Breast Cancer Screening and Recommendation

Molrudee Kaspad, Advanced Practice Nurse

Ramathibodi Hospital

7 March 2024

Outline

- Breast cancer statistic
- Breast cancer risk assessment
- Screening modality: advantage and disadvantage
- Breast cancer screening guideline
- Screening recommendation in Thailand

Breast Cancer Screening:

Ten leading cancer types for the estimated new cancer case and deaths by sex. US, 2023

AMERICA

Estimated New Cases

Males			Females		
Prostate	288,300	29%	Breast	297,790	31%
Lung & bronchus	117,550	12%	Lung & bronchus	120,790	13%
Colon & rectum	81,860	8%	Colon & rectum	71,160	8%
Urinary bladder	62,420	6%	Uterine corpus	66,200	7%
Melanoma of the skin	58,120	6%	Melanoma of the skin	39,490	4%
Kidney & renal pelvis	52,360	5%	Non-Hodgkin lymphoma	35,670	4%
Non-Hodgkin lymphoma	44,880	4%	Thyroid	31,180	3%
Oral cavity & pharynx	39,290	4%	Pancreas	30,920	3%
Leukemia	35,670	4%	Kidney & renal pelvis	29,440	3%
Pancreas	33,130	3%	Leukemia	23,940	3%
All Sites	**1,010,310**	**100%**	**All Sites**	**948,000**	**100%**

Estimated Deaths

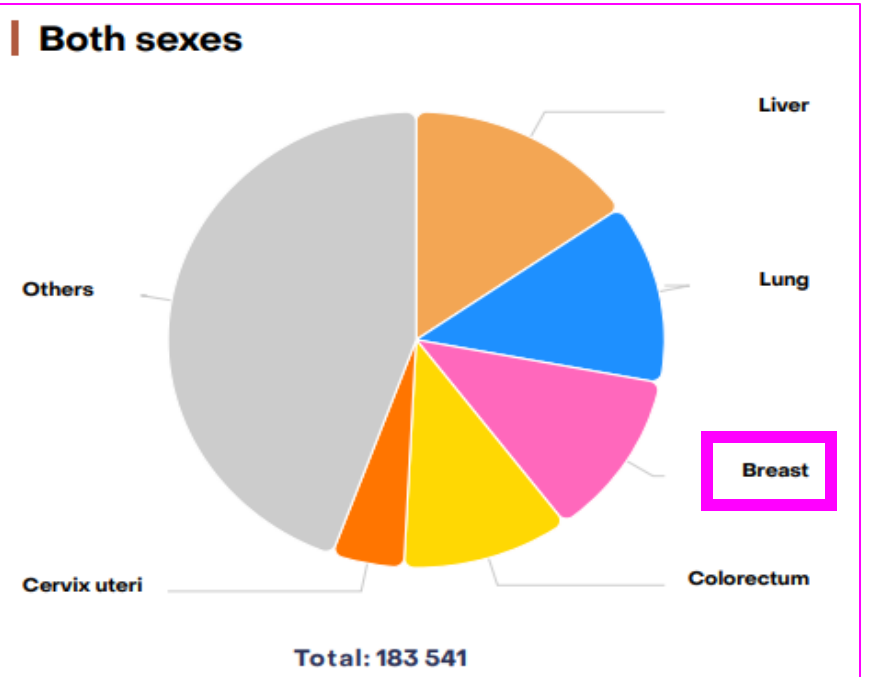
Males			Females		
Lung & bronchus	67,160	21%	Lung & bronchus	59,910	21%
Prostate	34,700	11%	Breast	43,170	15%
Colon & rectum	28,470	9%	Colon & rectum	24,080	8%
Pancreas	26,620	8%	Pancreas	23,930	8%
Liver & intrahepatic bile duct	19,000	6%	Ovary	13,270	5%
Leukemia	13,900	4%	Uterine corpus	13,030	5%
Esophagus	12,920	4%	Liver & intrahepatic bile duct	10,380	4%
Urinary bladder	12,160	4%	Leukemia	9,810	3%
Non-Hodgkin lymphoma	11,780	4%	Non-Hodgkin lymphoma	8,400	3%
Brain & other nervous system	11,020	3%	Brain & other nervous system	7,970	3%
All Sites	**322,080**	**100%**	**All Sites**	**287,740**	**100%**

https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/2023-cancer-facts-figures.html

Breast Cancer

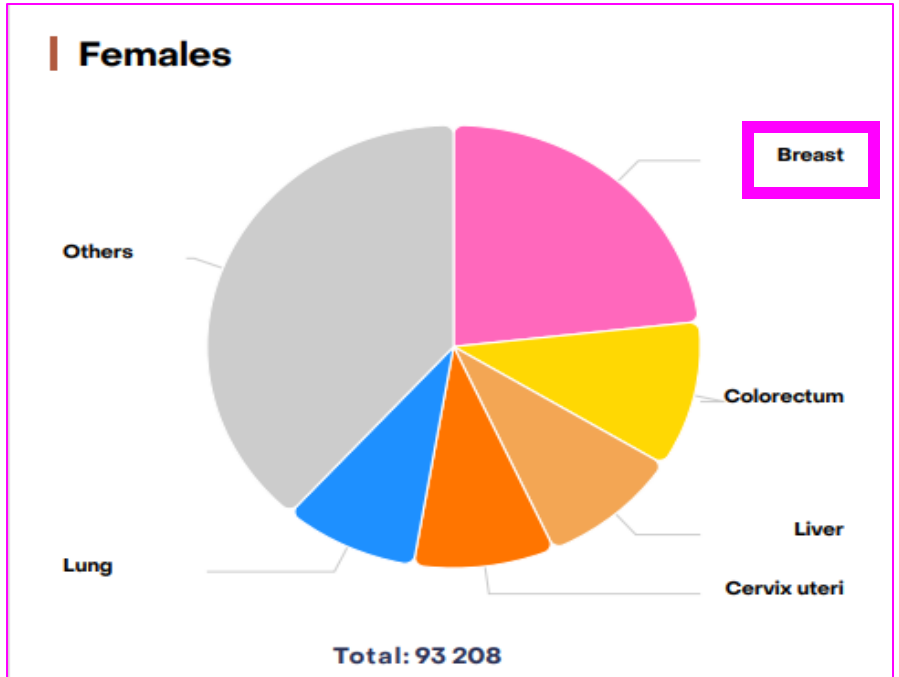
THAILAND

Number of new cases in 2022, both sexes, all ages



Rank	Cancer site	Number of cases	Percent
1st	Liver	27 936	15.2%
2nd	Lung	23 494	12.8%
3rd	Breast	21 628	11.8%
4th	Colorectum	20 173	11.0%
5th	Cervix uteri	8 662	4.7%
-	Others	81 648	44.5%

Number of new cases in 2022, females, all ages

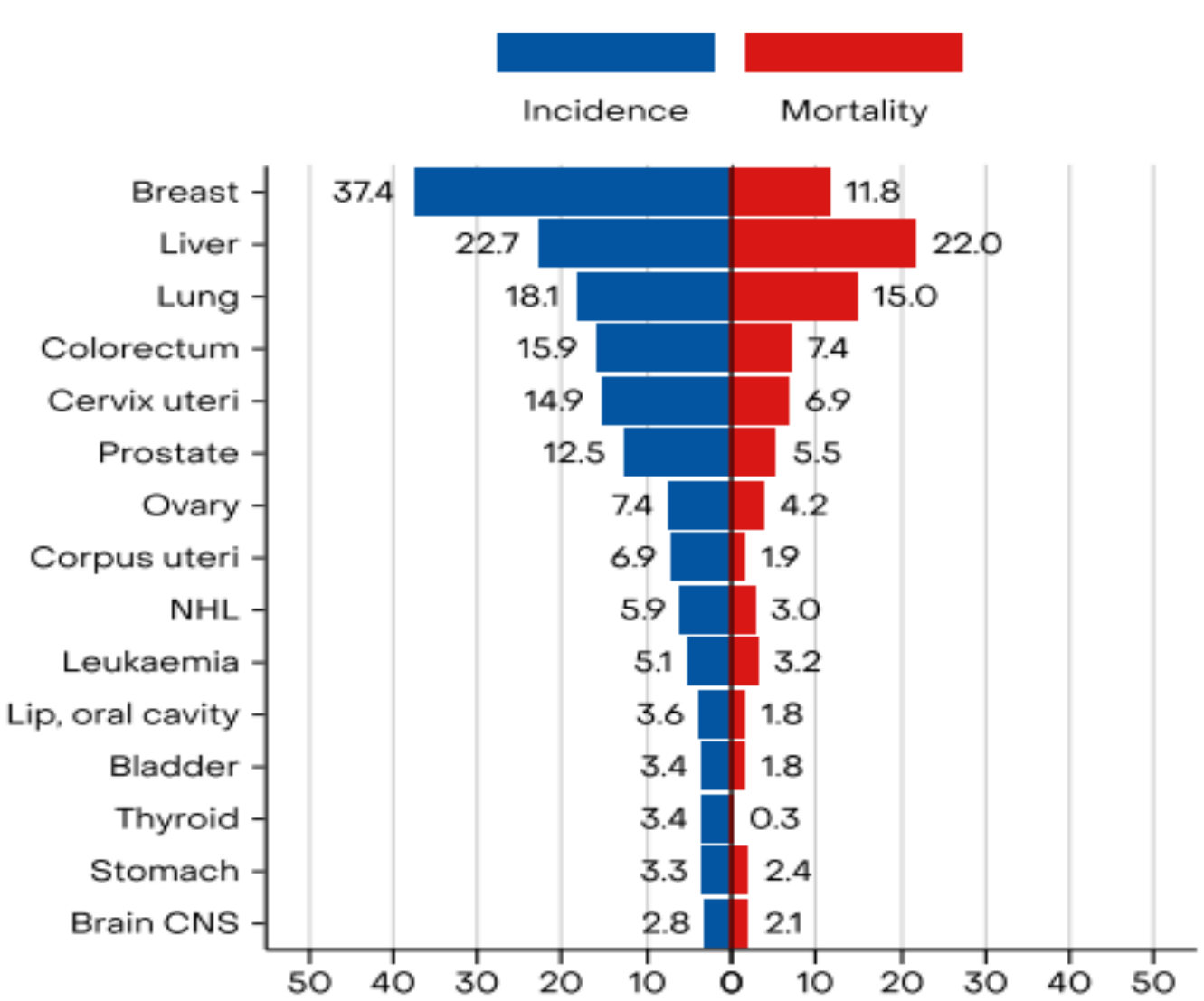


Rank	Cancer site	Number of cases	Percent
1st	Breast	21 628	23.2%
2nd	Colorectum	9 957	10.7%
3rd	Liver	8 797	9.4%
4th	Cervix uteri	8 662	9.3%
5th	Lung	8 294	8.9%
-	Others		

https://gco.iarc.who.int/media/globocan/factsheets/populations/764-thailand-fact-sheet.pdf. Globocan 2022

