ♀ avec prothèses**

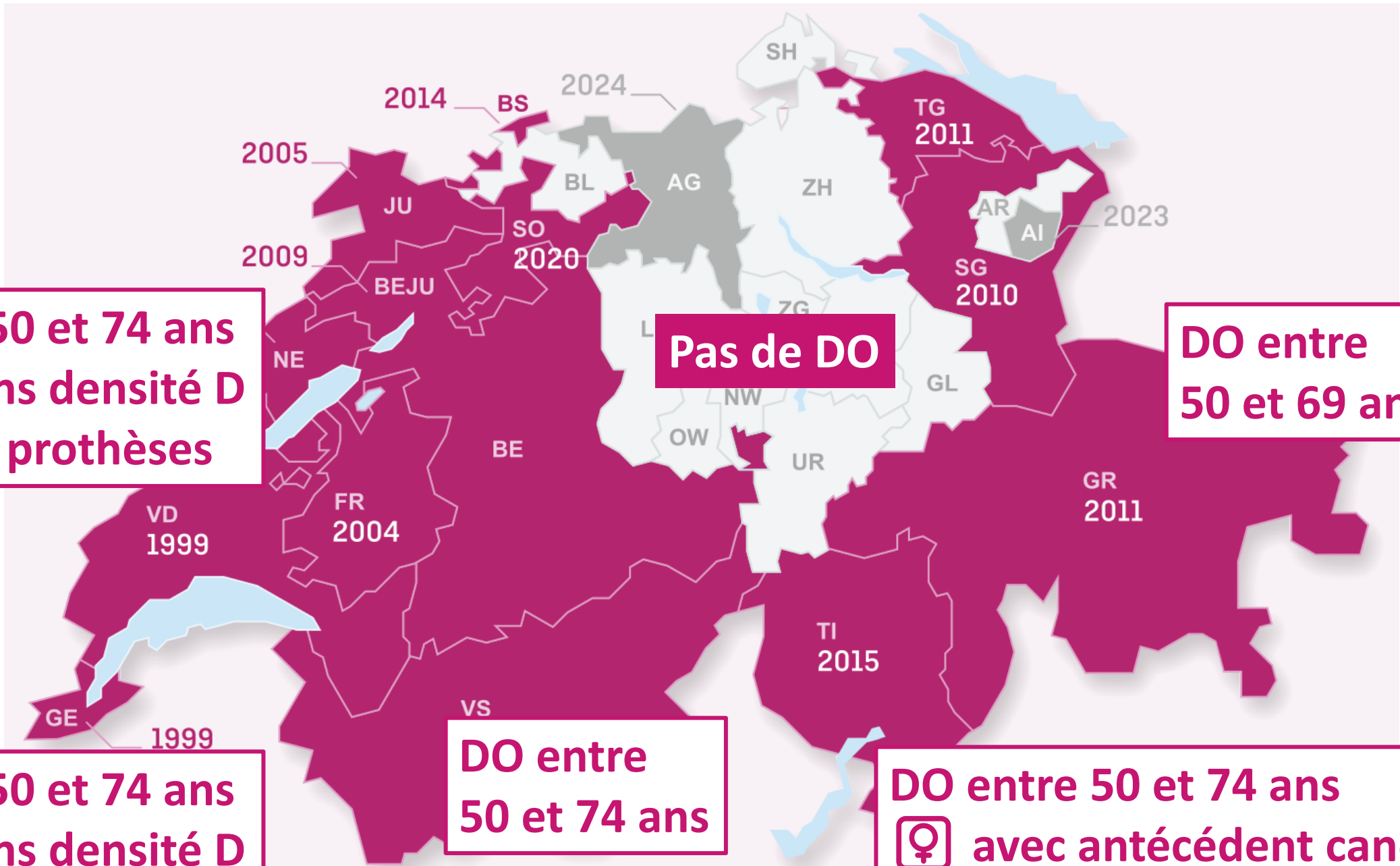
**DO entre 50 et 74 ans
+ US si seins densité D**

**DO entre
50 et 74 ans**

Pas de DO

**DO entre
50 et 69 ans**

**DO entre 50 et 74 ans
♀ avec antécédent cancer**



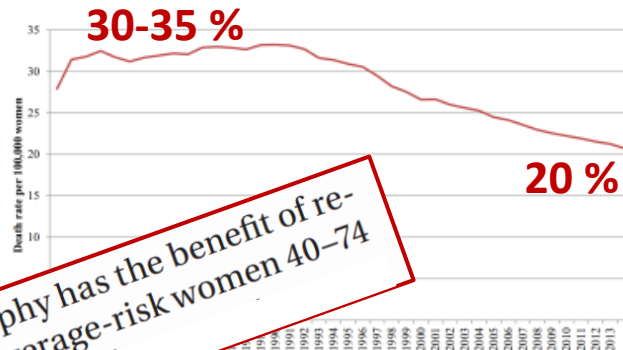
Dépistage par mammographie – Efficacité

Par mesure de la baisse de mortalité

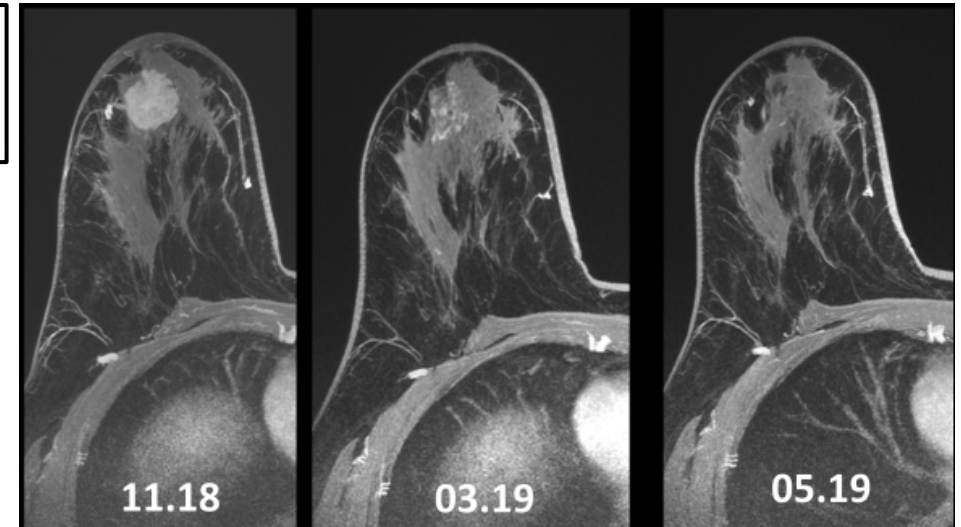
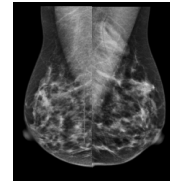
Table 1
Evidence for mortality reduction from screening mammography

Trial or Data	%	Mortality Reduction	
		%	95% Confidence Interval
HIP RCT ^{3,8}	22	0-39	
Malmö RCT ¹¹	22	5-35	
Swedish Two-County RCT ¹⁰	27	11-41	
Edinburgh RCT ¹³	21	-2-40	
Stockholm RCT ^{3,11}	10	-28-37	
NBSS1 and NBSS2 RCTs ¹⁷	1		
Gothenburg RCT ²¹			
Overall RCTs ³			
European Invited Screeners ¹			
European Screeners ²		31-44	
Canadian screening ¹⁸	40	33-48	
European case control studies	48	35-58	
Screened vs not screened ²²			

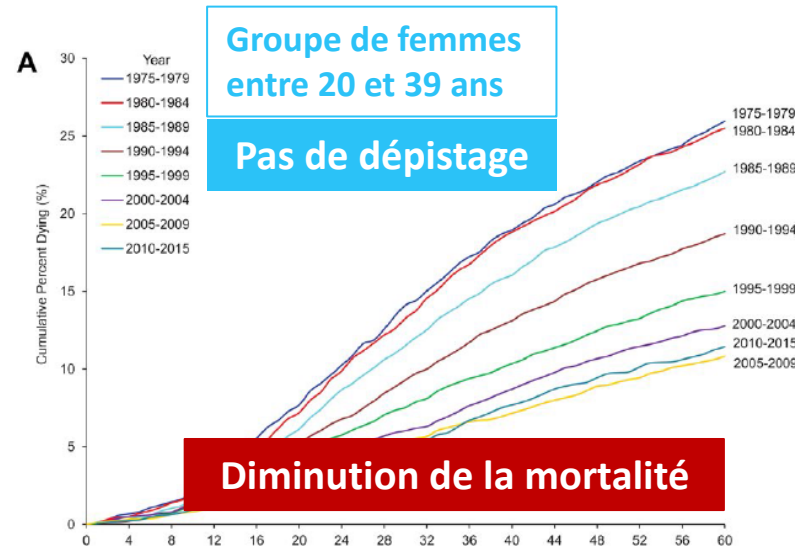
Abbreviations: HIP, Health Insurance Plan; NBSS, National Breast Screening Trial; RCT, randomized controlled trial.



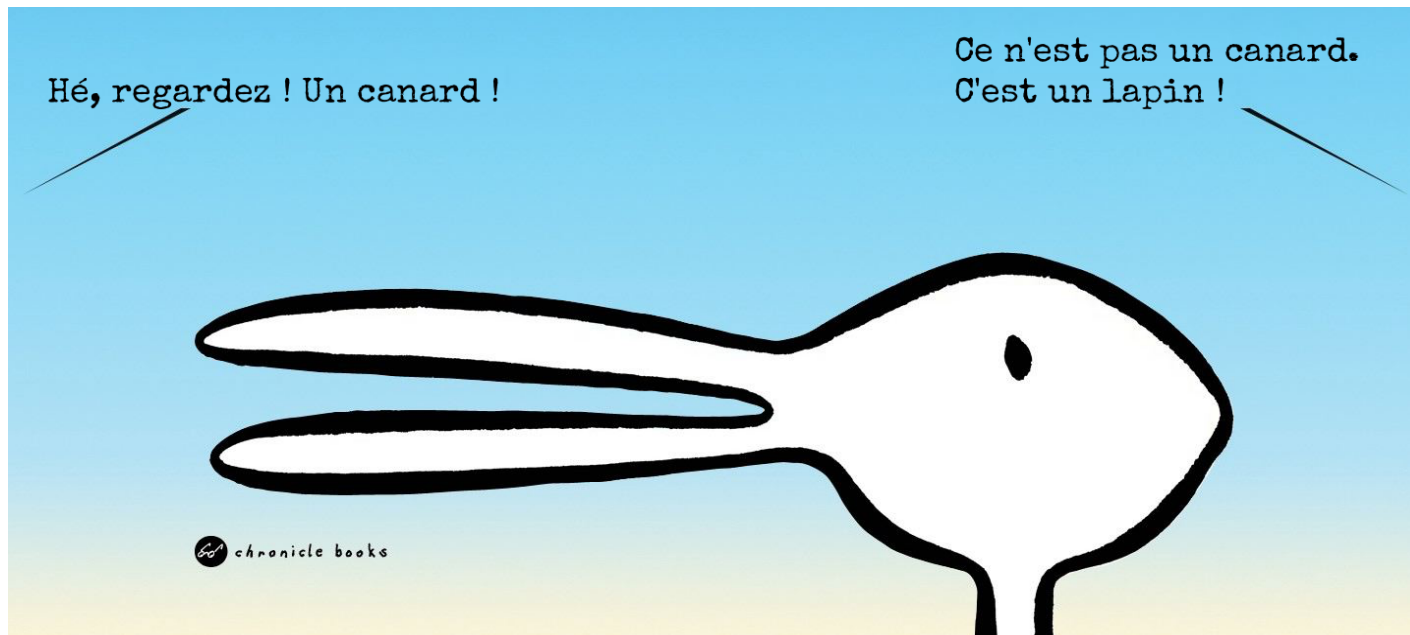
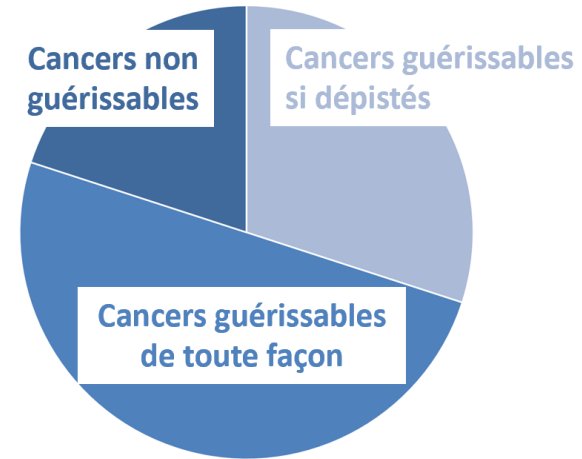
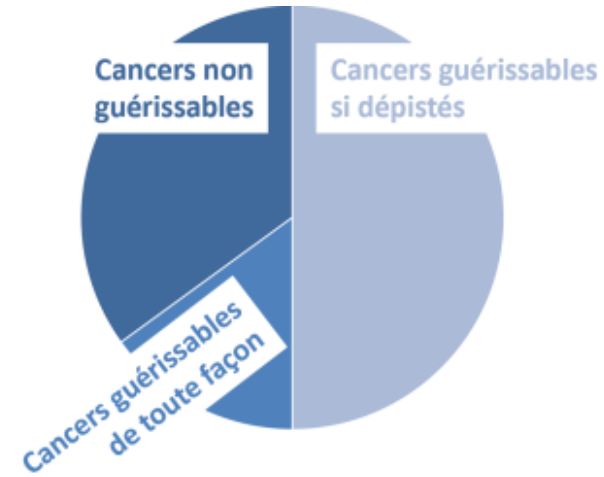
Death rate in American women decreased after the widespread introduction of mammography in the 1980s. (Data from the Surveillance, epidemiology, and end results [SEER] program, 1975 and US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US population (19 age groups - Census Bureau, 2000).)



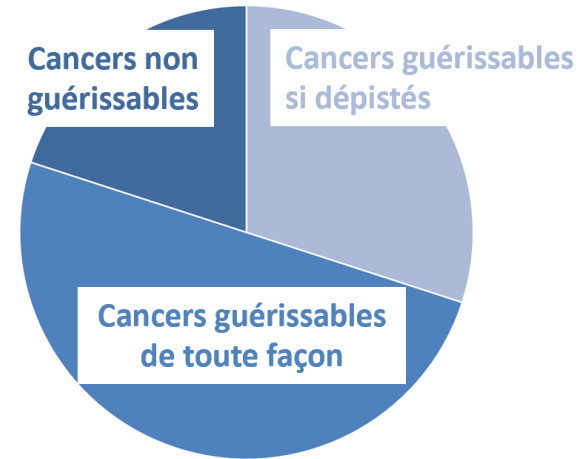
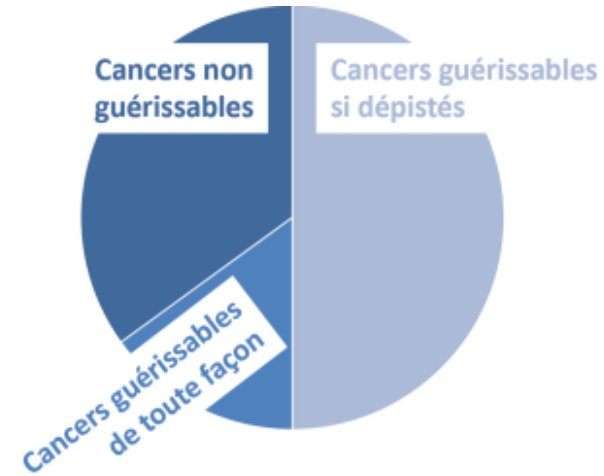
Attending screening mammography has the benefit of reducing bca mortality by 40% in average-risk women 40-74 years of age



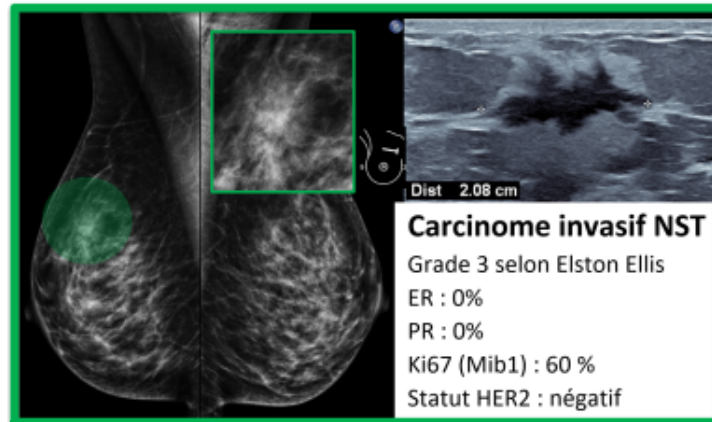
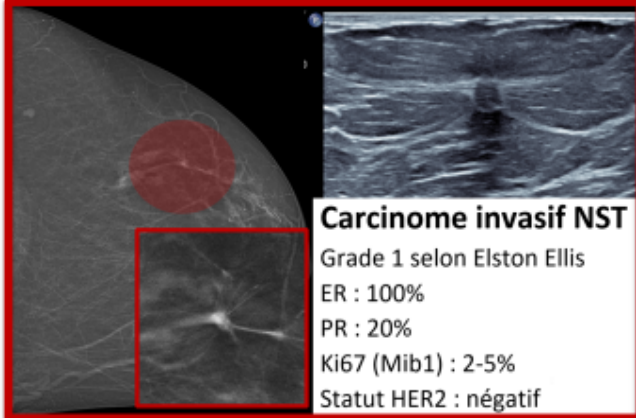
For screening to be beneficial, the treatment of screen-detected cancers must be more effective than the treatment of clinically detected cancers.



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Détection du cancer le plus petit ...



Détection du cancer le plus méchant ...

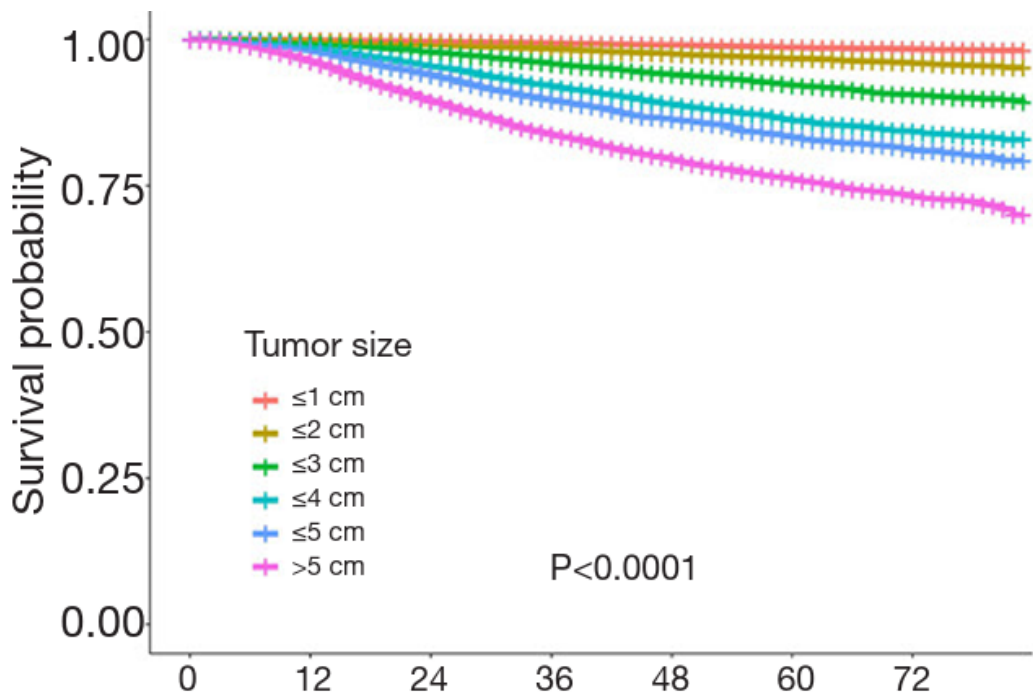
[4,34²²]. A randomized trial of screening CBE versus modern mammography screening is now warranted to formally compare the benefits and harms of these two screening interventions.

De-escalation of systemic therapies in early breast cancer

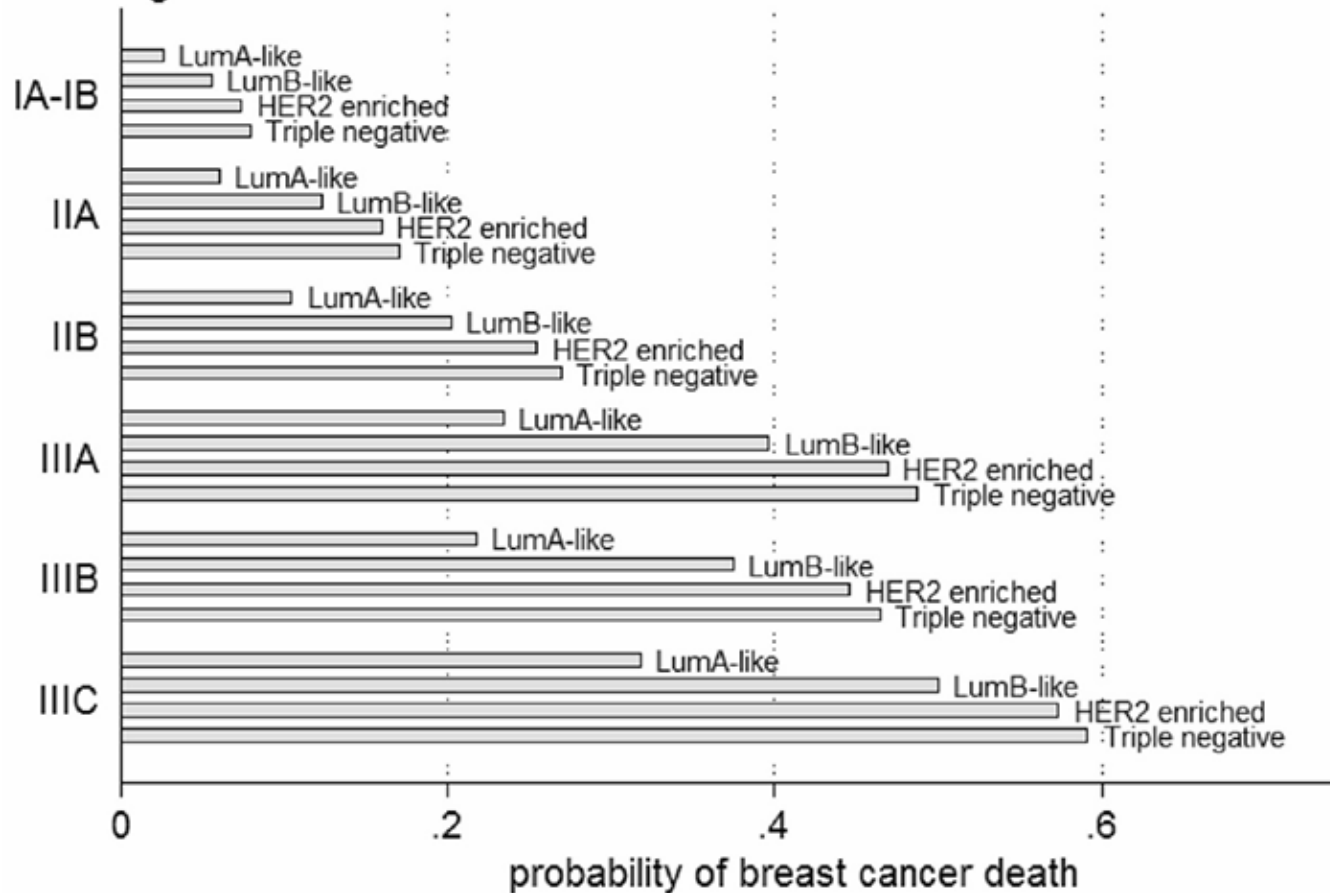


A good de-escalation for systemic therapy = early detection !

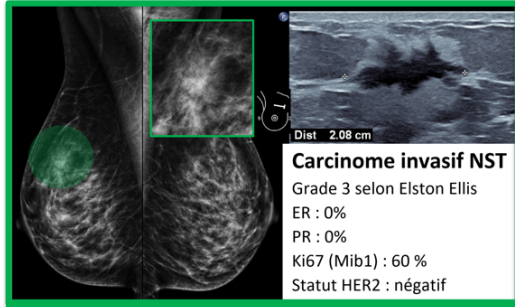
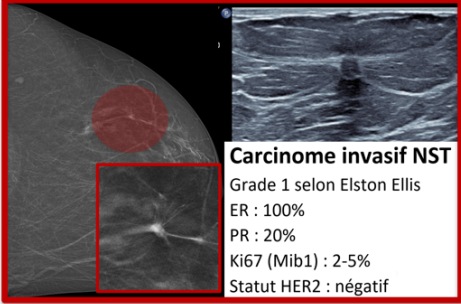
LE DÉPISTAGE
 S'INFORMER
 C'EST DÉJÀ **AGIR**



TNM Stage



Détection du cancer le plus petit ...



Détection du cancer le plus méchant ...

... l'amélioration des moyens thérapeutiques ne rendra pas le dépistage par imagerie inutile pendant longtemps ...