Breast Cancer

THAILAND

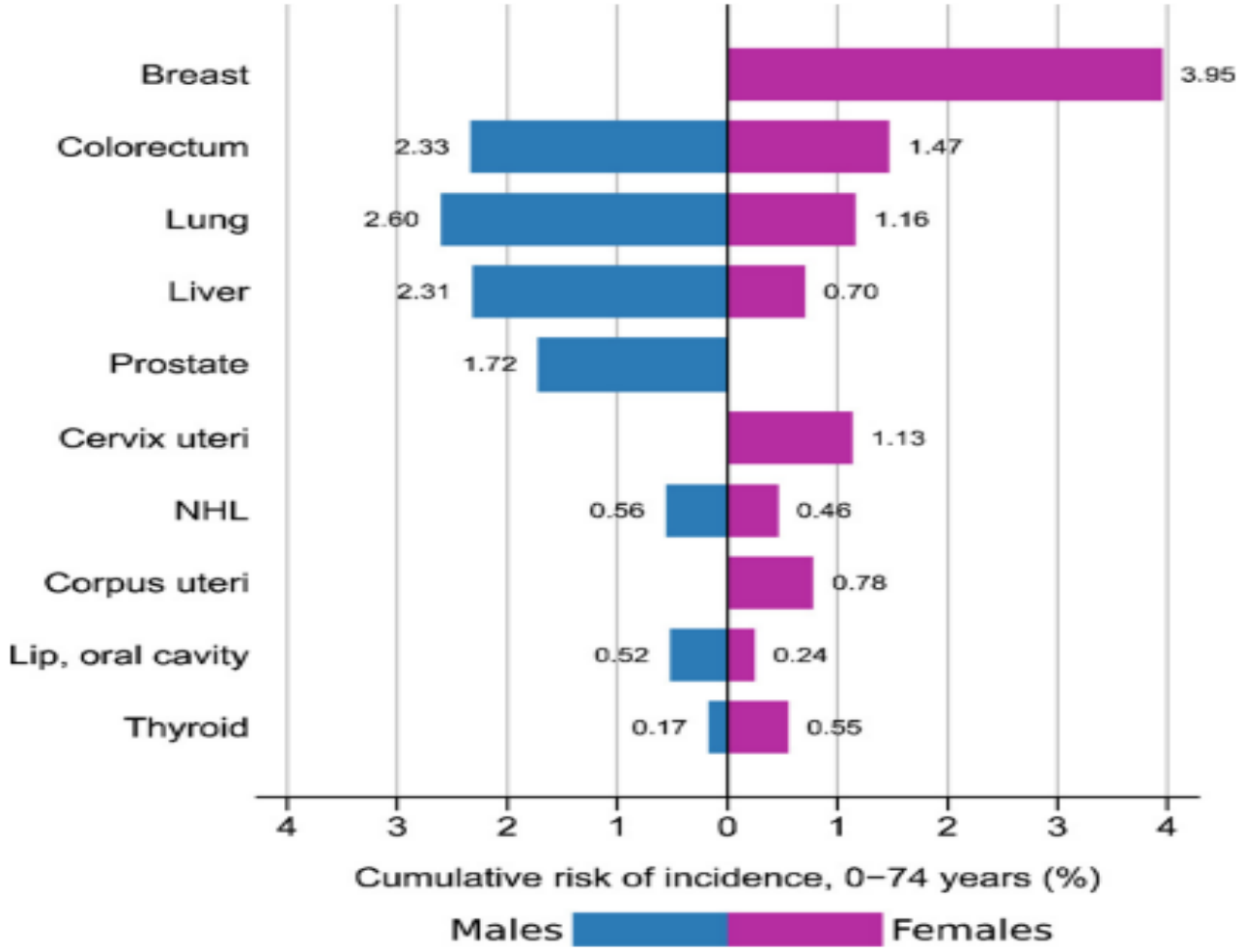


ASR (World) incidence and mortality rates, top 15 cancers**

https://gco.iarc.who.int/media/globocan/factsheets/populations/764-thailand-fact-sheet.pdf. Globocan 2022

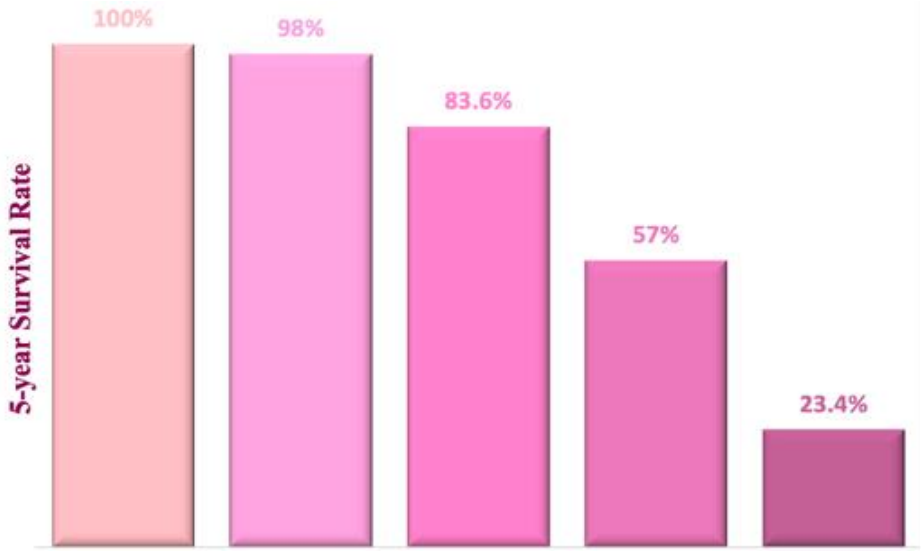
Breast Cancer

Lifetime risk of incidence (ages 0-74) for the top 10 leading cancer in Bangkok, 2011-15

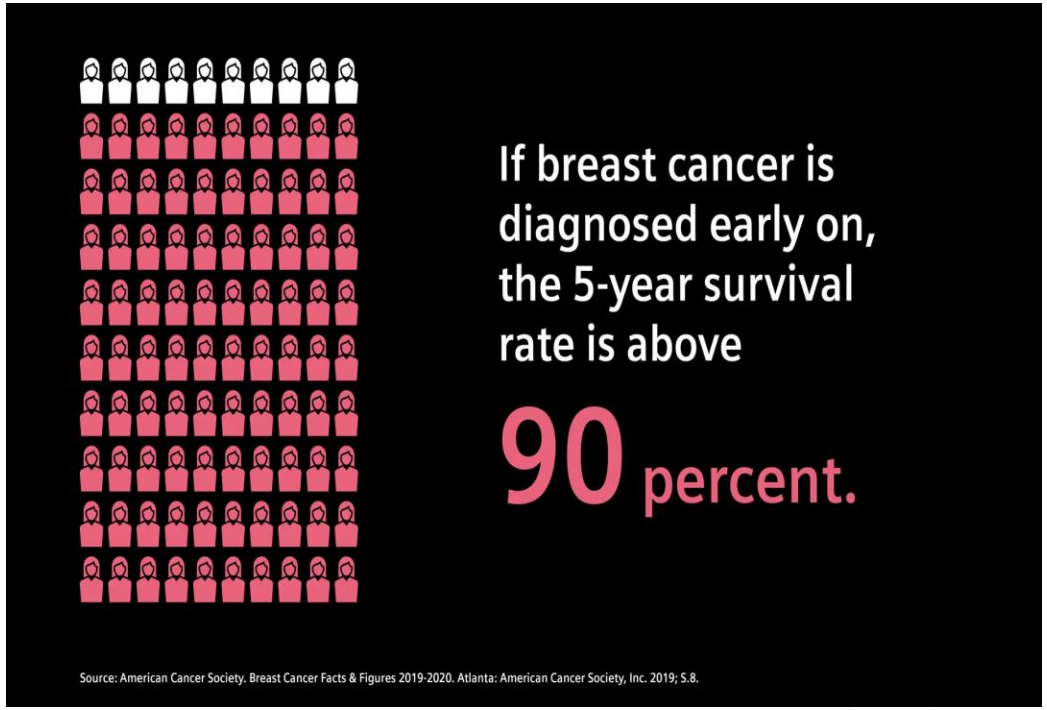


Sangrajrang S at al, Cancer Epidemiology 67, 2020

%5 – year Survival Rate by Staging



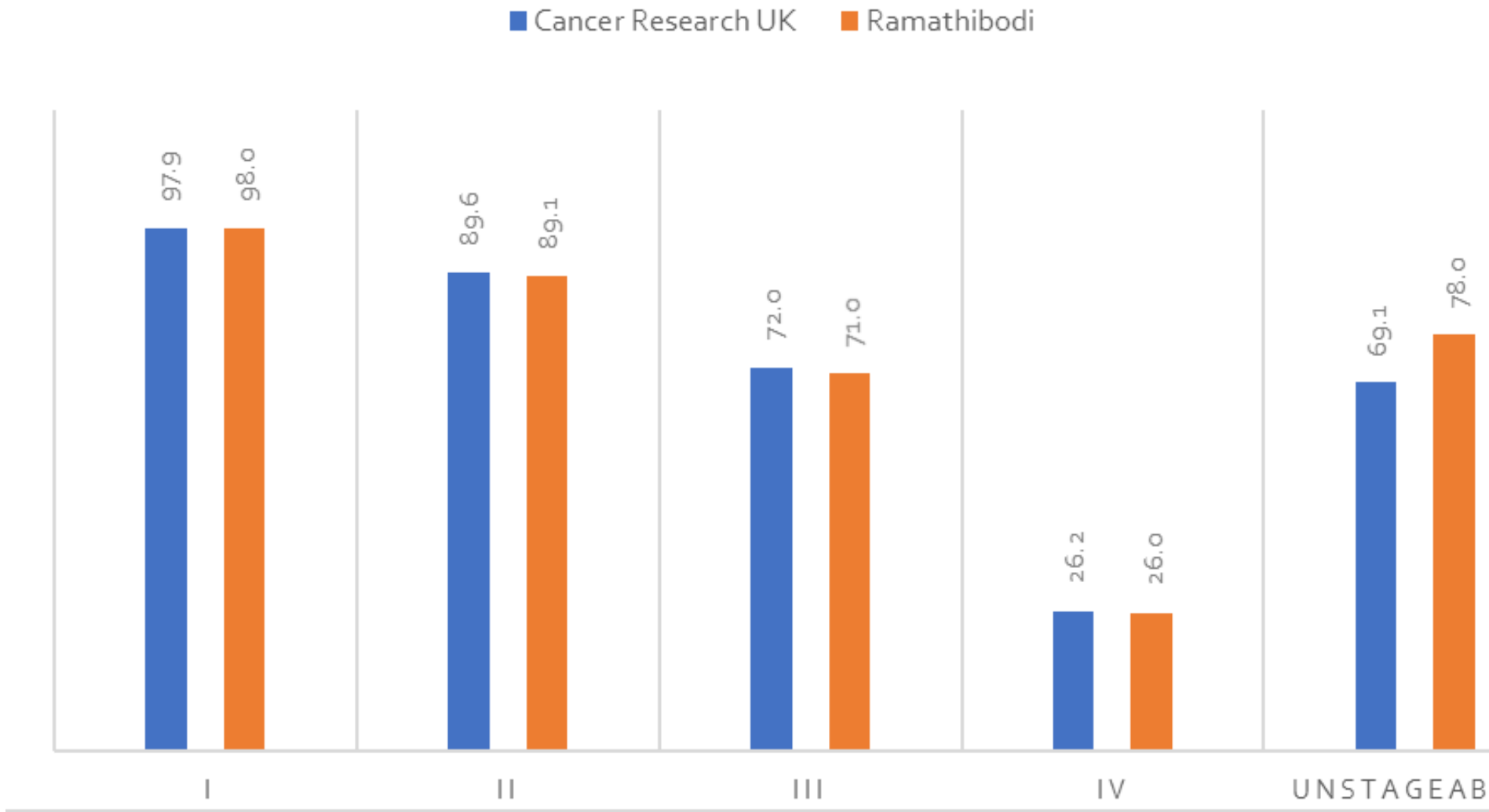
	Stage 0	Stage I , II	Stage I , II	Stage III	Stage IV
Classification	In situ	Early-Stage Invasive (Local)	Early-Stage Invasive (regional)	Locally Advanced	Metastatic
Characteristics	Confined within breast gland(s)	Confined twithin breast area	Spread to lymph nodes	Spread to Lymph node	Cancer spread beyond breast region
Tumor Size	Very Small	2-5 cm	2-5 cm	5 ≥ cm	Variable



https://www.hbku.edu.qa/en/news/QBRI-PM-BCASYAK

Breast Cancer

% 5- Year Relative Survival Rate by Staging



(Ramathibodi Hospital-based Cancer Registry, Cancer center

Breast Cancer

Breast Cancer Screening:

All woman

Breast Cancer

Breast Cancer Screening

All woman: base on each patient' s risk factors

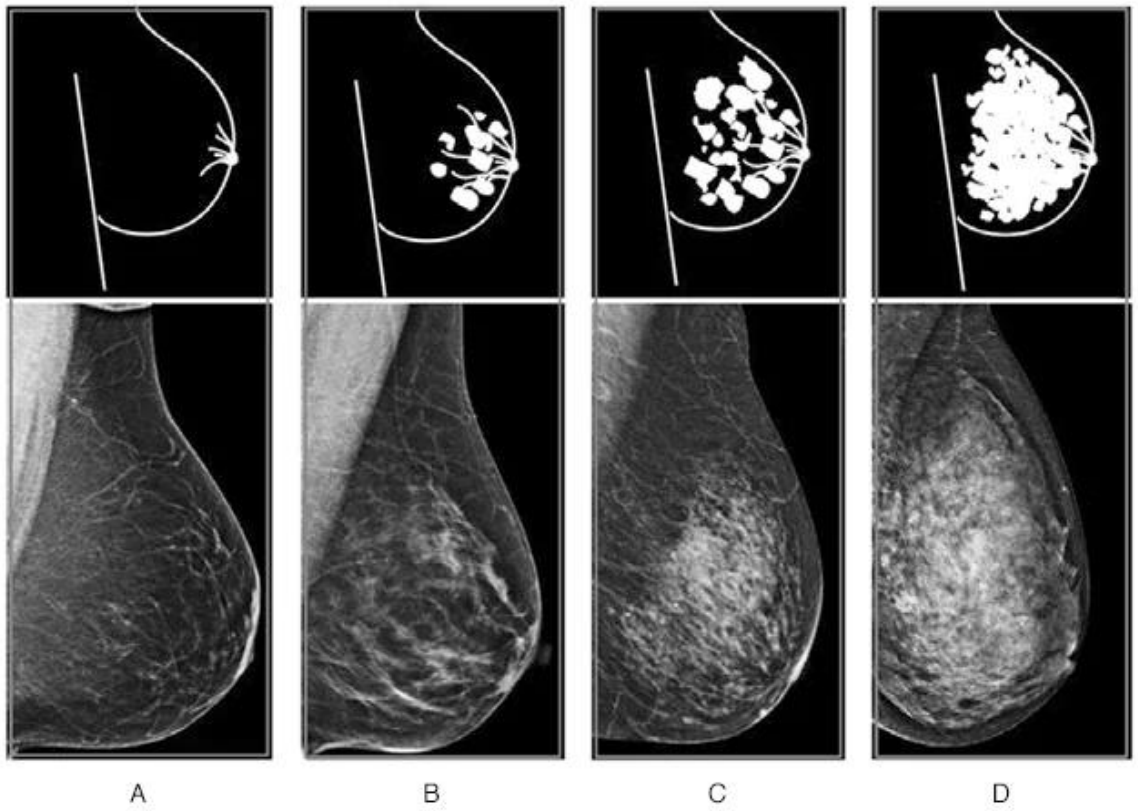
- Age
- Ethnicity
- Age of menarche
- Age of menopause
- Age of 1st pregnancy
- Obesity
- Long term hormonal therapy (> 5 yrs after menopause)
- Breast density

Breast Cancer Screening

All woman: base on each patient' s risk factors

- Prior radiation: 20 Gy at younger ages = greatest risk
- Breast biopsy = ADH (4-5 เท่า), LCIS (6-10 เท่า)
- Personal Hx of breast cancer & age of diagnosis
- Gene mutation: BRCA 1 (50-85%), BRCA 2 (45-50%), Ashkenazi Jewish
- Family history of breast cancer (1st degree relative)
- Ovarian cancer

Risk assessment



Dense breast increased risk

The sensitivity of MMG decreases with the increase of breast density

- A = Almost entirely fatty
- B = Scattered areas of fibroglandular density
- C = Heterogeneously dense
- D = Extremely dense

C and D categories are considered dense

Breast Cancer

TESTING CRITERIA FOR HIGH-PENETRANCE BREAST AND/OR OVARIAN CANCER SUSCEPTIBILITY GENES

(This often includes *BRCA1, BRCA2, CDH1, PALB2, PTEN,* and *TP53* among others. See GENE-A for a more complete list.)[a,b,c,d]

<u>Testing is clinically indicated in the following scenarios</u>:

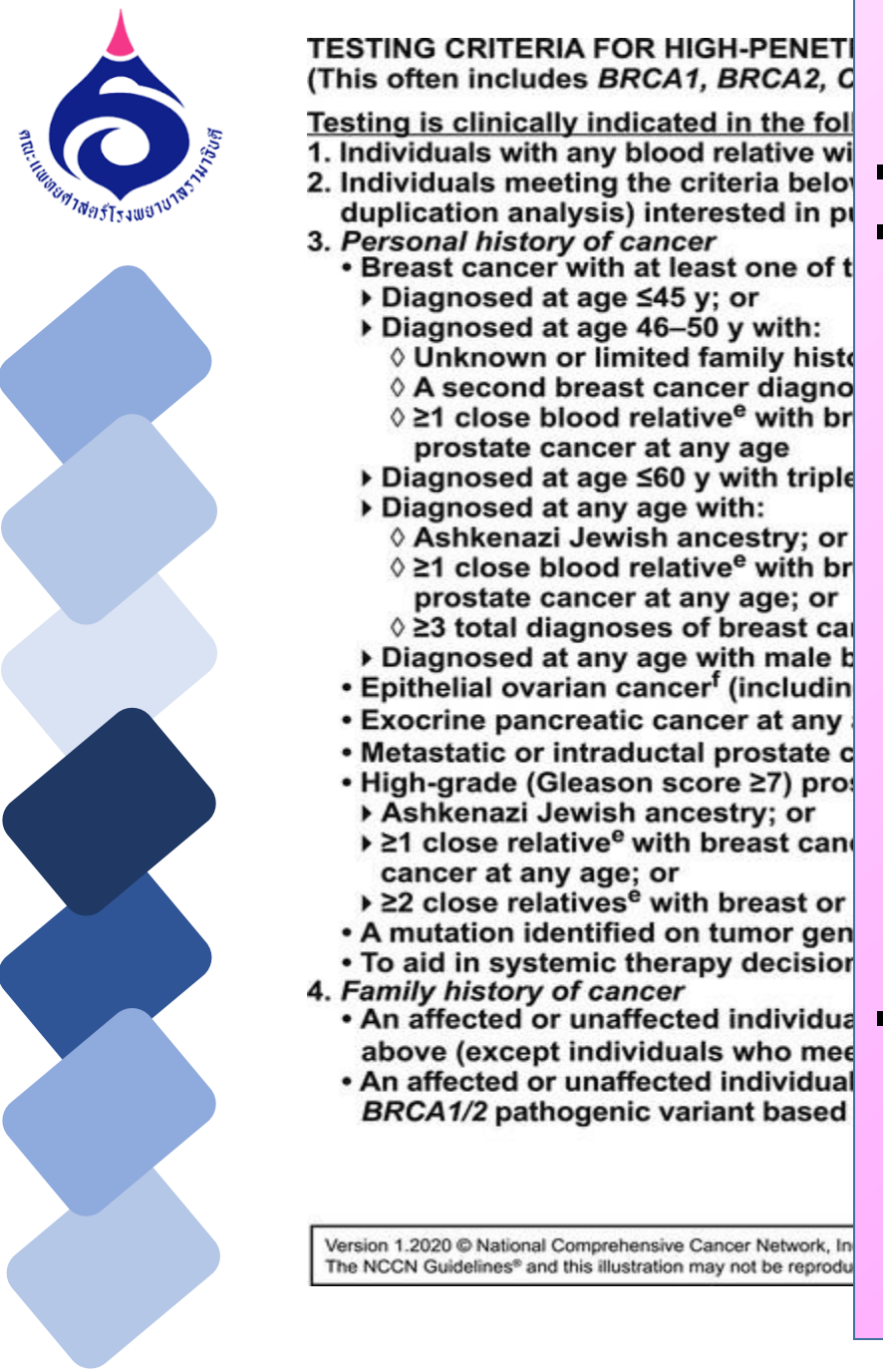
1. Individuals with any blood relative with a known pathogenic/likely pathogenic variant in a cancer susceptibility gene
2. Individuals meeting the criteria below but with previous limited testing (eg, single gene and/or absent deletion duplication analysis) interested in pursuing multi-gene testing
3. *Personal history of cancer*
   - Breast cancer with at least one of the following:
     - Diagnosed at age ≤45 y; or
     - Diagnosed at age 46–50 y with:
       - Unknown or limited family history; or
       - A second breast cancer diagnosed at any age; or
       - ≥1 close blood relative[e] with breast, ovarian, pancreatic, or high-grade (Gleason score ≥7) or intraductal prostate cancer at any age
     - Diagnosed at age ≤60 y with triple-negative breast cancer;
     - Diagnosed at any age with:
       - Ashkenazi Jewish ancestry; or
       - ≥1 close blood relative[e] with breast cancer at age ≤50 y or ovarian, pancreatic, or metastatic or intraductal prostate cancer at any age; or
       - ≥3 total diagnoses of breast cancer in patient and/or close blood relatives[e]
     - Diagnosed at any age with male breast cancer
   - Epithelial ovarian cancer[f] (including fallopian tube cancer or peritoneal cancer) at any age
   - Exocrine pancreatic cancer at any age[g] (See CRIT-3)
   - Metastatic or intraductal prostate cancer at any age[h]
   - High-grade (Gleason score ≥7) prostate cancer with:
     - Ashkenazi Jewish ancestry; or
     - ≥1 close relative[e] with breast cancer at age ≤50 y or ovarian, pancreatic, or metastatic or intraductal prostate cancer at any age; or
     - ≥2 close relatives[e] with breast or prostate cancer (any grade) at any age.
   - A mutation identified on tumor genomic testing that has clinical implications if also identified in the germline
   - To aid in systemic therapy decision-making, such as for HER2-negative metastatic breast cancer[i]
4. *Family history of cancer*
   - An affected or unaffected individual with a first- or second-degree blood relative meeting any of the criteria listed above (except individuals who meet criteria only for systemic therapy decision-making)[j]
   - An affected or unaffected individual who otherwise does not meet the criteria above but has a probability >5% of a *BRCA1/2* pathogenic variant based on prior probability models (eg, Tyrer-Cuzick, BRCAPro, PennII)[k]

Criteria met → See GENE-1

If testing criteria not met, consider testing for other hereditary syndromes → If criteria for other hereditary syndromes not met, then cancer screening as per NCCN Screening Guidelines

Continued on next page

Footnotes on CRIT-2



Testing is clinically indicated:

- Blood relative with known pathogenic cancer susceptible gene
- Personal Hx of cancer
  - At age ≤ 45 y OR
  - At 46-50 y with
    - Unknown or limited family Hx
    - A second breast cancer at any age or
    - ≥ 1 close blood relative
  - At ≤ 60 y with triple-negative breast CA
  - At any age with
    - Ashkenazi Jewish or
    - ≥ 1 close blood relative with breast CA at age ≤ 50 y
    - ≥ 3 total Dx of breast CA in patient and/or close blood relative
    - **Male breast CA at any age**
- **Family Hx of cancer**
  - **1st or 2nd relative meet any criteria above**
  - **> 5% a BRCA ½ probability base of probability models (Tyrer-Cuzick, BRCAPro, Pennll)**

Breast Cancer

Risk assessment model

The modified Gail model

- Age, ethnicity, hormonal and reproductive history, Hx of breast disease, and the number of 1st female relatives with breast cancer
- African American, Asian and Pacific, Islander women (except Hispanic women)

https://www.mdcalc.com/calc/3647/gail-model-breast-cancer-risk

Breast Cancer

The modified Gail model

Age Valid for women 35-85 years old.	years
First menstrual period	Unknown 7-11 years old 12-13 years old >13 years old
First live birth	Unknown No births <20 years old 20-24 years old 25-29 years old ≥30 years old
First-degree relatives with breast cancer Include only mother, sisters and daughters	Unknown / 0 / 1 / >1
Previous breast biopsy	Unknown / 0 / 1 / >1

Race/ethnicity	White African-American Hispanic **Asian-American** American-Indian/Alaskan Native Unknown
Asian-American sub race	Chinese Japanese **Filipino** Hawaiian Pacific Islander

The modified Gail model

2.0%

5-year breast cancer risk

Compared with 0.3% for the average 35 year old woman

40.1%

Lifetime breast cancer risk

Compared with 7.2% for the average 35 year old woman

Copied

Next Steps

» Next Steps | Evidence | Creator Insights

ADVICE

Patients who have an increased risk of developing breast cancer, defined as calculated 5 year risk >1.7%, are candidates for chemoprevention (such as tamoxifen).

CRITICAL ACTIONS

Patients with elevated breast cancer risk (>1.7%) should be referred to a breast surgeon to discuss possible risk reduction interventions.