- La **taille** d'un cancer du sein au moment du diagnostic reste un **facteur pronostique important**

• Petite tumeur	maladie «débutante»	maladie homogène	maladie « facile » à traiter
• Grande tumeur	maladie «évoluée»	maladie hétérogène	maladie difficile à traiter apparition de résistances aux ttt

- L'efficacité des **chimiothérapies** a beaucoup augmenté, mais la **toxicité** reste très **élevée**

Dépistage par mammographie – Surdiagnostic

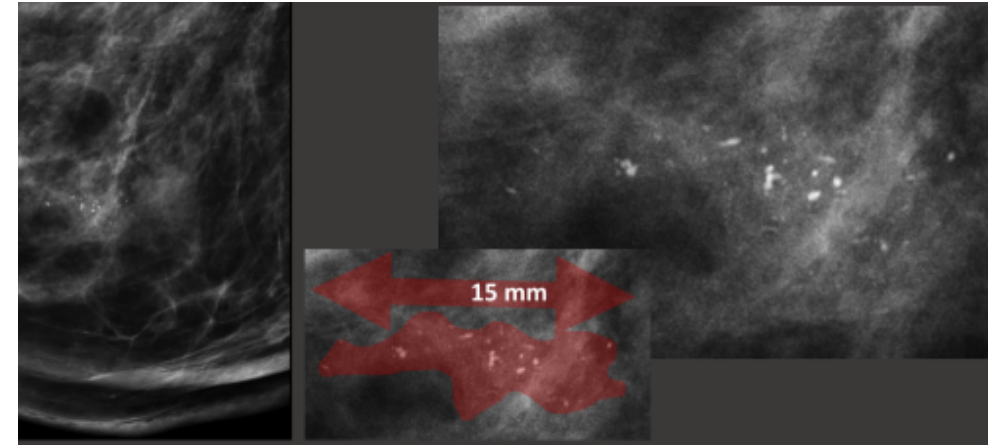
overdiagnosis. The literature review showed that the unadjusted overdiagnosis estimates ranged widely (from 0% to 54%), but concluded that the most plausible estimates of overdiagnosis ranged from 1% to 10%, the higher estimates being attributed to lack of correction for lead time bias or bca risk, or both. Data from long-term studies such as the Malmo RCT after 15 years of follow-up confirm a similar rate of overdiagnosis of 10%⁴⁵.

CURRENT
ONCOLOGY
A Canadian Cancer Research Journal

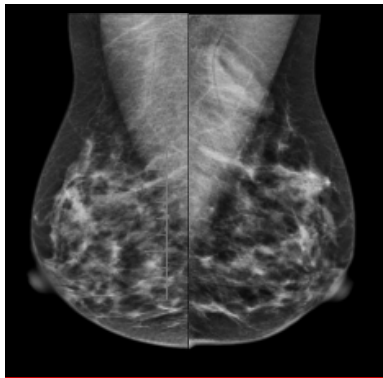
REVIEW ARTICLE

Screening for breast cancer in 2018—
what should we be doing today?

J.M. Seely MD* and T. Alhassan MD*

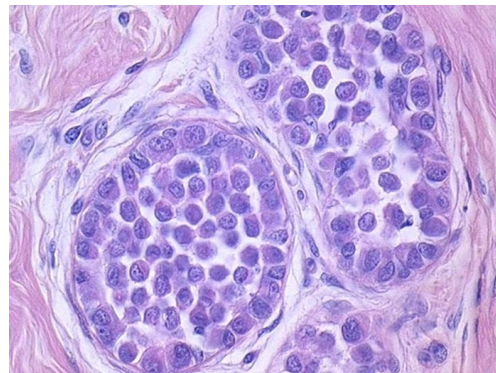


Dépistage
Radiologue



Sur détection

Anatomo-pathologiste



Sur diagnostic

Cliniciens



Sur traitement

Dépistage par mammographie – Faux négatifs

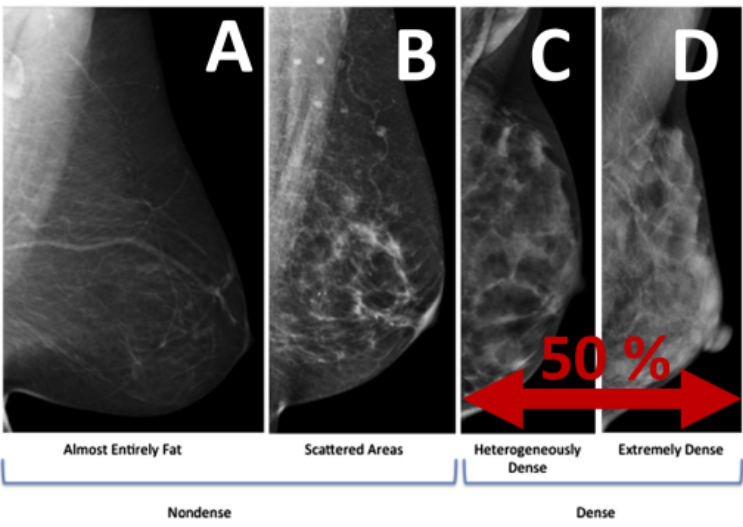
False Negatives

The overall sensitivity of mammography is 80%. Of BCas, 20% are not detected by mammography, but are detected by clinical symptoms such as a palpable mass or suspicious nipple discharge.



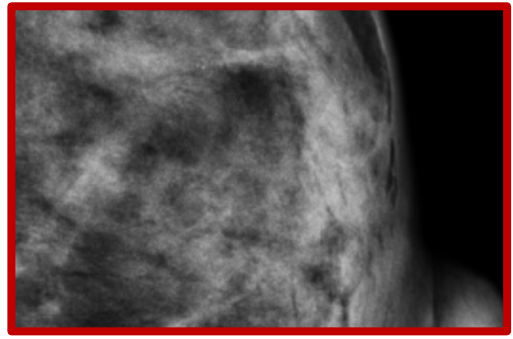
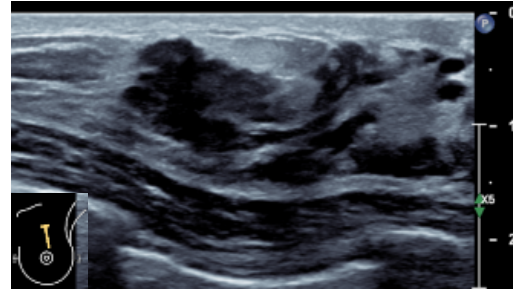
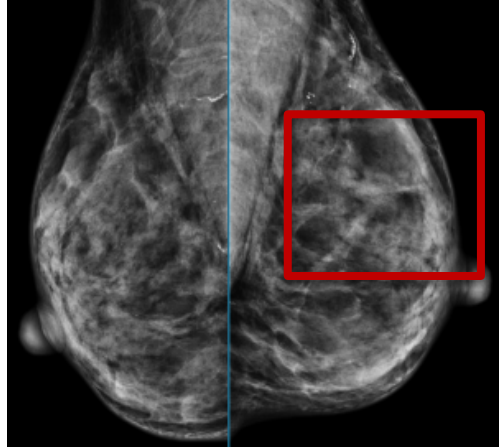
Screening for breast cancer in 2018—
what should we be doing today?

FIGURE 1
Categorization of mammographic breast density



Sein gauche, quadrant supérieur, biopsies (Histocore 14G) :
Carcinome invasif NST de grade histopronostique 2 selon Elston

- mesurant 1 cm de longueur maximale sur ces biopsies ;
- d'immunophénotype :
 - ER : 100 % (intensité du marquage forte) ;
 - PR : 70 % (intensité du marquage modérée) ;
 - E-Cadhérine : expression conservée ;
 - Ki-67 (Mib1) : 10-15% ;
 - Statut HER2 : *en cours*.



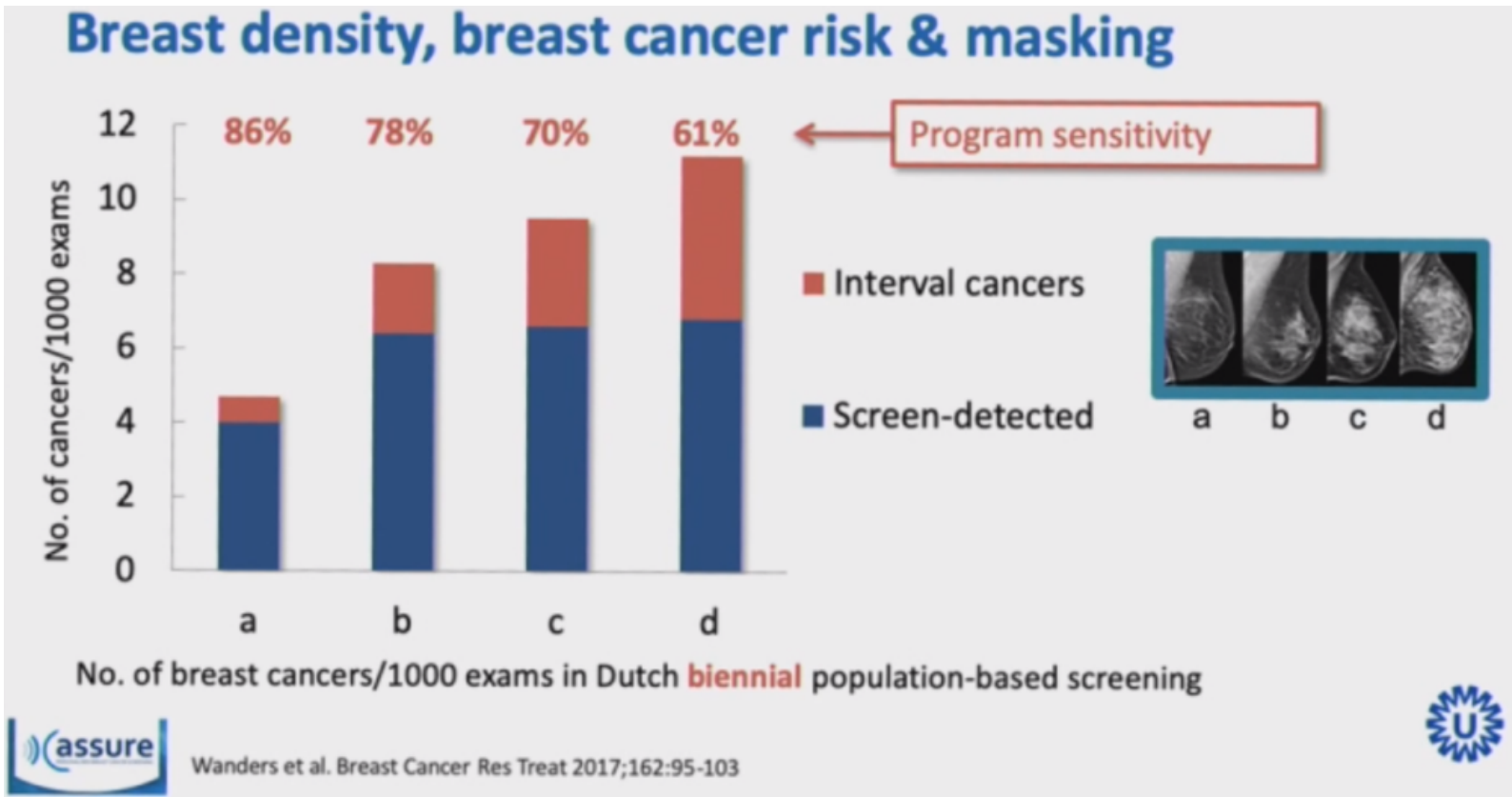
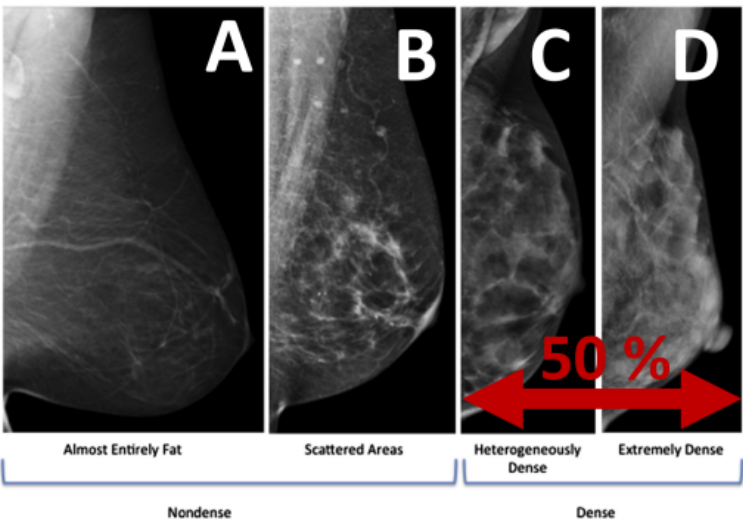
Dépistage par mammographie – Faux négatifs

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CURRENT ONCOLOGY REVIEW ARTICLE
 Screening for breast cancer in 2018—
 what should we be doing today?

FIGURE 1
 Categorization of mammographic breast density



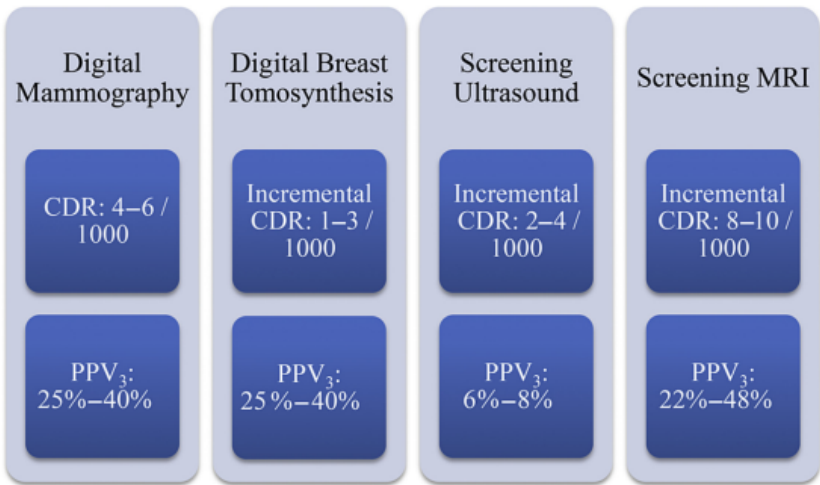


Fig. 4. Supplemental screening DBT, ultrasound, and MR imaging incrementally increase cancer detection rate (CDR) when added to digital mammography in women with dense breasts. PPV₃ is the positive predictive value of biopsy and equals the number of cancers detected divided by the number of breast biopsies performed. (Data from Tice JA, Ollendorf DA, Lee JM, et al. The comparative clinical effectiveness and value of supplemental screening tests following negative mammography in women with dense breast tissue. Institute for Clinical and Economic Review; 2013. Available at: <https://icer-review.org/wp-content/uploads/2016/01/ctaf-final-report-dense-breast-imaging-11.04.2013-b.pdf>.)