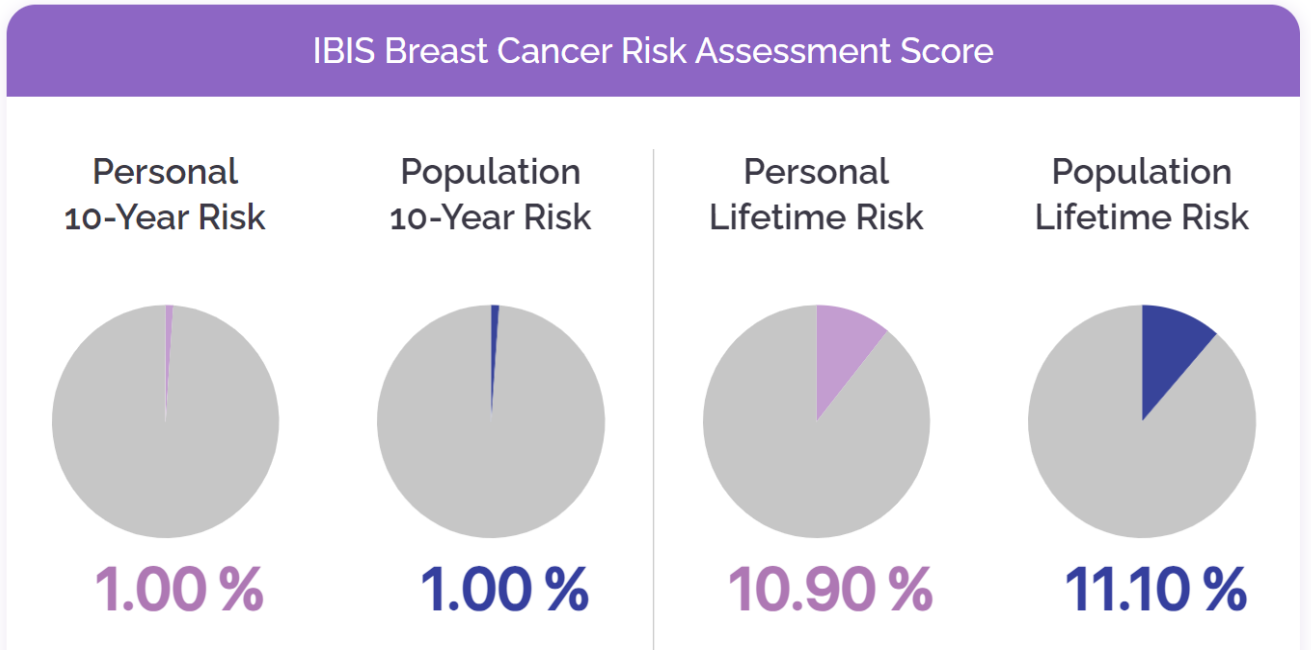
Calculates 5-year and lifetime invasive breast cancer risk.

Breast Cancer

Risk assessment model

- The Tyrer-Cuzick or IBIS model
  - The most comprehensive (most time intensive)
  - Non-hereditary risk factors and detailed first and second-degree family history

- Limited prospective comparative data: suggest that the Tyrer-Cuzick model is the most consistently accurate



Tyrer-Cuzick Risk Assessment Calculator

Calculates 10-year and lifetime invasive breast cancer risk and the risk of carrying a BRCA 1/2 mutation.

https://ibis-risk-calculator.magview.com/

Breast Cancer Screening: Risk assessment

Average risk	Intermediate risk	High risk
▪ < 15% lifetime risk of breast cancer	▪ 15 – 20% lifetime risk of breast cancer ▪ Personal history of breast cancer, lobular neoplasia, ADH	▪ > 20% lifetime risk of breast cancer ▪ BRCA gene mutation and their untested 1st degree relatives ▪ Hx of chest irradiation between 10-30 years age

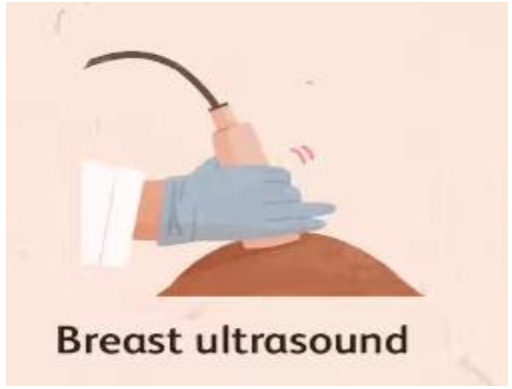
Breast Cancer

Breast Cancer Screening: What?

Average risk

Intermediate risk

High risk



Breast Cancer

Breast Cancer Screening:

BSE: Breast Self Examination, CBE: Clinical Breast Examination

- Women aged ≥ 20 years should start breast self-examining their breasts once a month.
- Women aged 40-69 years and asymptomatic in addition to regular breast self-examination. Should be examined by a doctor or trained medical personnel every 1 year.

Breast Cancer

Breast Cancer Screening:

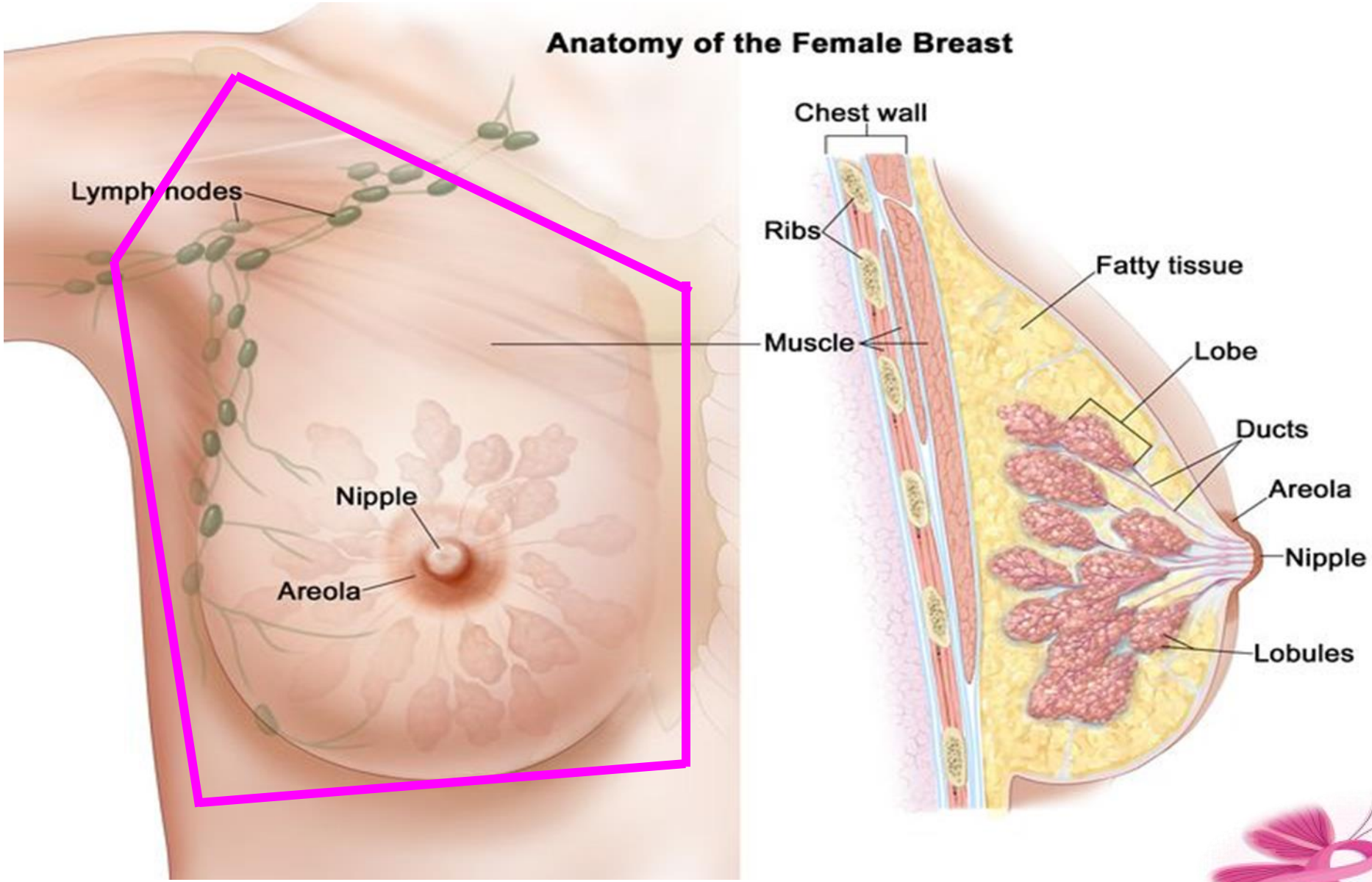
BSE: Breast Self Examination, CBE: Clinical Breast Examination

Premenopausal

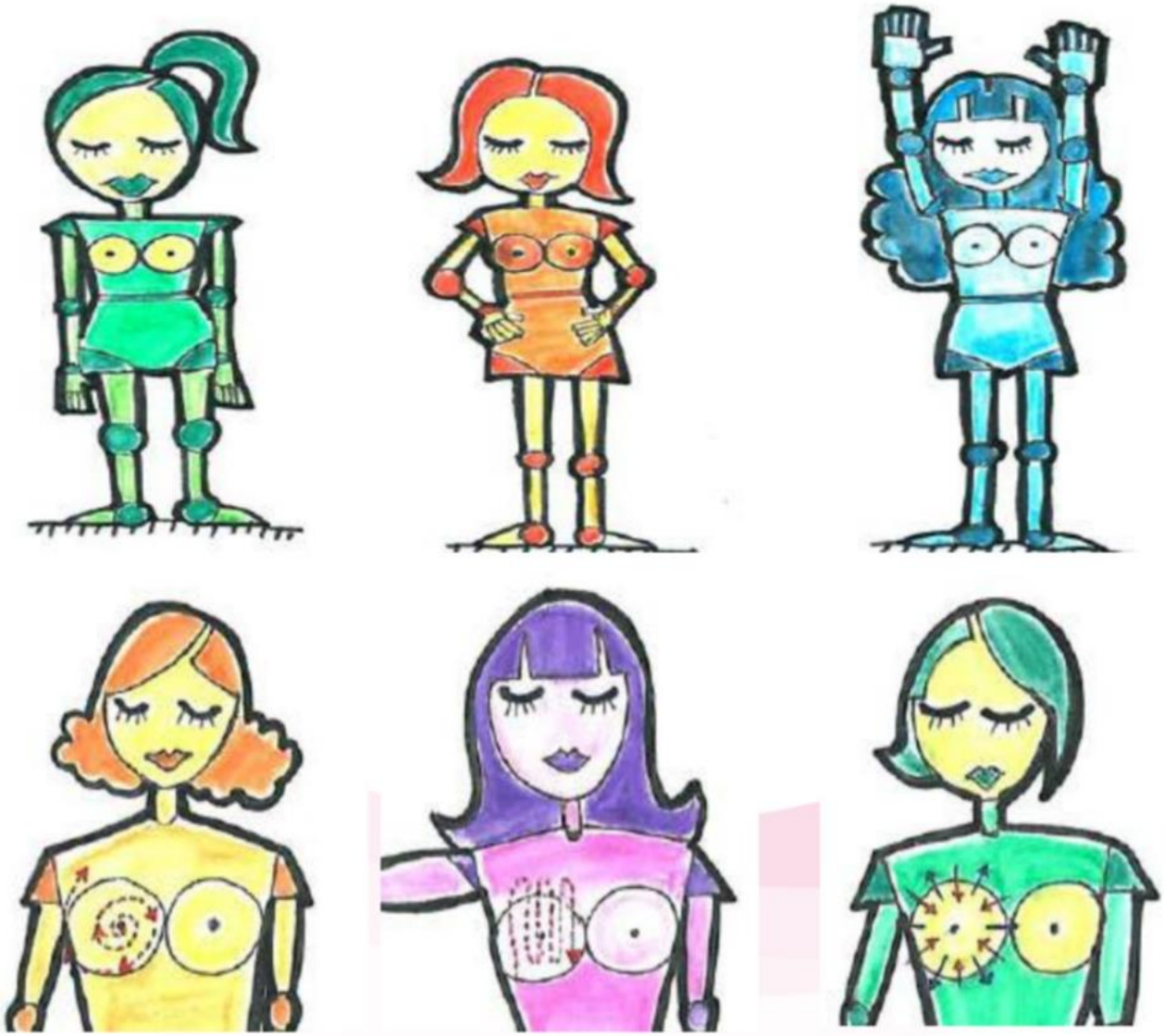
- breast self – examination 7-10 days after your period, counting the first day of your period as day 1.

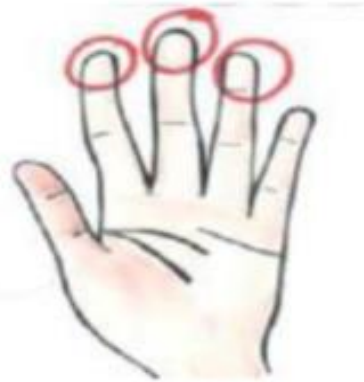
Postmenopausal

- breast self-examination on any day of the month, such as every first day of the month.


Anatomy of the Female Breast
Lymph nodes
Nipple
Areola
Chest wall
Ribs
Muscle
Fatty tissue
Lobe
Ducts
Areola
Nipple
Lobules

BSE: Breast Self Examination, CBE: Clinical Breast Examination





Breast Cancer

BSE: Breast Self Examination

Advantages

- Women can use BSE to their breast when they perform BSE properly or regularly, they can find any changes in their breast and seek further evaluation.
- Is a non-invasive, simple procedure, and examination should be done every month.
- Can detect breast cancer at an earlier stage than if a woman does not perform BSE.

BSE: Breast Self Examination

Disadvantages

- Fear and anxiety about what may be found during the exam, and
- False-positive (“false alarm”) finding.

Mammogram: 2D, 3D

Breast Cancer

Breast Cancer Screening: MMG

- Full field digital mammography (FFDM): Approved by FDA 1999
- Non-invasive X-ray used
- Aim: detect breast cancer at an early stage in asymptomatic woman
- Only test shown to reduce breast cancer deaths (treatable): cancer death is 22% reduction
- Sensitivity about 80%
- Sensitivity about 50-60% in dense breast, false negative 15-20%

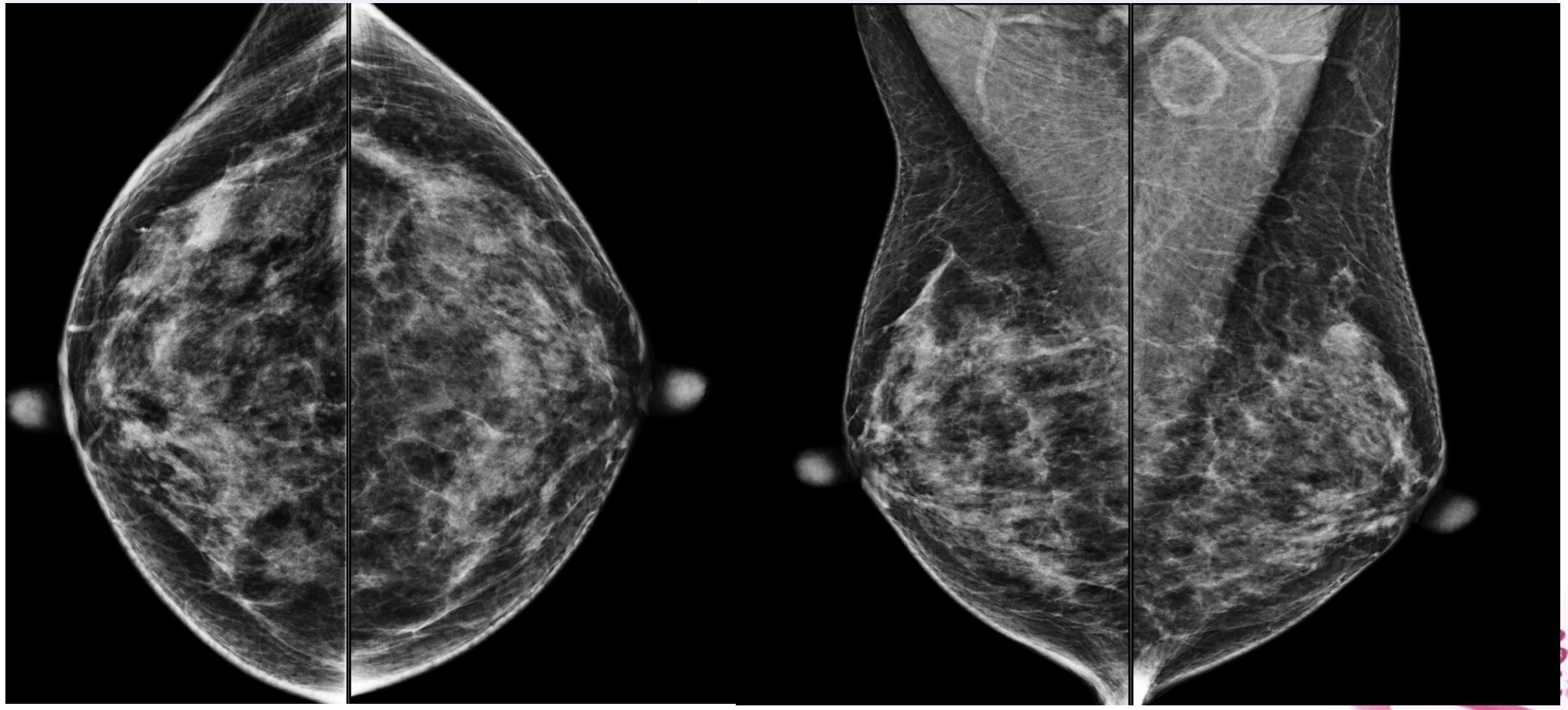
Cancer screening for average risk woman recommendation from the ACR commission on breast imaging, 2020

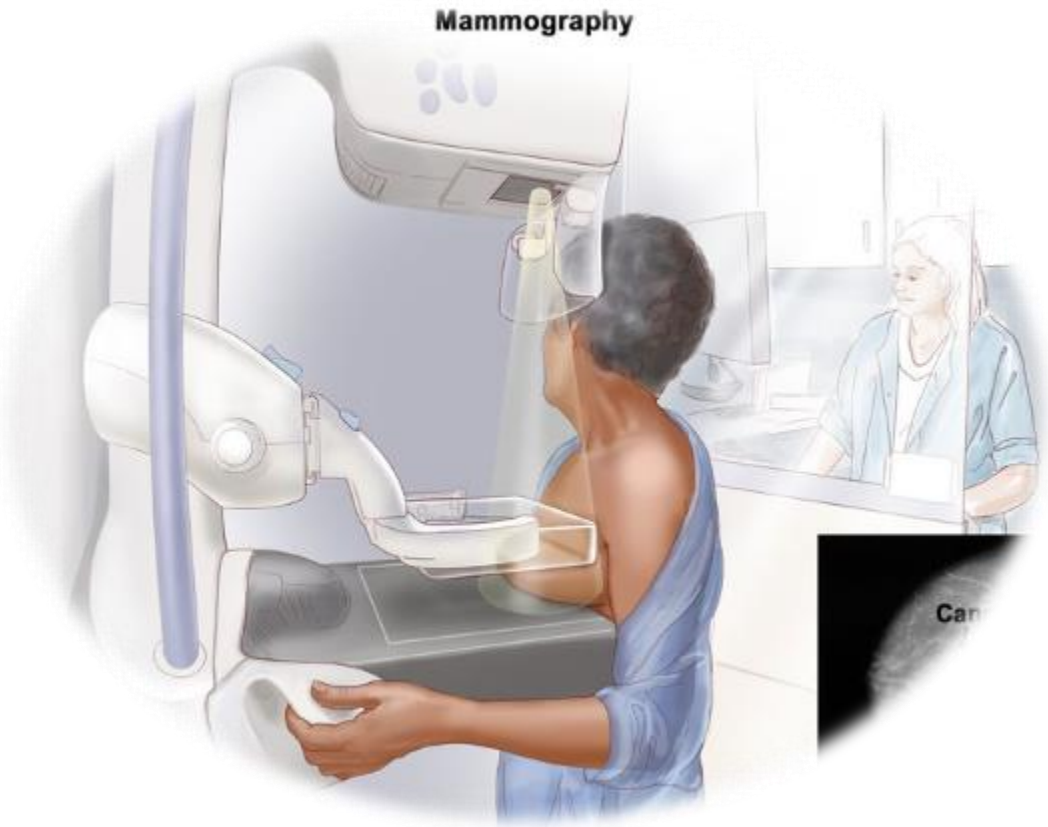
Breast Cancer Screening: MMG

Abbreviations	View Names
Standard Views	
MLO	Mediolateral oblique
CC	Craniocaudal
Additional Views	
LMO	Lateromedial oblique
SIO	Superoinferior oblique
ISO	Inferosuperior oblique
FB	From below
AT	Axillary tail
CV	Cleavage
TAN	Tangenital

Breast Cancer

Abbreviations	View Names
Standard Views	
MLO	Mediolateral oblique
CC	Craniocaudal



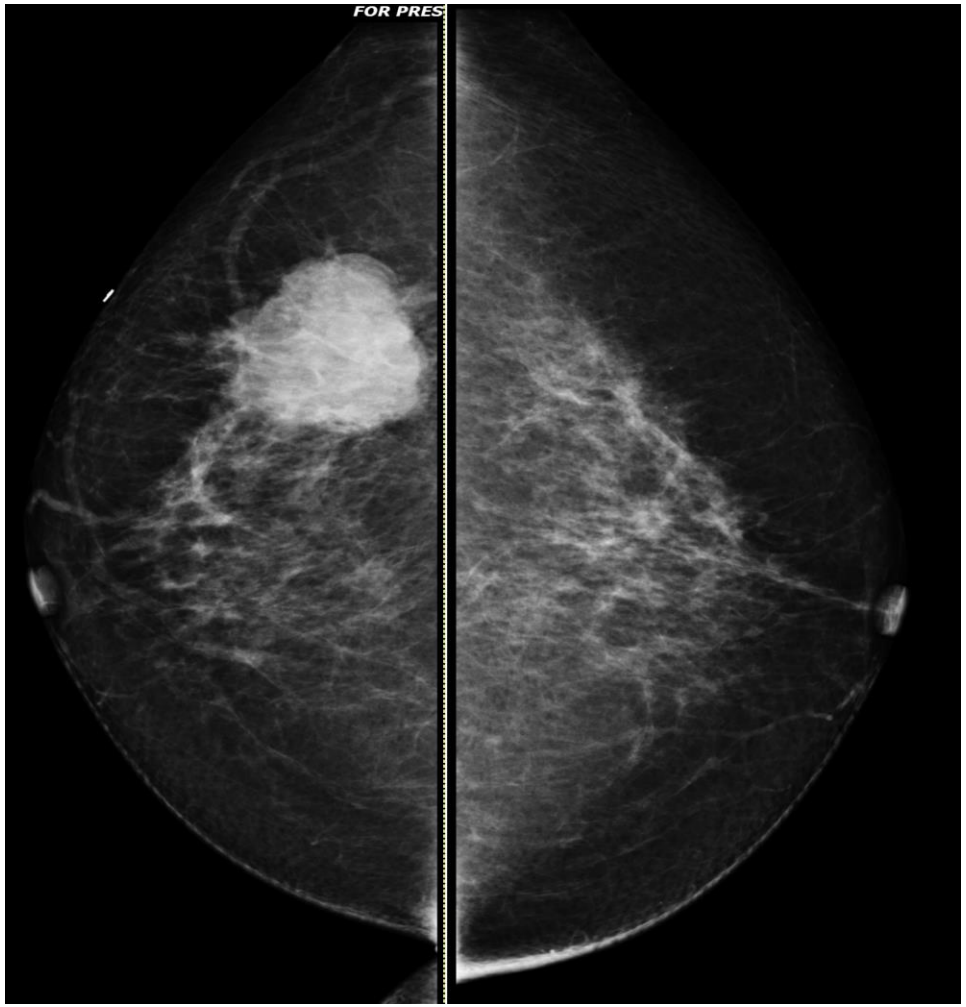


Mammogram

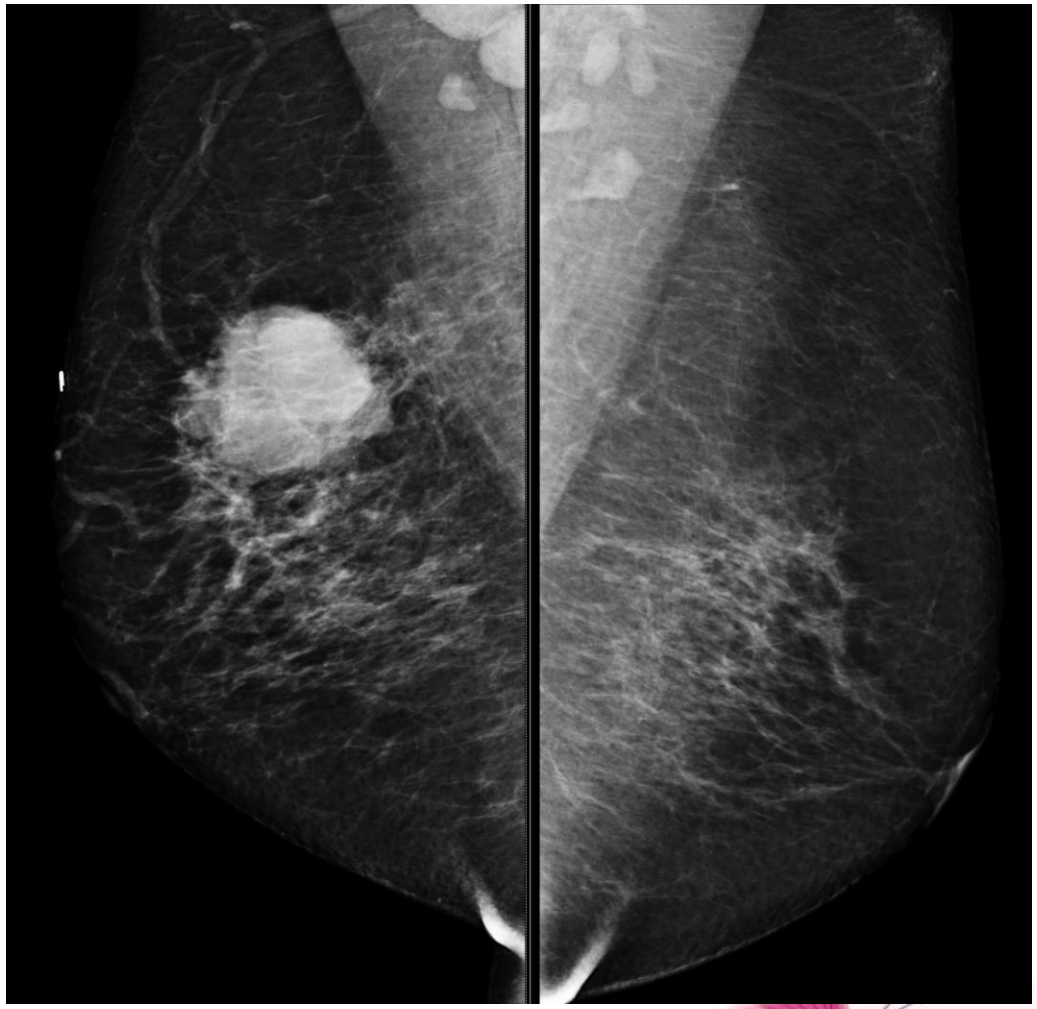
- Breast Compression
- One of the most important factor for a high quality
- Spread overlapping tissue
- Decreased breast thickness
- Reduce radiation dose
- Decreased motion
- Increased image sharpness