Women with high breast density

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

•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).

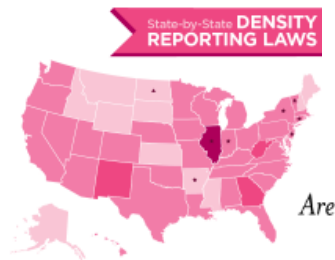
Magnetic resonance imaging and ultrasound Digital breast tomosynthesis (DBT)

In the context of an organised screening programme, for asymptomatic women with high mammographic breast density, the ECIBC's Guidelines Development Group (GDG) suggests:

- not implementing tailored screening with magnetic resonance imaging (MRI) (conditional recommendation, very low certainty of the evidence)
- not implementing tailored screening with automated breast ultrasound system (ABUS) (conditional recommendation, very low certainty of the evidence)
- not implementing tailored screening with hand-held ultrasound (HHUS) (conditional recommendation, low certainty of the evidence)

In the context of an organised screening programme, the ECIBC's Guidelines Development Group (GDG) suggests:

- not implementing tailored screening with both DBT and digital mammography for women with high mammographic breast density detected for the first time with digital mammography (conditional recommendation, very low certainty of the evidence)
- using DBT for women with high mammographic breast density detected in previous screening exams (conditional recommendation, very low certainty of the evidence)



Women with dense breasts

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of adjunctive screening for breast cancer using breast ultrasonography, magnetic resonance imaging, DBT, or other methods in women identified to have dense breasts on an otherwise negative screening mammogram.

BVO first
 Breast density 75%+ (software)
 80.00 women each year in screening (nl)
 Offer MRI – Send out invitation
 Once ever 4 Years (cost effective)
 Standardised scanners (3T)
 Standardised protocol
 Central reading and reporting

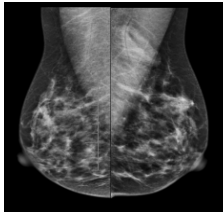
June 2022

Not now!
 We should first investigate CEM.

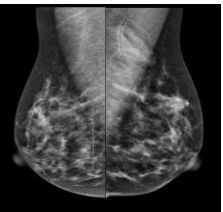
Dépistage par mammographie – ... dans les pays occidentaux ...



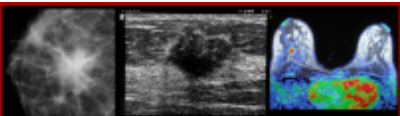
mammographie



1^{ère} lecture



2^{ème} lecture



Investigations complémentaires

Table 1

Programme type, year of commencement, target age group and participation rate for existing mammography-based screening programmes by country.^a

Country	Programme type ^b	Year of commencement	Target age group	Screening frequency	Participation rate	Year
Australia	NS	1991	50–69	2 years	54.9%	2008
Belgium	NS	2001	50–69	2 years	59.0%	2005
Canada ^c	NS	1988	50–69	2 years	36.5%	2004
Chile	N	2005	50–70	2 years	31.8%	2008
Czech Republic	N	2002	45–69	2 years	48.5%	2009
Denmark	S	1991	50–69	2 years	73.7%	2008
Estonia	N	2002	50–65	2 years	52.0%	2009
Finland	N	1986	50–69	2 years	84.4%	2007
France	N	2003	50–74	2 years	54.5%	2008
Germany	NS	2005	50–69	2 years	54.0%	2007
Hungary	N	2002	45–64	2 years	49.1%	2009
Iceland	N	1987	40–69	2 years	61.0%	2009
Ireland	N	2000	50–64	2 years	73.1%	2009
Israel	N	1997	50–74	2 years	69.5%	2009
Italy	NS	2002	50–69	2 years	60.0%	2009
Japan	N	2000	40–75+	2 years	17.7%	2005
Korea	N	2002	40–75+	2 years	51.4%	2008
Luxembourg	N	1992	50–69	2 years	61.0%	2009
Netherlands	N	1989	50–74	2 years	82.1%	2009
New Zealand	N	1998	45–69	2 years	66.9%	2009
Norway	N	1996	50–69	2 years	74.1%	2009
Portugal	S	1990	45–69	2 years	63.0%	2005
Slovak Republic	O	NA	40–69	2 years	16.0%	2009
Slovenia ^c	N	2008	50–69	2 years	47.2%	2009
Spain ^c	S	1990	45–69	2 years	71.8%	2009
Switzerland	S	1999	50–69	2 years	43.6%	2005
Turkey	NS	1999	50–69	2 years	12.4%	2009
United Kingdom	N	1988	50–70	3 years	75.0%	2009
United States ^c	O	1995	40–75+	1–2 years	81.1%	2008
Uruguay	O	1990	40–69	1 year	75.0%	2005

^a Data taken from Refs. [13–15].

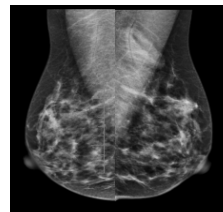
^b Programme types: NS= national screening policy with state/provincial/regional screening programme implementation; N= national screening policy with national programme implementation; S= state/provincial/regional screening and programme *Cancer Epidemiology* 36 (2012) 237–248

^c Participation rates obtained from survey data.

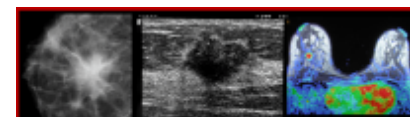
THE
**FRENCH
EXCEPTION**
EDITED BY
EMMANUEL GODIN
and TONY CHAFER



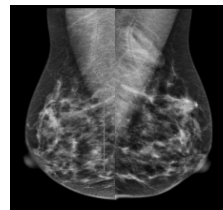
mammographie



1^{ère} lecture



Investigations complémentaires



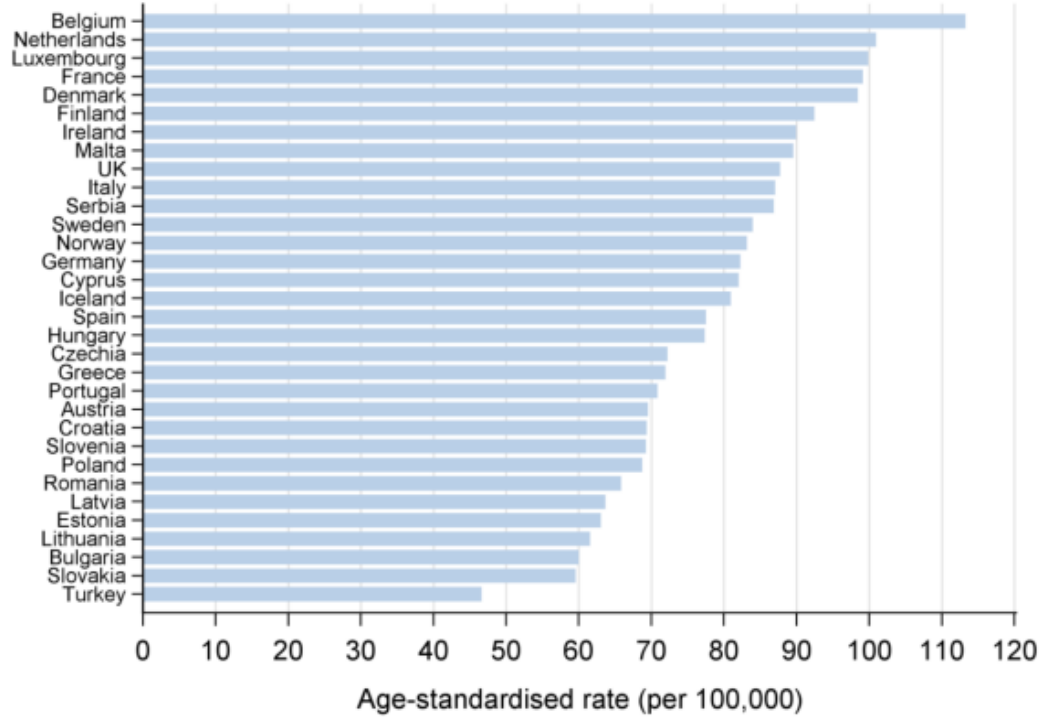
2^{ème} lecture

Review

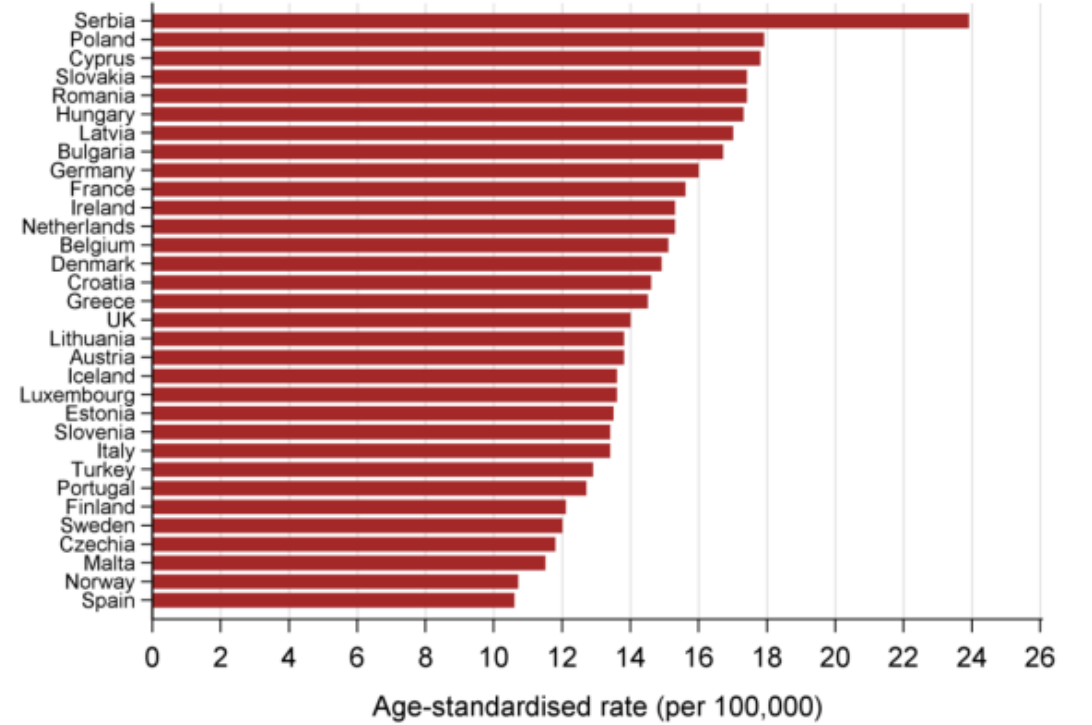
The descriptive epidemiology of female breast cancer: An international comparison of screening, incidence, survival and mortality

Danny R. Youlden^{a,*}, Susanna M. Cramb^a, Nathan A.M. Dunn^b, Jennifer M. Muller^b, Christopher M. Pyke^c, Peter D. Baade^a

Breast cancer incidence



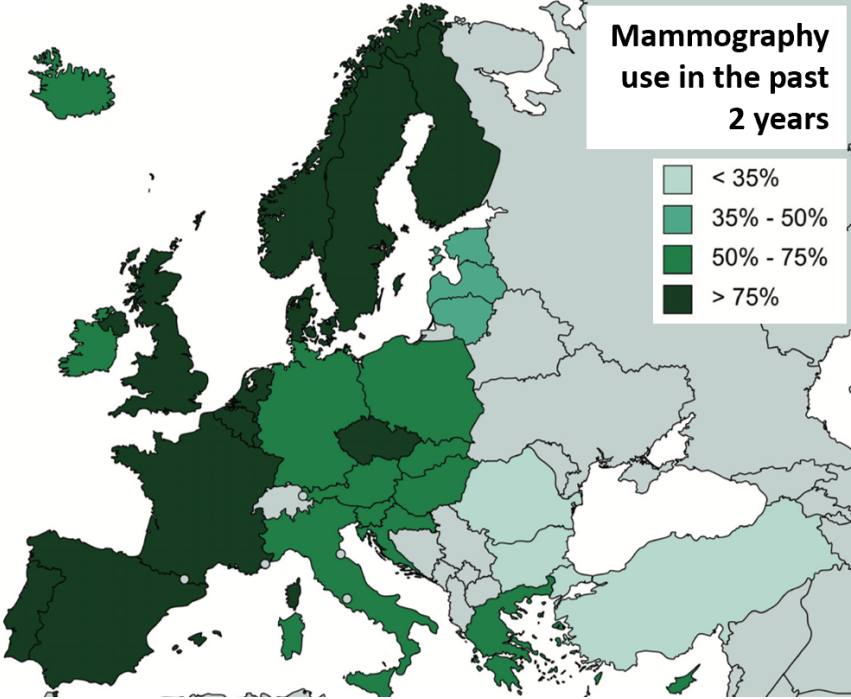
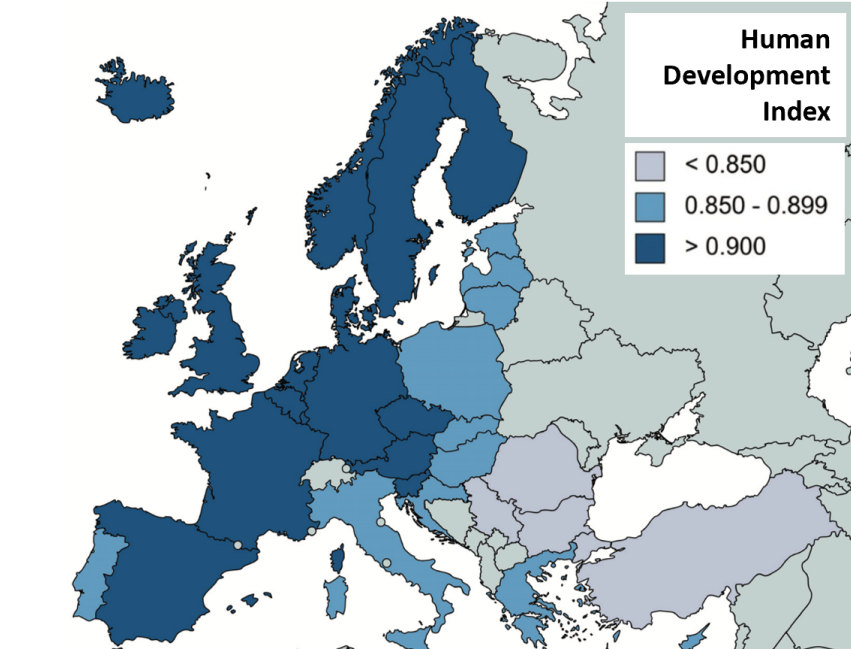
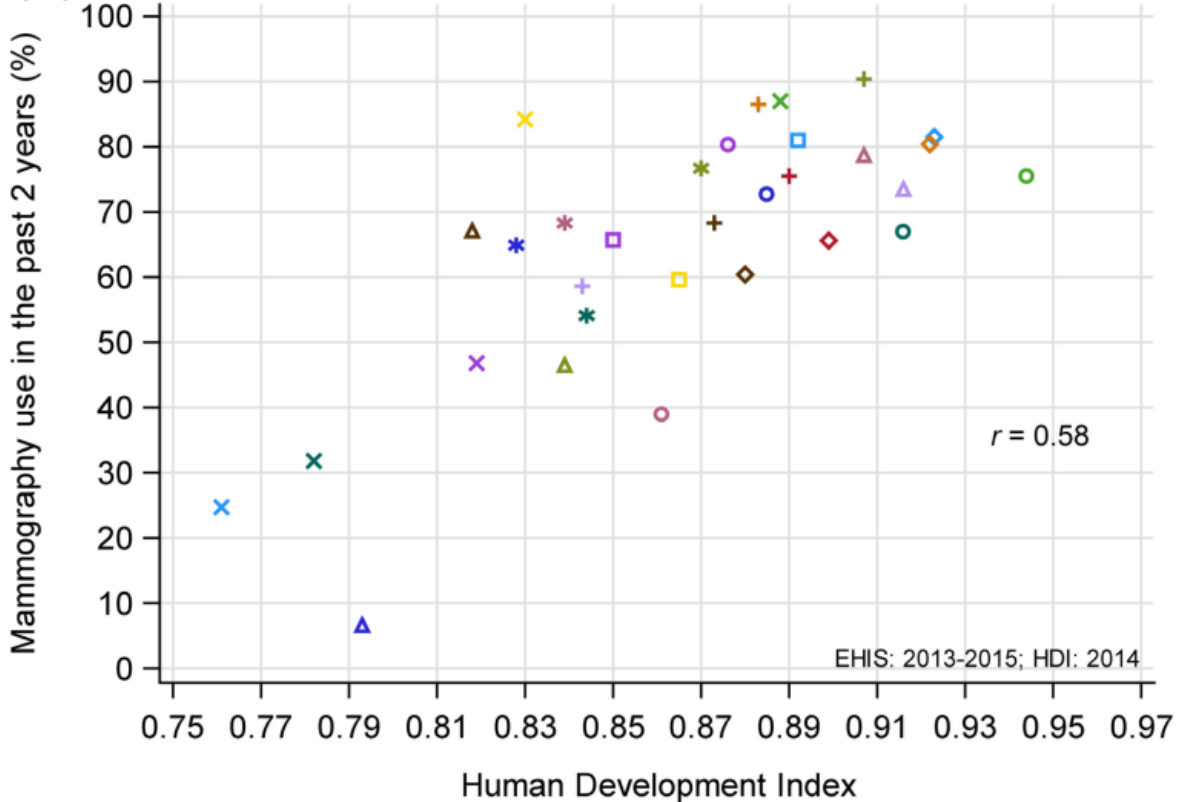
Breast cancer mortality

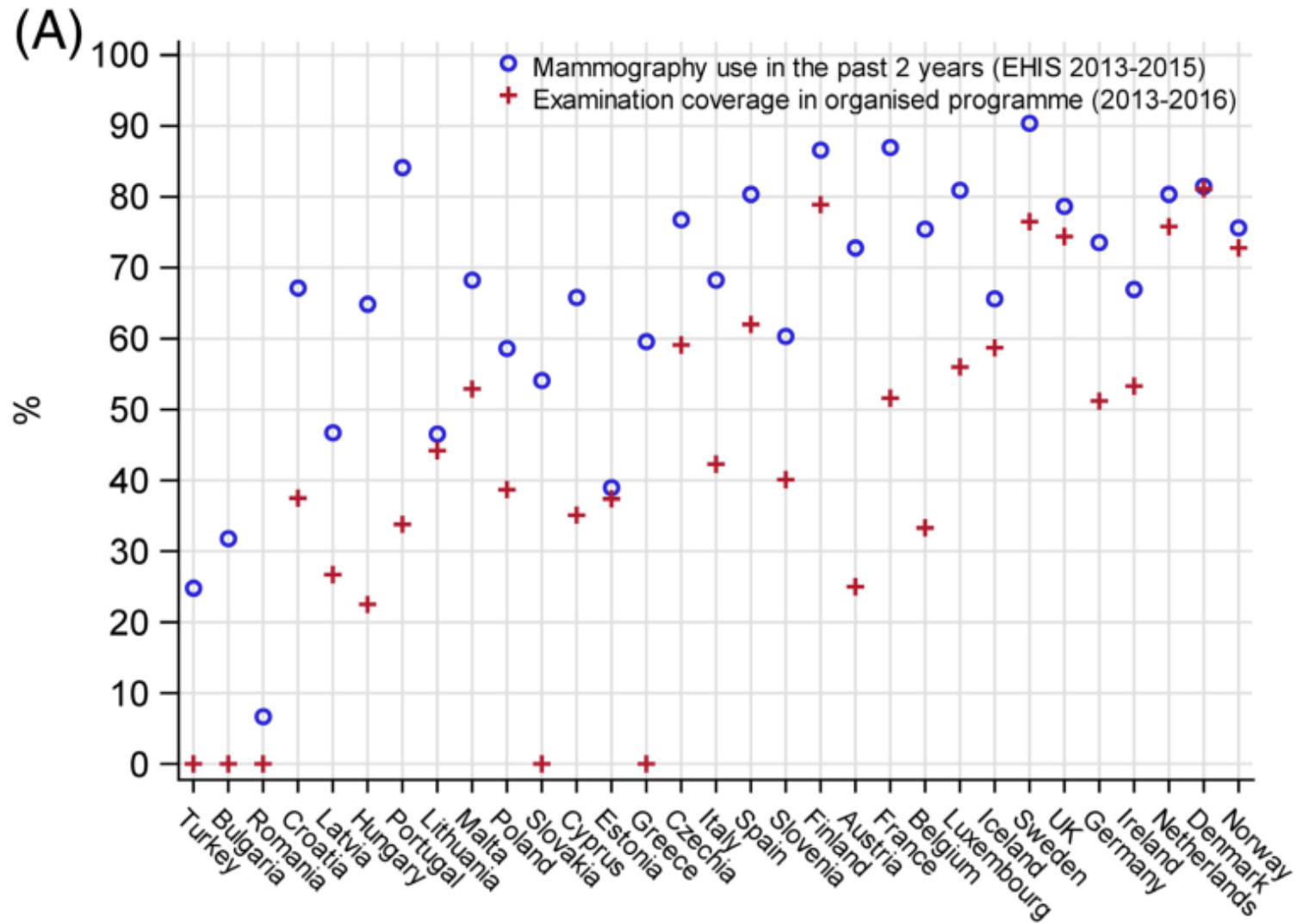


Breast cancer screening programmes and self-reported mammography use in European countries

Rafael Cardoso¹ | Michael Hoffmeister² | Hermann Brenner^{1,2,3}

Int. J. Cancer. 2023;152:2512–2527.





MX dans les 2 ans

MX dans le DO



85 %

33 %



47 %

46 %



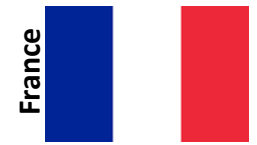
82 %

82 %



90 %

77 %



87 %

51 %



Community Outreach in Breast Imaging: What Radiologists Can Do to Close the Gap for the Uninsured Population

©RSNA, 2023 • radiographics.rsna.org

Claudia Cotes, MD • Anastasiia Morozova, MD • Sara Pourhassan, MD • Shima Aran, MD • Harnoor Singh, MD

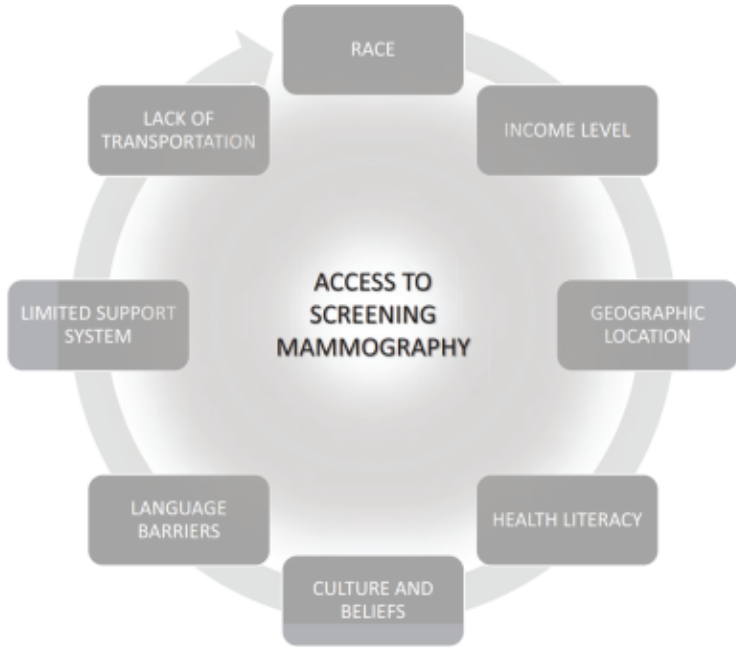


Figure 1. Variables that affect access to screening mammography.