Breast Cancer

CC

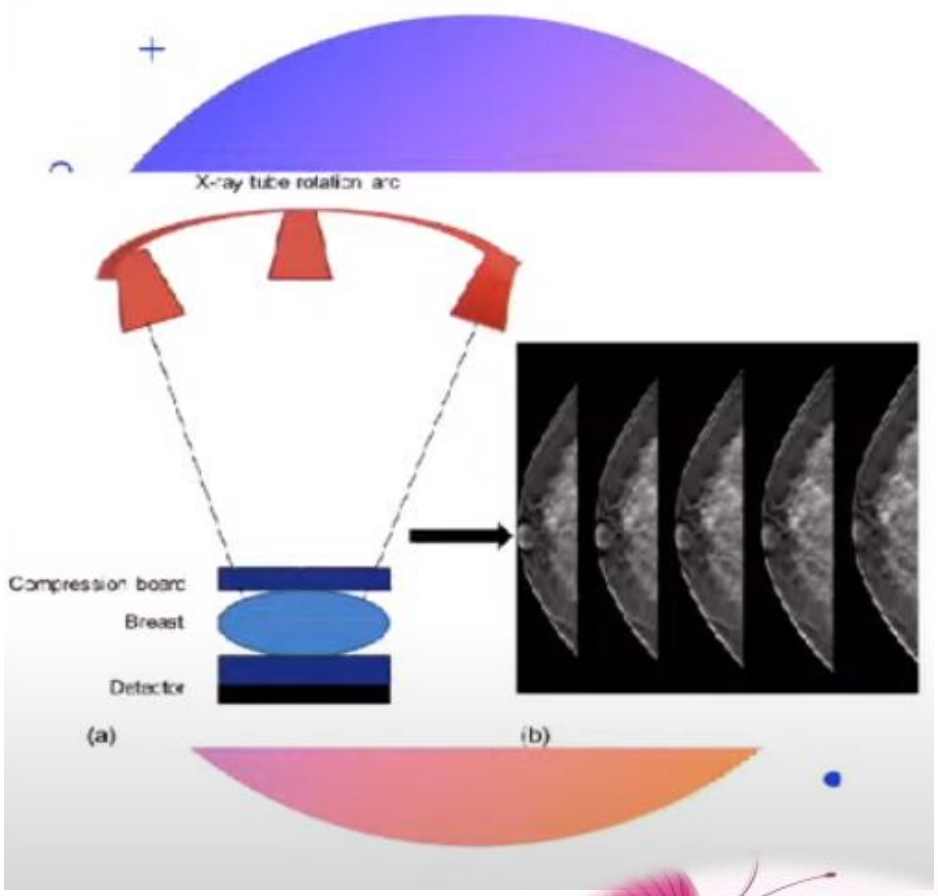


MLO



DBT: Digital breast tomosynthesis

- Emerging breast imaging technology
- Breast is compressed and held stationary: CC & MLO views
- The X-ray tube moves in an are producing multiple low-dose exposures, each from a different angle.
- Stack of high resolution, mammographic-quality planar image
- May be called “3D mammography”



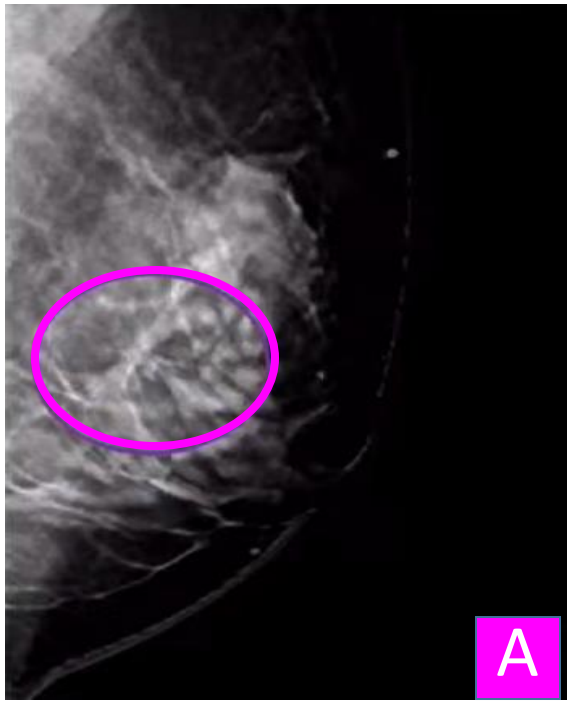
Breast Cancer

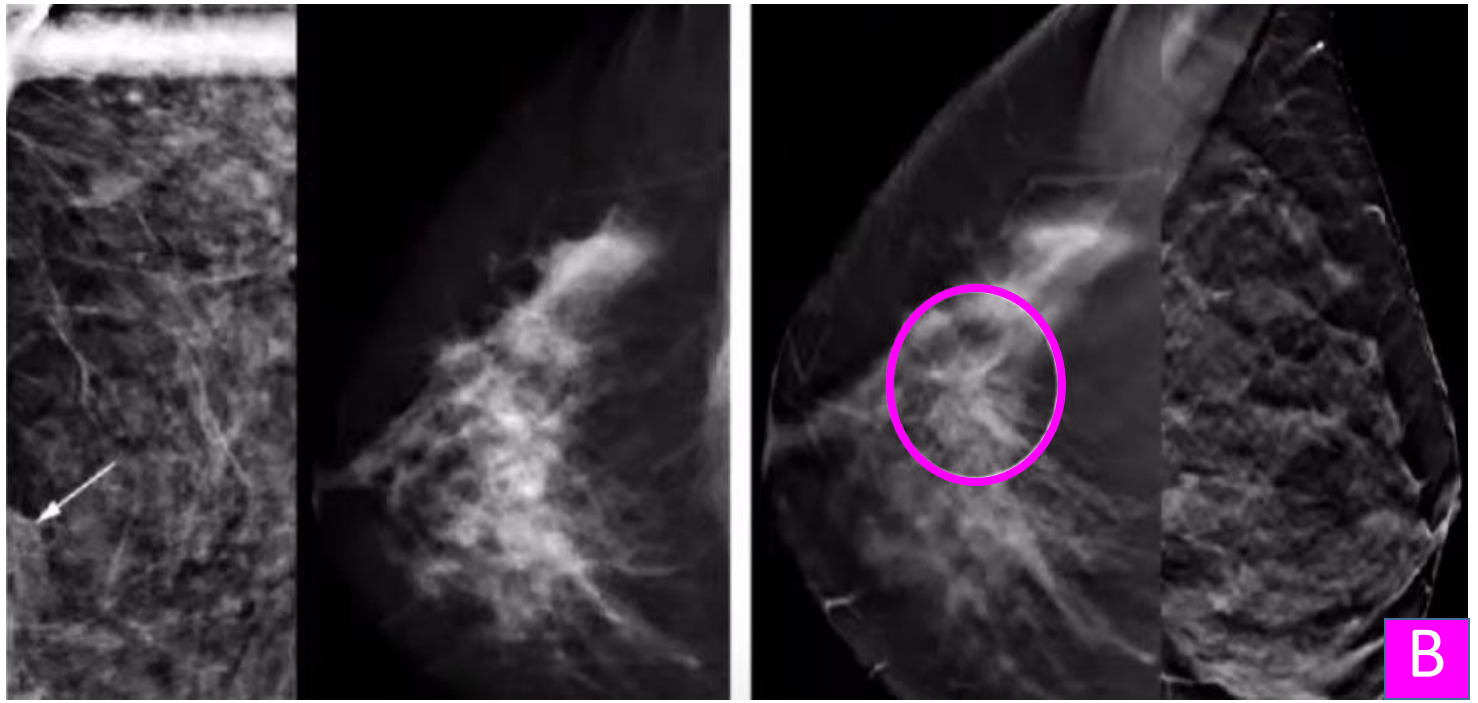
Specifications of Clinical DBT Systems

Manufacturer	General Electric*	Hologic	Internazionale Medico Scientifica	Siemens
Model/platform	SenoClaire/Senographe Essential	Selenia Dimensions	Giotto Tomo	MAMMOMAT Inspiration
Source to detector distance (cm)	66	70	68	65.5
Source to center-of-rotation distance (cm)	62	70	66	60.8
Source to breast support distance (cm)	63.8	67.5	65.8	63.8
X-ray tube angular range	±12.5°	±7.5°	±20°	±25°
X-ray tube motion	Step-and-shoot	Continuous	Step-and-shoot	Continuous
Detector angular range	Stationary	±2.1°	Stationary	Stationary
X-ray tube target material(s)	Mo/Rh	W	W	W
X-ray filter material(s)	Mo/Rh	Al	Rh/Ag	Rh
No. of projections	9	15	13	25
Equiangular distribution of projections	Yes	Yes	No†	Yes
Scan time (sec)	Typically <10	3.7	12	25
Detector type	a-Si indirect conversion	a-Se direct conversion	a-Se direct conversion	a-Se direct conversion
Detector pixel size (μm)‡	100	70 (2 × 2 binned)	85	85
Equal milliampere-second/projection	Yes	Yes	No§	Yes
Reconstruction method	Iterative (ASiR-DBT)	FBP/Iterative contrast	Iterative	FBP/section thickness filter