Percentage of Population without Health Insurance Coverage by State- 2021

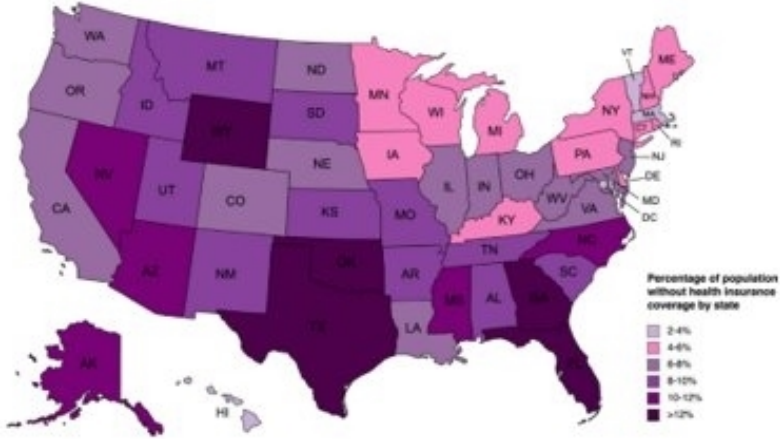
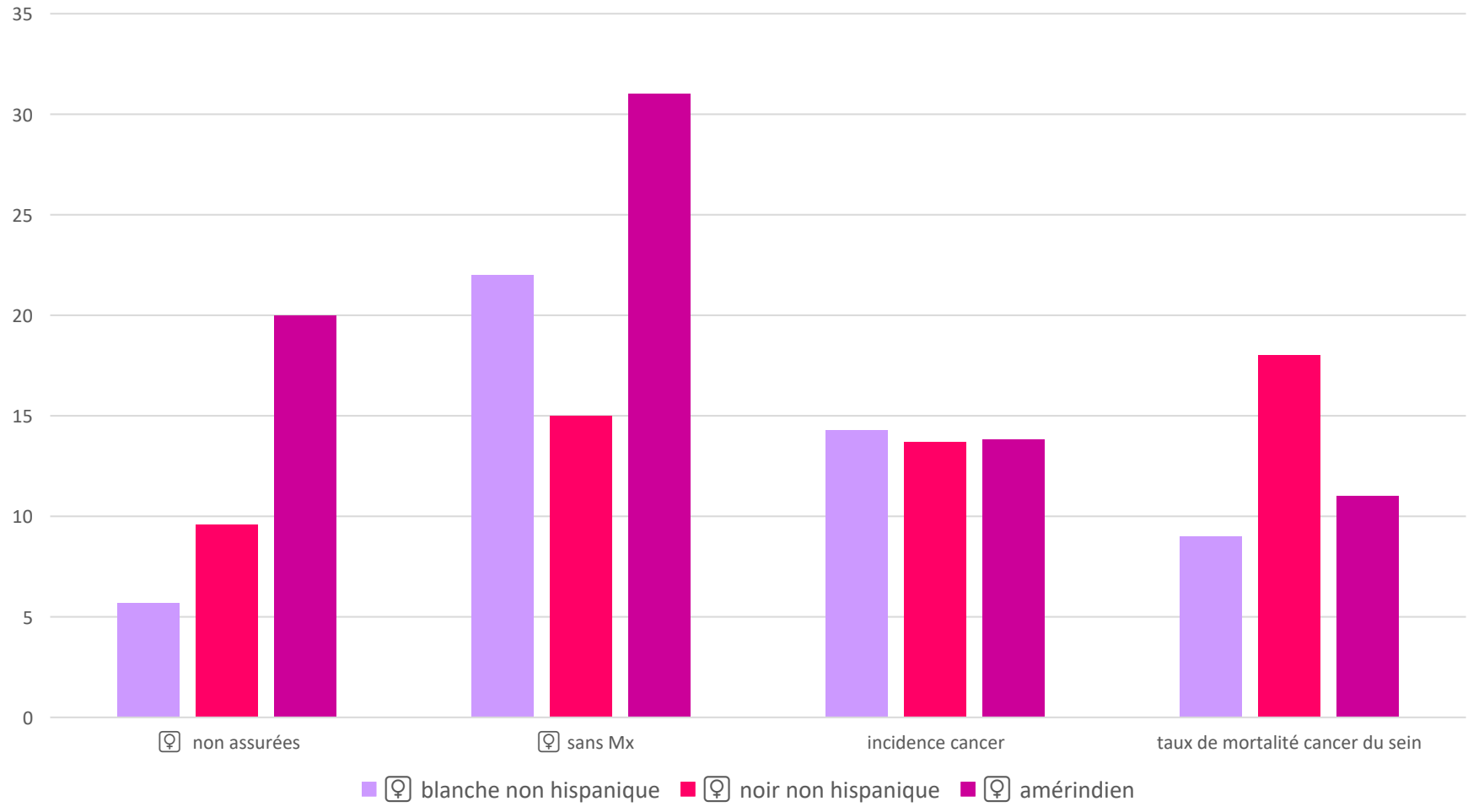


Figure 6. Percentage of population without health insurance coverage by state—2021. Map shows the percentage of the population without health insurance coverage by state in 2021, based on U.S. Census Bureau data (8).

Age-adjusted Prevalence in Women Aged 50-74 who did not receive a mammogram within the past two years



Figure 7. Age-adjusted prevalence in women aged 50–74 years who did not undergo mammography within the past 2 years. Map based on 2020 Centers for Disease Control and Prevention (CDC) data shows the age-adjusted prevalence in women aged 50–74 years who did not undergo mammography within the past 2 years by state. Results might be affected by the impact of COVID-19 on screening mammography (17).





REVIEW

Cancer burden in China: trends, risk factors and prevention

Dianqin Sun¹, He Li¹, Maomao Cao¹, Siyi He¹, Lin Lei², Ji Peng², Wanqing Chen¹

¹Department of Cancer Screening, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100021, China; ²Department of Cancer Prevention and Control, Shenzhen Center for Chronic Disease Control, Shenzhen 518020, China

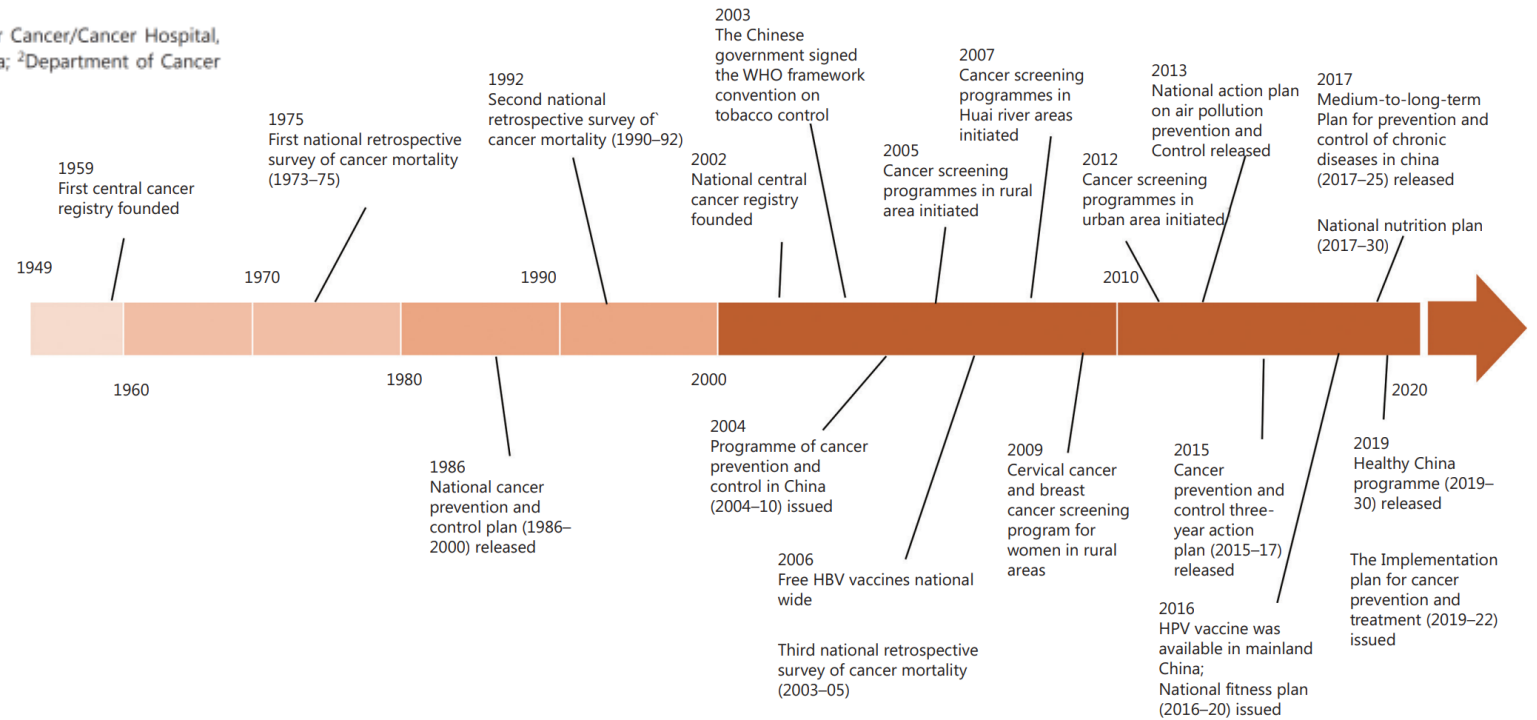


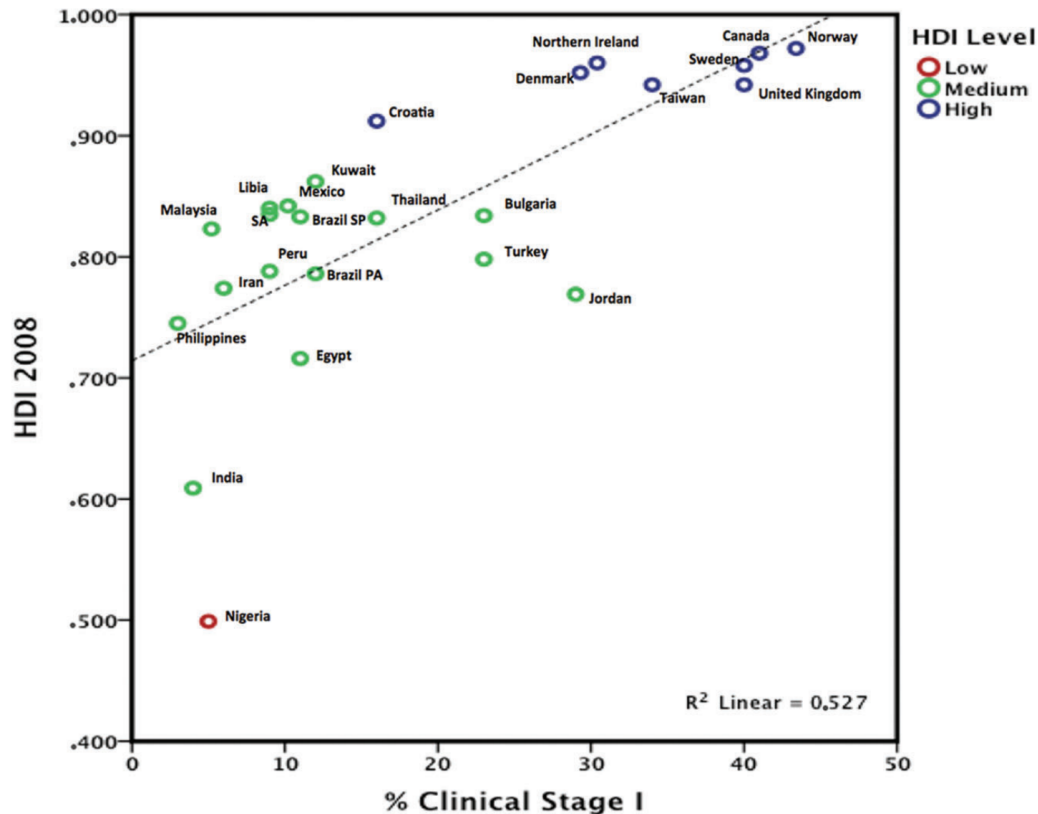
Figure 5 Timeline of key policies in cancer prevention and cancer-related risk factor control in China.

Breast cancer screening programs (screening methods include mammography, ultrasound, or clinical breast examination) are available in most provinces of China, although coverage is highly variable. Currently in China, however, neither an organized screening program operating nationwide nor national breast cancer screening guidelines exist (6). To align ongoing national efforts, better understanding of the status of breast cancer screening across China is needed. This understanding will facilitate development of comprehensive breast cancer prevention and control strategies. In this study, we aimed to describe breast cancer screening participation among women in China and examine key factors associated with screening.

Breast cancer screening in developing countries

René Aloísio da Costa Vieira,^{I,II,*} Gabriele Biller,^I Gilberto Uemura,^{II} Carlos Alberto Ruiz,^{III}
Maria Paula Curado^{IV}

DOI: 10.6061/clinics/2017(04)09



Survie à 5 ans des cancers du seins:

82 % dans les pays à haut HDI

55 % dans les pays à bas HDI

Mise en place de systèmes efficaces de santé
prise en charge globale de la santé
possibilité de traiter les cancers du sein

Choix de la meilleure stratégie du DO




... les gains sur la mortalité peuvent être très importants



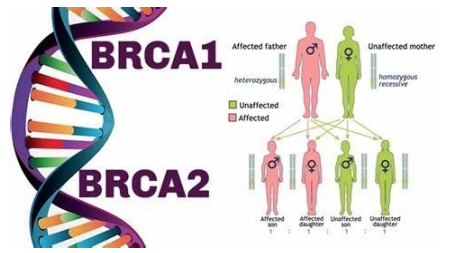
A) Femmes présentant un risque modérément accru de cancer du sein (risque au cours de la vie : de 17 à 30 %) :

- un parent au premier degré ayant eu un cancer du sein à < 40 ans, ou
- deux parents au premier ou deuxième degré chez lesquels un cancer du sein a été diagnostiqué à un âge moyen > 50 ans, ou
- trois parents au premier ou deuxième degré chez lesquels un cancer du sein a été diagnostiqué à un âge moyen > 60 ans, ou
- le risque de cancer du sein au cours de la vie a été estimé entre 17 et 30 % sur la base d'une évaluation formelle du risque à l'aide d'un programme tel que le *Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm* (BOADICEA).

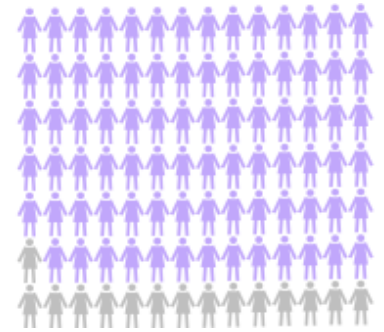
The CanRisk Web Tool incorporates the new version of BOADICEA v6, the Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm.

IBIS (International Breast Cancer Intervention Study)
Online Tyrer-Cuzick Model Breast Cancer Risk Evaluation Tool



Average lifetime risk < 17 %



85 %

Intermediaire lifetime risk 17-30 %



12 %

High lifetime risk > 30 %



3 %

20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 75	
IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG
pas de dépistage		pas de dépistage		pas de dépistage		-	bisannuelle	-	bisannuelle	-	bisannuelle

Average lifetime risk < 17 %

raison pour la surveillance	âge / modalité d'imagerie (IRM = imagerie à résonance magnétique, MG = mammographie)											
	20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 75	
	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG
risque au cours de la vie modérément accru (17 - 29%)	pas de dépistage		pas de dépistage		-	annuelle	Intermediaire lifetime risk 17-30 %					
risque au cours de la vie fortement accru (≥ 30 %) mutation BRCA1/2 mutation STK11 mutation TP53 mutation CDH1 mutation PALB2 radiothérapie du thorax ou du corps	annuelle à partir de 25 ans ⁵⁾	-	annuelle ¹⁾	annuelle ^{2), 3)}	annuelle ¹⁾	annuelle	annuelle ¹⁾	annuelle	bisannuelle ^{1), 4)}	bisannuelle ⁴⁾	-	bisannuelle
			annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	-	bisannuelle
	High lifetime risk > 30 %											



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Direktionsbereich Kranken- und Unfallversicherung

Document de référence « Schéma de surveillance »

mentionné à l'article 12d alinéa 1 lettre d de l'Ordonnance sur les prestations de l'assurance des soins (OPAS) - État 01/2021



17 %

20 %

30 %

Risque à vie

Average lifetime risk < 17 %

Intermediaire lifetime risk 17-30 %

High lifetime risk > 30 %



En cas de risque élevé, il convient de commencer la surveillance radiologique 5 ans avant l'âge du diagnostic de cancer du sein chez l'apparentée la plus jeune (apparentée au premier degré ou nièce par un frère). Les modalités de cette surveillance sont modulées selon l'âge de la patiente. Elles prévoient :

- à partir de l'âge de 20 ans, un examen clinique annuel ;
- avant l'âge de 50 ans et au plus tôt à partir de 40 ans, une mammographie annuelle (en association éventuelle avec une échographie mammaire). Les situations justifiant d'un suivi radiologique plus précoce (avec IRM mammaire éventuelle) sont discutées au cas par cas ;



Screening for Breast Cancer: U.S. Preventive Services Task Force Recommendation Statement

Albert L. Siu, MD, MSPH, on behalf of the U.S. Preventive Services Task Force

Women with a parent, sibling, or child with breast cancer are at higher risk for breast cancer and thus may benefit more than average-risk women from beginning screening in their 40s.

Table 7
Screening mammography: risk analysis in women receiving mammography (%)

Category	Relative benefit	RR	Comment
Collaborative	Effect of women born in 1910 with average risk compared to women born in 1910 with average risk	1.0	Relative strategies compared to average risk women
Family history	Effect of women born in 1910 with average risk compared to women born in 1910 with average risk and a first-degree relative with breast cancer	1.5	Relative strategies compared to average risk women
Genetic	Effect of women born in 1910 with average risk compared to women born in 1910 with average risk and a BRCA1 or BRCA2 mutation	2.0	Relative strategies compared to average risk women

Screening for breast cancer Seminars in Oncology 44 (2017)

Kimberly S. Peairs^{a,b,*}, Youngjee Choi^a, Rosalyn W. Stewart^d, Heather F. Sateia^a

- Groups with a 2- to 4-fold increased risk, annual screening from age 40 years similar harms and benefits as screening average-risk women biennially from 50-74 yrs

Effect sizes (95% CI) for 10-year breast cancer mortality reduction (relative to average-risk women) by screening strategy and risk group

Screening Strategy	Relative Benefit (RR)
Annual screening from age 40 years	1.5 (1.2-1.8)
Annual screening from age 40 years with supplemental MRI	2.0 (1.5-2.5)
Biennial screening from age 50-74 years	1.0 (0.8-1.2)

High lifetime risk > 20 %



The ACS recommends annual screening mammography and supplemental screening MR imaging for the following women:

- Estimated lifetime risk of breast cancer $\geq 20\%$
- BRCA mutation carriers
- First-degree relatives of BRCA mutation carriers who remain untested
- Mediastinal irradiation between the ages of 10 and 30
- Certain genetic syndromes




Position paper on screening for breast cancer by the European Society of Breast Imaging (EUSOBI) and 38 national breast radiology bodies from Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Israel, Lithuania, Moldova, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland and Turkey

Eur Radiol (2017)

Women at increased risk for breast cancer

These societies are in favour of including, whenever possible, dedicated pathways for high-risk women (lifetime risk equal to or higher than 20 %), offering magnetic resonance imaging according to national or international guidelines and recommendations [35–37].




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20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 75	
IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG
pas de dépistage		pas de dépistage		pas de dépistage		-	bisannuelle	-	bisannuelle	-	bisannuelle

raison pour la surveillance	âge / modalité d'imagerie (IRM = imagerie à résonance magnétique, MG = mammographie)											
	20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 75	
	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG
risque au cours de la vie modérément accru (17 - 29%)	pas de dépistage		pas de dépistage		-	annuelle	-	annuelle	-	bisannuelle	-	bisannuelle
risque au cours de la vie fortement accru (≥ 30 %) mutation BRCA1/2 mutation STK11 mutation TP53 mutation CDH1 mutation PALB2 radiothérapie du thorax ou du corps	annuelle à partir de 25 ans ⁵⁾	-	annuelle ¹⁾	annuelle ^{2), 3)}	annuelle ¹⁾	annuelle	annuelle ¹⁾	annuelle	bisannuelle ^{1), 4)}	bisannuelle ⁴⁾	-	bisannuelle
			annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	annuelle	-	bisannuelle

High lifetime risk > 30 %

Document de référence « Schéma de surveillance »

mentionné à l'article 12d alinéa 1 lettre d de l'Ordonnance sur les prestations de l'assurance des soins (OPAS) - État 01/2021

High lifetime risk > 30 %

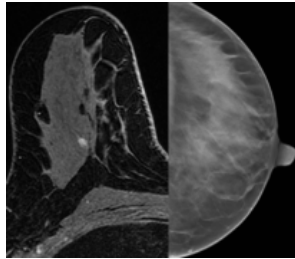


Table 3. Summary of Selected and National Guidelines for Breast and Ovarian Cancer Screening in High-Risk Patients and/or BRCA Mutation Carriers

Screening Test	ACR (2017, 2016)*	ACS (2015)*	NCCN (2015)*	NCCN (2017)*	ASCC (2016)*
Mammography	Annual screening	Annual screening	Annual screening (starting with MRI)	Annual screening (starting with MRI every 6 mo)	Annual screening
Start	30 y (may consider delaying until 35 y for BRCA1 mutation carriers if consistent with annual MRI screening)	---	30 y	30 y	30 y
End	---	---	---	75 y (50 y for individuals)	---
Dynamic Contrast-Enhanced MRI	Annual screening	Annual screening	Annual screening	Annual screening	Annual screening
Start	25–30 y	30 y	25 y	25 y	25–30 y
End	---	---	---	75 y (50 y for individuals)	---
	Not considered for women at high risk (strong evidence available)	May be offered	Strong surveillance recommended for women at high risk if risk-reducing surgery is deferred	May be considered if risk-reducing surgery is deferred	Periodic
	---	---	30–35 y (conditional); Limited risk-reducing surgery is preferred	30–35 y (conditional); Limited risk-reducing surgery is preferred	30–35 y
	Not considered for women at high risk (strong evidence available)	May be offered	Active surveillance not recommended; Strong surveillance recommended for high risk women if risk-reducing surgery is deferred	May be considered if risk-reducing surgery is deferred	Periodic
	---	---	30–35 y (conditional); Limited risk-reducing surgery is preferred	30–35 y (conditional); Limited risk-reducing surgery is preferred	30–35 y

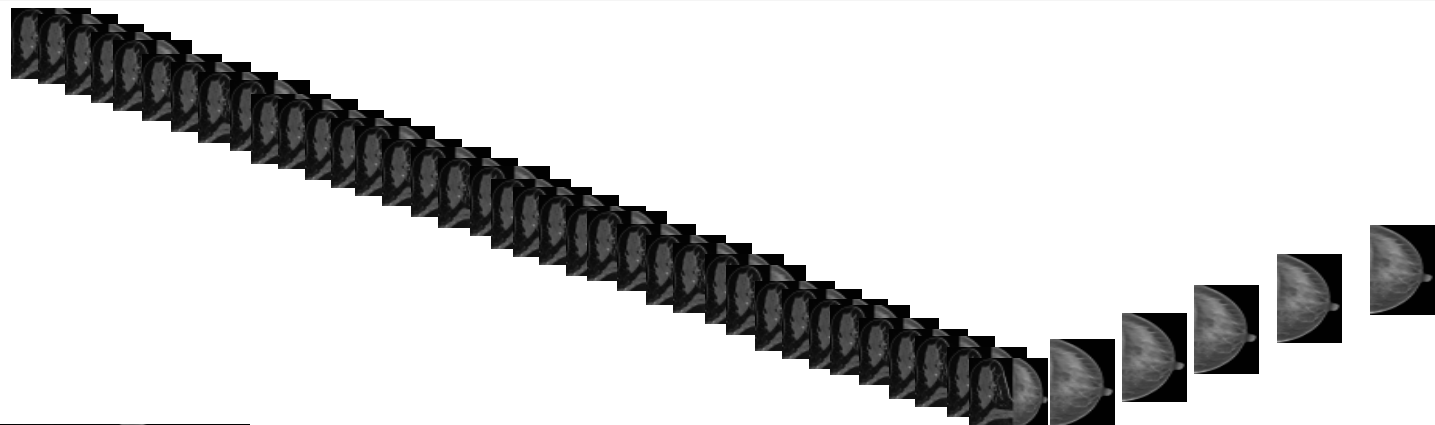
REVIEWS AND COMMENTARY • REVIEW

Radiology

BRCA Mutation Carriers: Breast and Ovarian Cancer Screening Guidelines and Imaging Considerations

Mei Elendy, MD • Whitney Lee, MD • Katherine E. Meaven, MD, MS • Lisa Barvulot, MD • Keri R. Witnaki, MD • Sarina Schrago, MD • Lee G. Wilson, MD • Elizabeth Salsbenki, MD

Radiology: Volume 291: Number 3—June 2019



High lifetime risk > 30 %

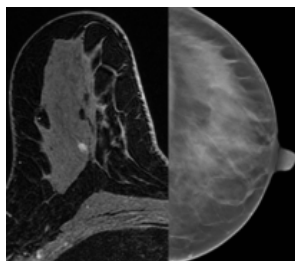


Table 3. Summary of National and National Guidelines for Breast and Ovarian Cancer Screening in High-Risk Patients and/or BRCA Mutation Carriers

Screening Test	ACR (2017, 2018)*	ACS (2015)*	NCCN (2017)*	NCCN (2017)*	ASCCO (2016)*
Mammography	Annual screening	Annual screening	Annual screening (alternating with MRI every 6 mo)	Annual screening (alternating with MRI every 6 mo)	Annual screening
Start	50 y (may consider delaying until 45 y for BRCA2 mutation carriers if consistent with annual MRI screening)	---	50 y	50 y	50 y
End	---	---	---	75 y (57 y for individuals)	---
Dynamic Contrast-Enhanced MRI	Annual screening	Annual screening	Annual screening	Annual screening	Annual screening
Start	25-50 y	30 y	25 y	25 y	25-50 y
End	---	---	---	75 y (57 y for individuals)	---

*No considered for or at paraprofessional centers or high-risk screening centers available
 May be offered
 Breast surveillance not recommended; breast surveillance not recommended for high-risk women if risk-reducing surgery is deferred
 May be considered if risk-reducing surgery is performed
 Periodic
 End risk-reducing surgery is performed
 36-35 y (conditional)
 36-35 y (conditional)
 36-35 y (conditional)
 36-35 y (conditional)

REVIEWS AND COMMENTARY • REVIEW

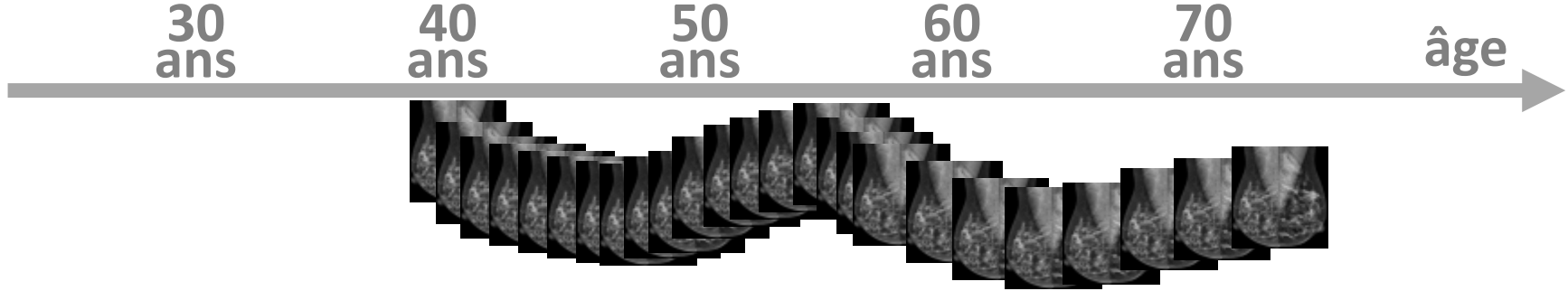
BRCA Mutation Carriers: Breast and Ovarian Cancer Screening Guidelines and Imaging Considerations