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Breast Cancer



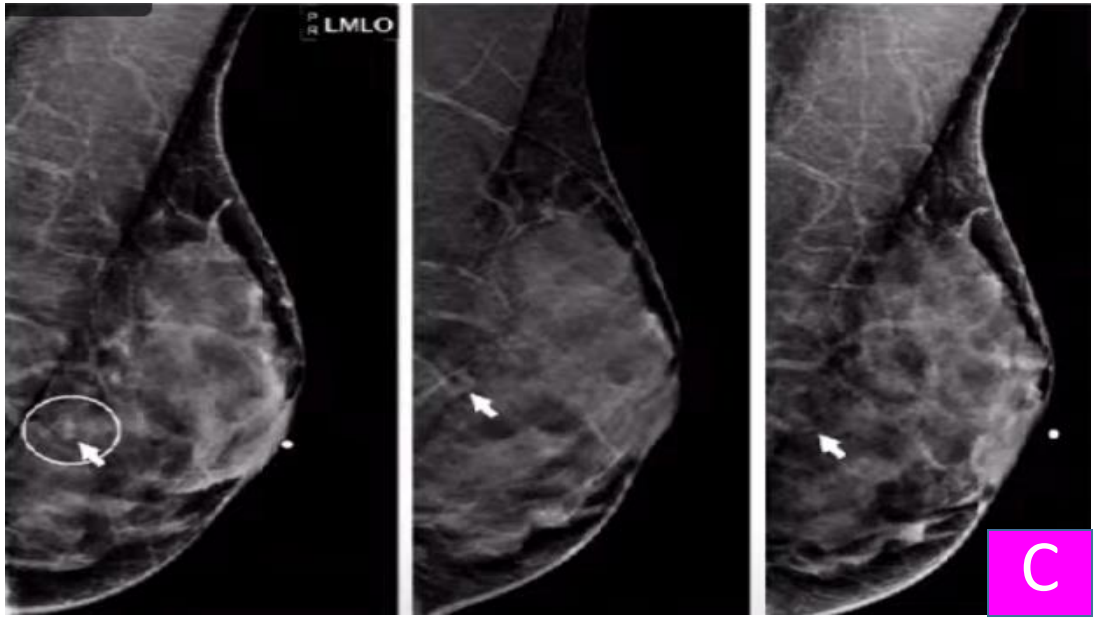


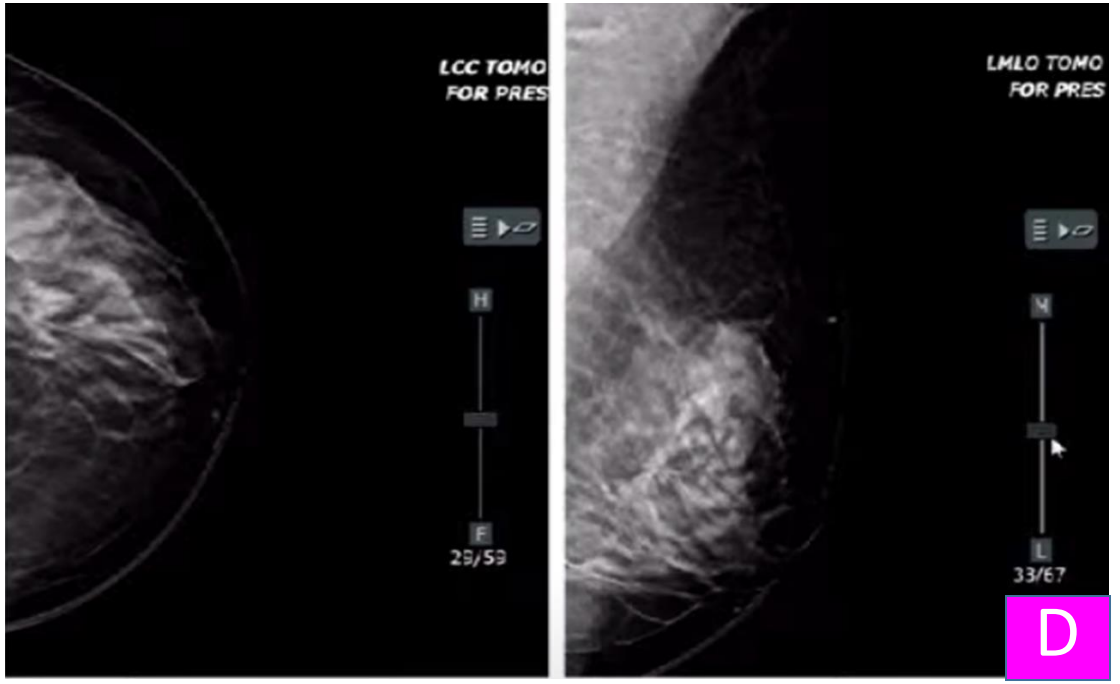
A: Architectural distortion (AD) detection

B: Better lesion characterization:

- Mass margin: obscure, spiculation
- Determine extent of disease

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015





C: Elimination summation effect: can mimic breast cancer (Asymmetry)

D: Lesion localization

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Breast Cancer

Disadvantages of DBT

- Microcalcification
  - Some microcalcifications less clearly seen on DBT
  - Not good for evaluation distribution & shape of microcalcifications
  - Still recommend 2D magnification for Microcalcifications
- Difficult to manage lesion that are seen only on DBT
- More expensive than 2D MMG
- Requires more storage space in PACS

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Breast Cancer

Advantages of DBT

Clinical Studies Comparing FFDM with DBT-FFDM in Screening Population

Study and Reference No.	Study Design	Key Results
OTST trial (86,95)	Four-arm prospective study comparing FFDM, FFDM-CAD, DBT-FFDM, and DBT-SM. Subjects underwent combined DBT-FFDM examination. Independent reading by four radiologists, one for each arm, followed by arbitration.	DBT-FFDM vs FFDM (n = 12,621): DBT-FFDM, -reduced prearbitration FPR from 6.1% to 5.3% -increased CDR from 6.1 to 8.0 -detected 25 additional invasive cancers Paired double-read–(DBT-FFDM; DBT-SM) vs (FFDM; FFDM-CAD) (n = 12,621): In DBT arm, -Prearbitration FPR reduced from 10.3% to 8.5% -CDR increased from 7.1 to 9.4 -27 additional invasive cancers detected
STORM trial (96)	Prospective study comparing FFDM vs DBT-FFDM. Subjects underwent combined DBT-FFDM examination. Sequential double reading of FFDM followed by DBT-FFDM.	DBT-FFDM vs FFDM (n = 7292): In DBT arm, -Estimated FPR reduction of 17% -CDR increased from 5.3 to 8.1 -20 additional cancers detected
Malmo Breast Tomosynthesis Screening Trial (103)	Prospective study comparing one-view (MLO) DBT vs two-view FFDM. Subjects underwent both examinations. Independent reading for each arm followed by arbitration. (Interim results)	One-view DBT vs two-view FFDM (n = 7,500): In DBT arm, -CDR increased from 6.3 to 8.9 -20 additional cancers detected -Recall rate increased from 2.6% to 3.8%
Friedewald et al (102)	Retrospective observational study before and after introduction of DBT from 13 academic and nonacademic sites.	FFDM (n = 281,187) vs DBT-FFDM (n = 173,663): For subjects in DBT-FFDM group, -RR reduced from 10.7% to 9.1% -PPV1 increased from 4.3% to 6.4% -Significant increase in CDR from 4.2 to 5.4.

Note.—BIRADS = Breast Imaging Reporting and Data System, CDR = cancer detection rate per 1000 screens, FPR = false-positive rate, PPV1 = positive predictive value for recalls in percentage, RR = recall rate in percentage.

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Breast Cancer

Advantages of DBT

Clinical Studies Comparing FFDM with DBT-FFDM in Screening Population

Study and Reference No.	Study Design	Key Results
Rose et al (98)	Retrospective observational study before and after introduction of DBT in clinic. Subjects self-elected to undergo DBT-FFDM.	FFDM (n = 13,856) vs DBT-FFDM (n = 9,499): For subjects in DBT-FFDM group, -RR reduced from 8.7% to 5.5% -PPV1 increased from 4.7% to 10.1% -Nonsignificant increase in CDR from 4.0 to 5.4
Haas et al (101)	Retrospective observational study. Subjects underwent DBT-FFDM based on system availability.	FFDM (n = 7058) vs DBT-FFDM (n = 6100): For subjects in DBT-FFDM group, -RR reduced from 12.0% to 8.4% -RR reduced for women <70 years of age and BIRADS breast density ≥ 2. -Nonsignificant increase in CDR from 5.2 to 5.7
Friedewald et al (102)	Retrospective observational study before and after introduction of DBT from 13 academic and nonacademic sites.	FFDM (n = 281,187) vs DBT-FFDM (n = 173,663): For subjects in DBT-FFDM group, -RR reduced from 10.7% to 9.1% -PPV1 increased from 4.3% to 6.4% -Significant increase in CDR from 4.2 to 5.4.

Note.—BIRADS = Breast Imaging Reporting and Data System, CDR = cancer detection rate per 1000 screens, FPR = false-positive rate, PPV1 = positive predictive value for recalls in percentage, RR = recall rate in percentage.

Most decreased recall in "asymmetry"
Higher recall for "mass" and "architectural distortion". But overall recall rate is decreased

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Breast Cancer

Disadvantages of DBT: Mean Glandular Dose (mGy)

	CC	MLO
FFDM (Full field digital mammography)	1.366	1.374
DBT (Digital breast tomosynthesis)	1.858	1.877

- USA recommendation: Mean glandular dose from FFDM for breast thickness < 4.5 cm (50% fibroglandular) should be < 3 mGy/ view
- Typical dose FFDM = 1.5-2 mGy/ view
- Average increased DBT dose = 38%
- DBT = 1.4 folds of FFDM
- Approximate double dose for FFDM + DBT

Radiation dose with digital breast tomosynthesis compared to digital mammography: per-view analysis. Eur Radiol, 2018

Breast Cancer

Disadvantages of DBT: Longer scan/ interpretation time

Manufacturer	General Electric*	Hologic	Internazionale Medico Scientifica	Siemens
Model/platform	SenoClaire/Senographe Essential	Selenia Dimensions	Giotto Tomo	MAMMOMAT Inspiration
Source to detector distance (cm)	66	70	68	65.5
Source to center-of-rotation distance (cm)	62	70	66	60.8
X-ray filter material(s)	Mo/Rh	Al	Rh/Ag	Rh
No. of projections	9	15	13	25
Equiangular distribution of projections	Yes	Yes	No†	Yes
Scan time (sec)	Typically <10	3.7	12	25
Detector type	a-Si indirect conversion	a-Se direct conversion	a-Se direct conversion	a-Se direct conversion

STATE OF THE ART: Digital Breast Tomosynthesis, Vedantham et al., 2015

Interpretation time

- ❑ FFDM alone = 45 sec, FFDM + DBT = 91 sec (Skaane P et al, Radiology 2013)
- ❑ FFDM alone = 1.9 min, FFDM + DBT = 2.8 min (Dang PA et al, Radiology 2014)