Mia Eladoby, MD • Whitney Lee, MD • Katherine E. Meares, MD, MS • Lisa Barwell, MD •
 Keri R. Witek, MD • Sarina Schrag, MD • Lee G. Wilson, MD • Elizabeth Salsben, MD

Radiology: Volume 291: Number 3—June 2019

Radiology

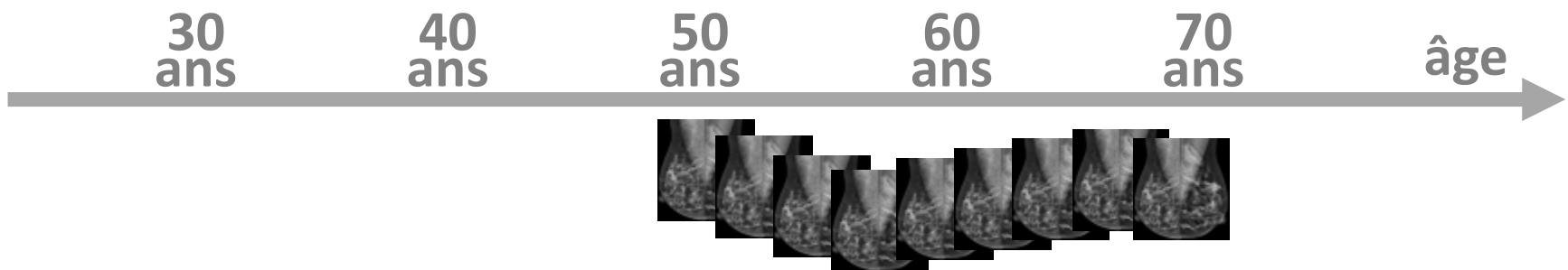
	Swiss	France	USA	UK	Pays-Bas	Spain
Age of screening start	25 years	30 years	25 years	30 years	25 years	25 years
End of screening with IRM	69 years	65 years	no age limit	50 years	60 years	70 years
MG with IRM	annual	annual	annual	annual	annual	annual
After...	MG every 2 years	MG annual	MG annual	MG every 3 years	MG every 2 years	MG annual



Intermediaire lifetime risk 17-30 %



raison pour la surveillance	âge / modalité d'imagerie (IRM = imagerie à résonance magnétique, MG = mammographie)											
	20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 75	
	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG	IRM	MG
risque au cours de la vie modérément accru (17 - 29%)	pas de dépistage		pas de dépistage		-	annuelle	-	annuelle	-	bisannuelle	-	bisannuelle



Average lifetime risk < 17 %



European Commission > EU Science Hub > Cancer screening, diagnosis and prevention
Screening ages and frequencies

Screening ages and frequencies

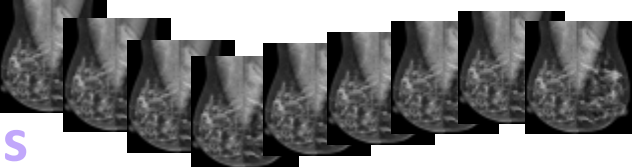
Women aged 50-69: screening every 2 years

In the context of an organised screening programme, for:

- asymptomatic women
- aged 50 to 69
- with an average risk of breast cancer

the ECIBC's Guideline Development Group (GDG):

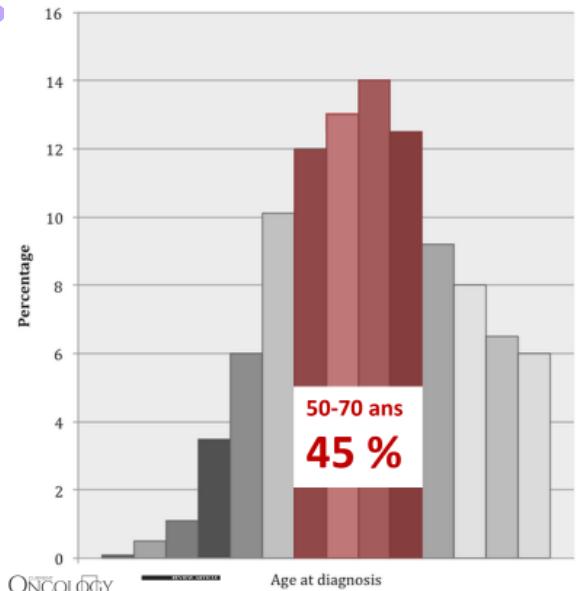
- **recommends mammography screening**
(strong recommendation, moderate certainty of the evidence)
- **recommends against annual mammography screening**
(strong recommendation, very low certainty of the evidence)
- **suggests biennial mammography screening**
(conditional recommendation, very low certainty of the evidence)



← 45 ans
(40) ans

→ 75 ans

Average lifetime risk < 17 %



ONCOLOGY

Screening for breast cancer in 2018—
what should we be doing today?
UK Study of JACS, 2018

Incidence la plus haute du cancer du sein entre 70 et 74 ans
Entre 40 et 50 ans le cancer du sein est la cause principale de mortalité

Breast Cancer

Risk Assessment, Screening, and Primary Prevention

Med Clin N Am 107 (2023) 271–284

Elena Michaels, MD, Rebeca Ortiz Worthington, MD, MS,
Jennifer Rusiecki, MD, MS*



Table 4
Screening guidelines for average-risk patients

Guideline	When to Start Screening	Screening for Over Age 45 to 50
USPSTF	<ul style="list-style-type: none">• 40 to 49, individualized decision• If screening, biennial	<ul style="list-style-type: none">• 50+ biennial screen• Stop at age 75
ACOG	<ul style="list-style-type: none">• 40 to 49, individual decision• Annual or biennial based on SDM	<ul style="list-style-type: none">• Start screening everyone by 50• Annual or biennial based on SDM• Start to discuss stopping at age 75
ACS	<ul style="list-style-type: none">• 40 to 44 discuss annual screen• 45 to 54 annual screen	<ul style="list-style-type: none">• 45 to 54 annual screen• 55+ biennial screen• Stop life expectancy <10 years
ACR	<ul style="list-style-type: none">• 40 annual screen	<ul style="list-style-type: none">• Annual screen• No upper age cut off

Abbreviations: United States Preventative Services Task Force (USPSTF), American College of Obstetrics and Gynecology (ACOG), American Cancer Society (ACS), American College of Radiology (ACR).

Breast Cancer

Risk Assessment, Screening, and Primary Prevention

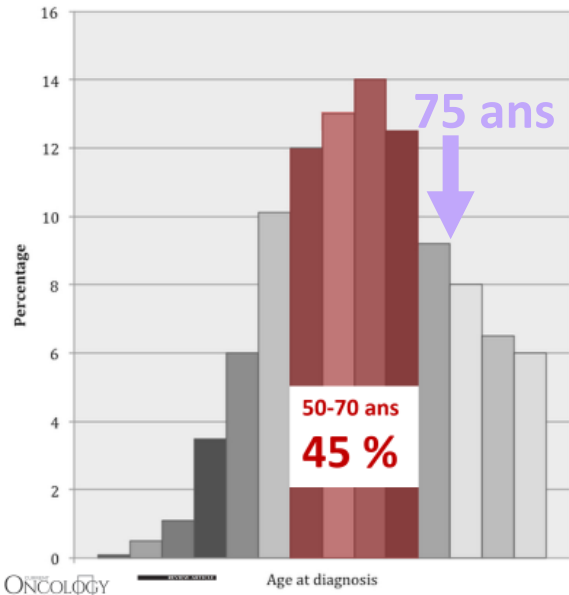
Med Clin N Am 107 (2023) 271–284

Elena Michaels, MD, Rebeca Ortiz Worthington, MD, MS,
Jennifer Rusiecki, MD, MS*



Aux USA

70 % des femmes suivent un DO
femmes blanches
haut niveau socio-économique
avec une couverture de la sécurité sociale



ONCOLOGY
Screening for breast cancer in 2018—
what should we be doing today?
14 July 2017



European Commission > EU Science Hub > Cancer screening, diagnosis and prevention
Screening ages and frequencies

Screening ages and frequencies

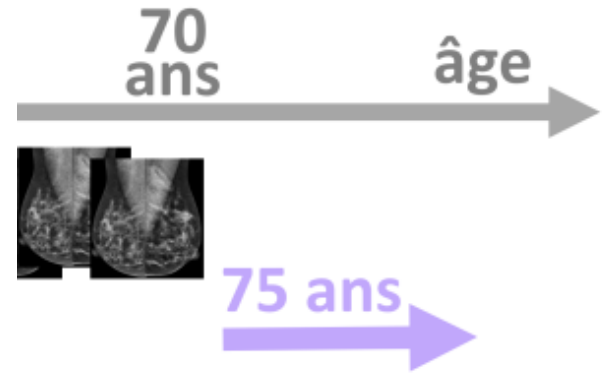
Women aged 70-74: screening every 3 years

In the context of an organised screening programme, for:

- asymptomatic women
- aged 70 to 74
- with an average risk of breast cancer

the ECIBC's Guideline Development Group (GDG):

- **suggests mammography screening**
(conditional recommendation, moderate certainty of the evidence)
- **recommends against annual mammography screening**
(strong recommendation, very low certainty of the evidence)
- **suggests triennial mammography screening**
(conditional recommendation, very low certainty of the evidence)



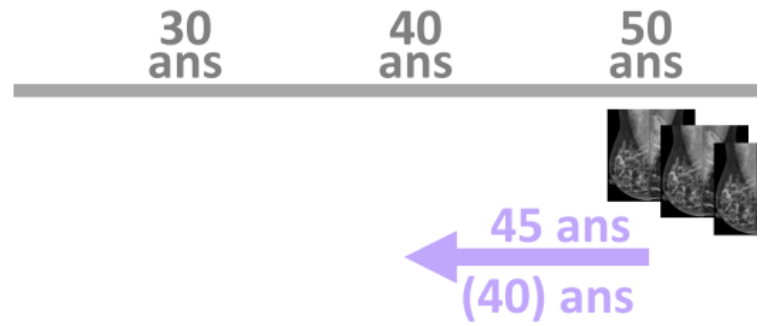
Dans **quelques** pays:

- France
- Suède
- Italie
- Portugal
- Hollande
- Suisse

...



Stop à 64 ans



European Commission > EU Science Hub > Cancer screening, diagnosis and treatment
Screening ages and frequencies

Screening ages and frequencies

Women aged 40-44: no screening

In the context of an organised screening programme for:

- asymptomatic women
- aged 40 to 44
- with an average risk of breast cancer

the ECIBC's Guidelines Development Group (GDG) **suggests not implementing mammography screening** (conditional recommendation, moderate certainty of the evidence).

Women aged 45-49: screening every 2 or 3 years

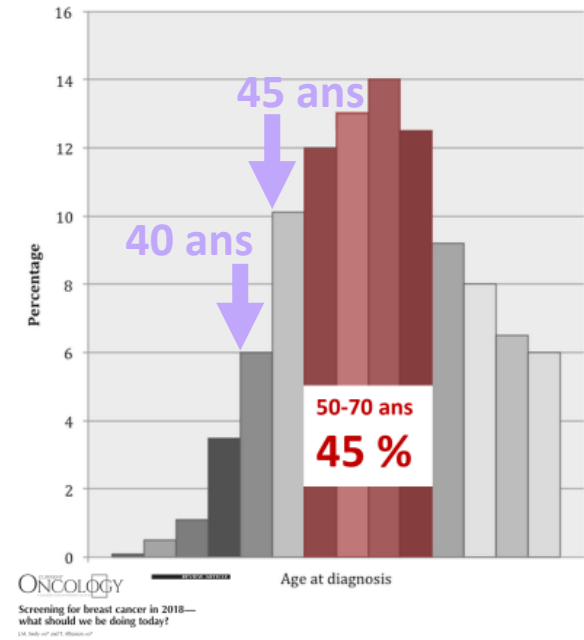
In the context of an organised screening programme for:

- asymptomatic women
- aged 45 to 49
- with an average risk of breast cancer

the ECIBC's Guidelines Development Group (GDG) **suggests:**

- **mammography screening** (conditional recommendation, moderate certainty of the evidence)
- **either triennial or biennial mammography over annual screening** (conditional recommendation, very low certainty of the evidence)

Because the bca growth rate is faster in premenopausal women, the optimal recommended screening interval for those women is annual²⁷.



Dans **peu** de pays, entre **45 et 50 ans**:

Suède
Autriche
Italie
Portugal

Seulement la **Suède** entre **40 et 45 ans**

LA MAMMOGRAPHIE
DE DÉPISTAGE :

2
ans



Faites vos mammographies
chaque année



Le DO reste une valeur « sûre » en 2023

Le DO reste une mesure « imparfaite » en 2023

On observe des différences importantes entre les pays dans la mise en place du DO

Dans les pays des disparités de participation au DO sont importantes

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