Breast Cancer

Breast Cancer Screening: Ultrasound

Breast Cancer

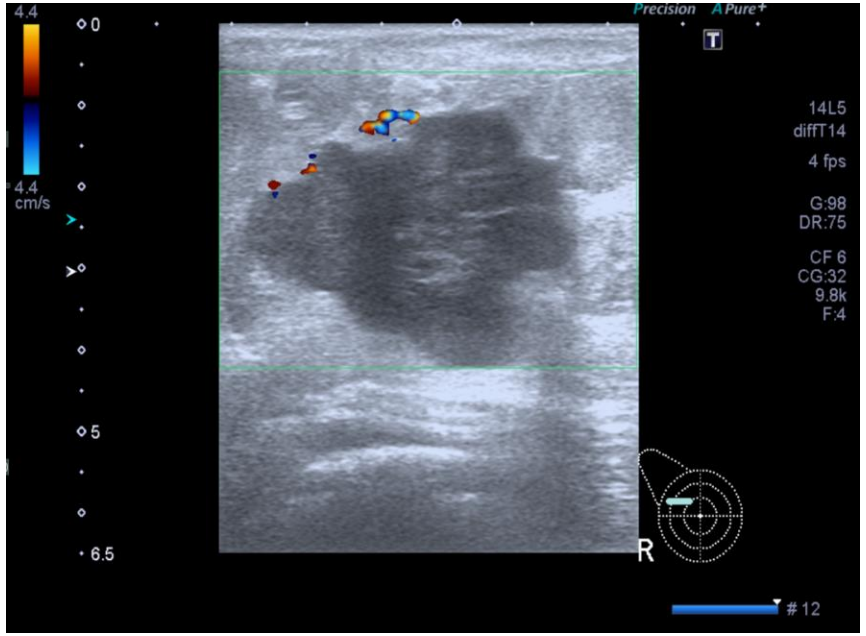
Ultrasound

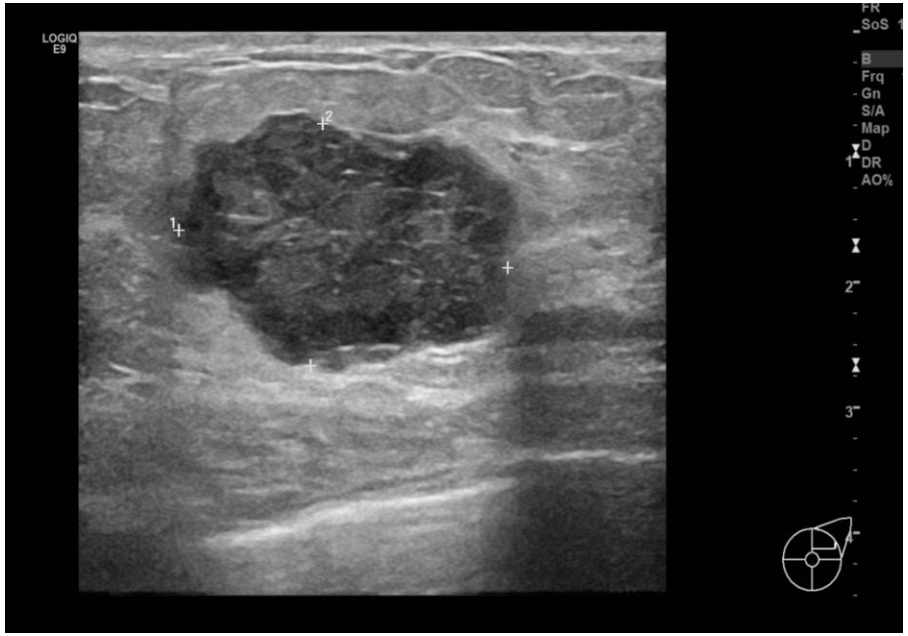
Hand held ultrasound

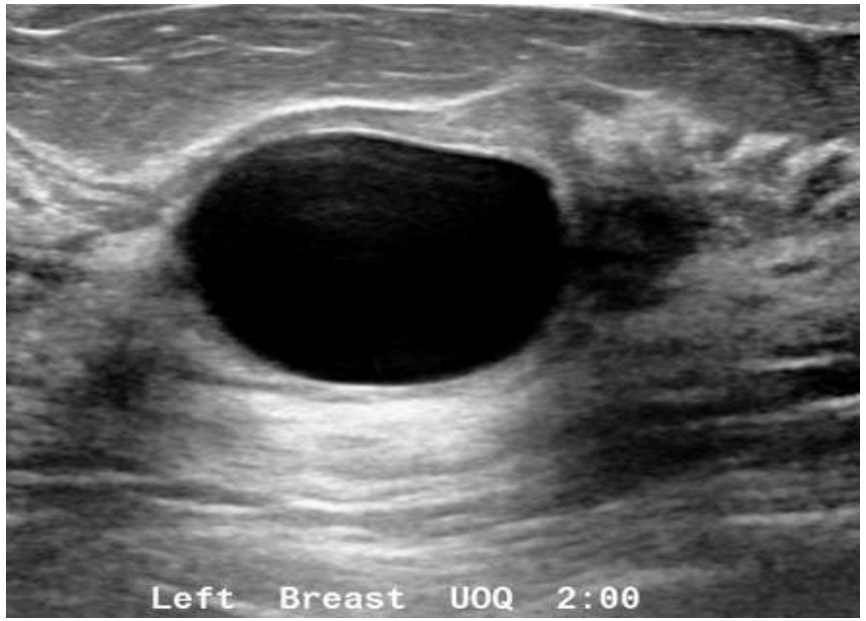
Automated breast ultrasound system (ABUS)

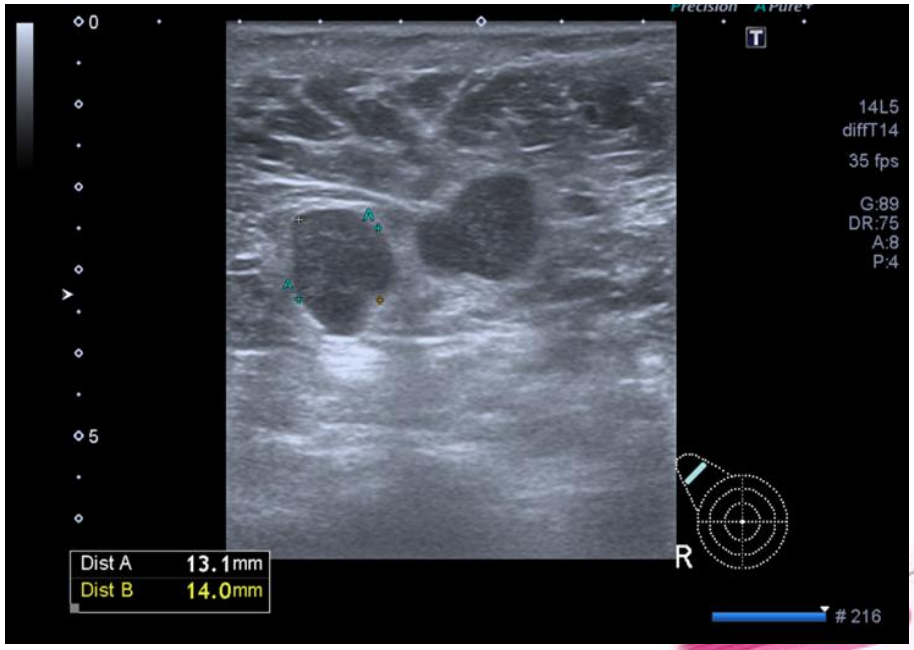
https://www.gehealthcare.com/en-th/products/ultrasound/breast-ultrasound

Breast Cancer



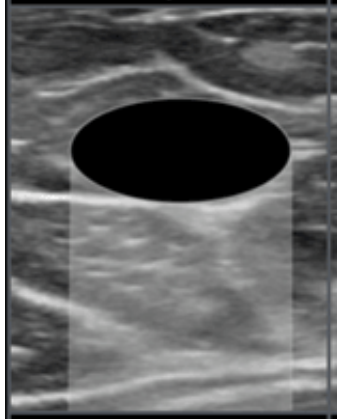
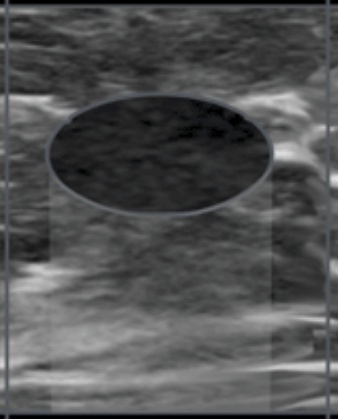
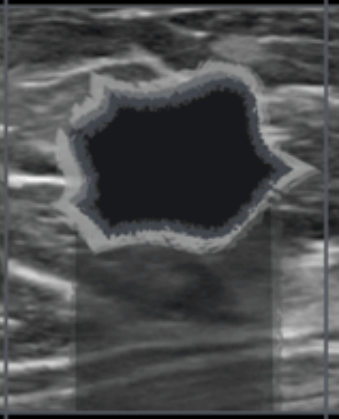
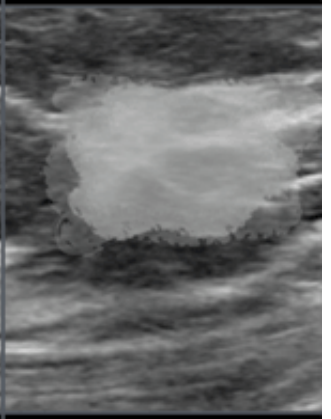






Breast Cancer

Ultrasound

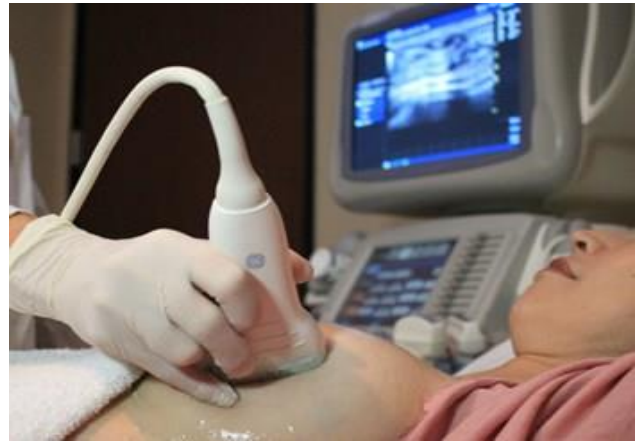
Cyst	Fibroadenoma	Cancer	Glandular tissue
			
Anechoic pattern	Hypoechoic	Hypoechoic	Hyperechoic
Oval or round shape	Most common: • oval or round Less frequent: • lobulated	Most common: • irregular shape Less frequent: • round or oval	Locally prominent glandular tissue
Circumscribed margin	Circumscribed margin	Margin is not circumscribed: • Indistinct • angular • microlobulated • spiculated	
Horizontal orientation	Horizontal orientation	Vertical orientation	
Posterior Enhancement	Sometimes minimal posterior enhancement	Frequently posterior shadowing	No feature
No calcifications	May have gross calcifications	May have small calcifications in or outside mass	No

Breast Cancer

Ultrasound

- 1st line of investigation for women age < 30 years.
- Supplementary tools
  - Palpable mass but MMG negative or equivocal
  - Dense breast on MMG
- Higher detection rate* 4.3: 1,000, tended to be invasive, small and LN negative
- No Radiation
- Higher recall rate
- Operator dependent

Hand held ultrasound



*Breast cancer Screening in Women at Higher-Then-Average Risk: Recommendation From the ACR, 2020

Breast Cancer

Automated breast ultrasound (ABUS)

https://youtu.be/g7DFDyBTs5A

- Developed to overcome the limitations of operator dependency
- Lack of reproducibility in HHUS
- Time-efficient for radiologists
- Approved in the US and Europe: adjunct to MMG for screening
- Indications for diagnosis remain unclear
- No absolute contraindications (postoperative breast or implants)

Breast Cancer

Additional Cancer Detection and Proportion of Invasive Cancer in Supplemental Ultrasound Screening

Study	SomoInsignt (25)	J-START (22)	ACRIN 6666 (23)
Modality	ABUS	HHUS	HHUS
Study population	Asymptomatic women with dense breast 15318	Asymptomatic women in their 40's 36752	Asymptomatic women at high risk 2809
Period	2009–2011	2007–2011	2004–2006
Additional cancer detection	1.9/1000 women	1.84/1000 women	5.3/1000 women
Proportion of invasive cancer (%)	93.3	82.0	93.7
Mean size of invasive cancer (mm)	12.9	14.2	10.0
Proportion of node negative cancer (%)	92.6	85.5	96.7

ACRIN = American College of Radiology Imaging Network, HHUS = handheld ultrasound, J-START = Japan Strategic Anti-cancer Randomized Trial

- Thought to be because of the different inclusion criteria
- ABUS screening was effective in detecting small, invasive, and predominantly node-negative breast cancers: similar to HHUS

Automated Breast Ultrasound Screening for Dense Breasts Korean J Radiol. 2020;21(1):15-24

Breast Cancer

- The patient lies in a supine position
- US scanner and special stationary device with a transducer moves automatically a scan box
- The slice thickness: 0.5 mm to 8.0 mm

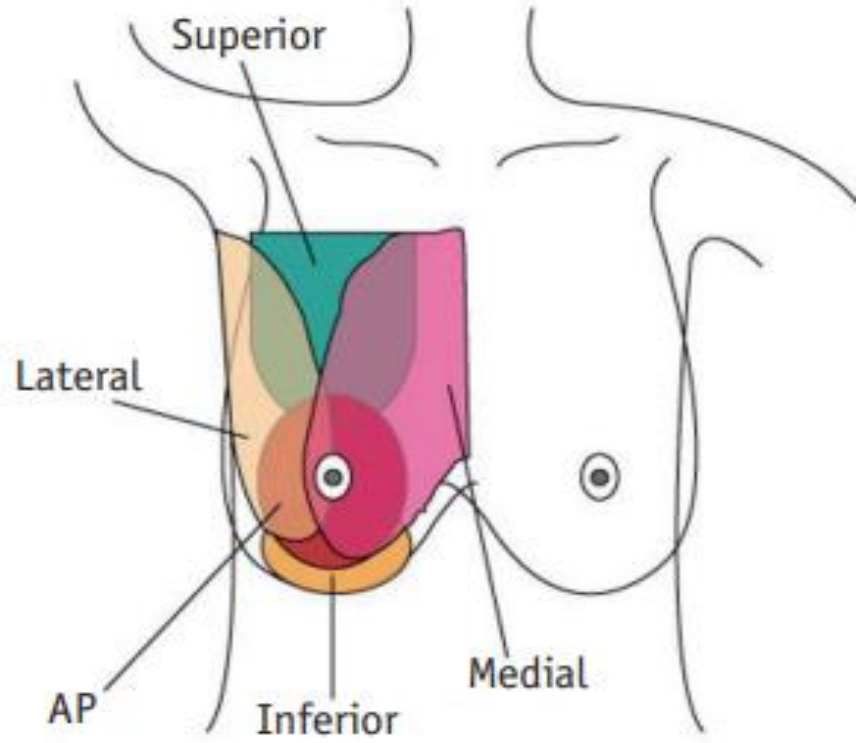
Technical Difference between ABUS and HHUS

Techniques	ABUS	HHUS
3D view	3D reconstruction	-
FOV (cm)	15 x 17	4–6 x 4–6
Scan direction	Transverse	Transverse, longitudinal, radial, antiradial
Probe (MHz)	5–14 (average 10 MHz)	5–17, 18
Elastography, color Doppler	-	Available
Focal zone	Wide and fixed	Manual setting
Coupling agent	Lotion	Gel

FOV = field of view, 3D = three-dimensional

*Breast cancer Screening in Women at Higher-Then-Average Risk: Recommendation From the ACR, 2020

Breast Cancer



- 5 views per breast
  - Anteroposterior, medial and lateral views routinely
  - Additional superior or inferior in cases of large breasts
- Takes approximately 10 minutes
- HHUS: up to 19 minutes under the strict protocol of ACRIN 6666 trial

*Breast cancer Screening in Women at Higher-Then-Average Risk: Recommendation From the ACR, 2020

Breast Cancer

Limitations

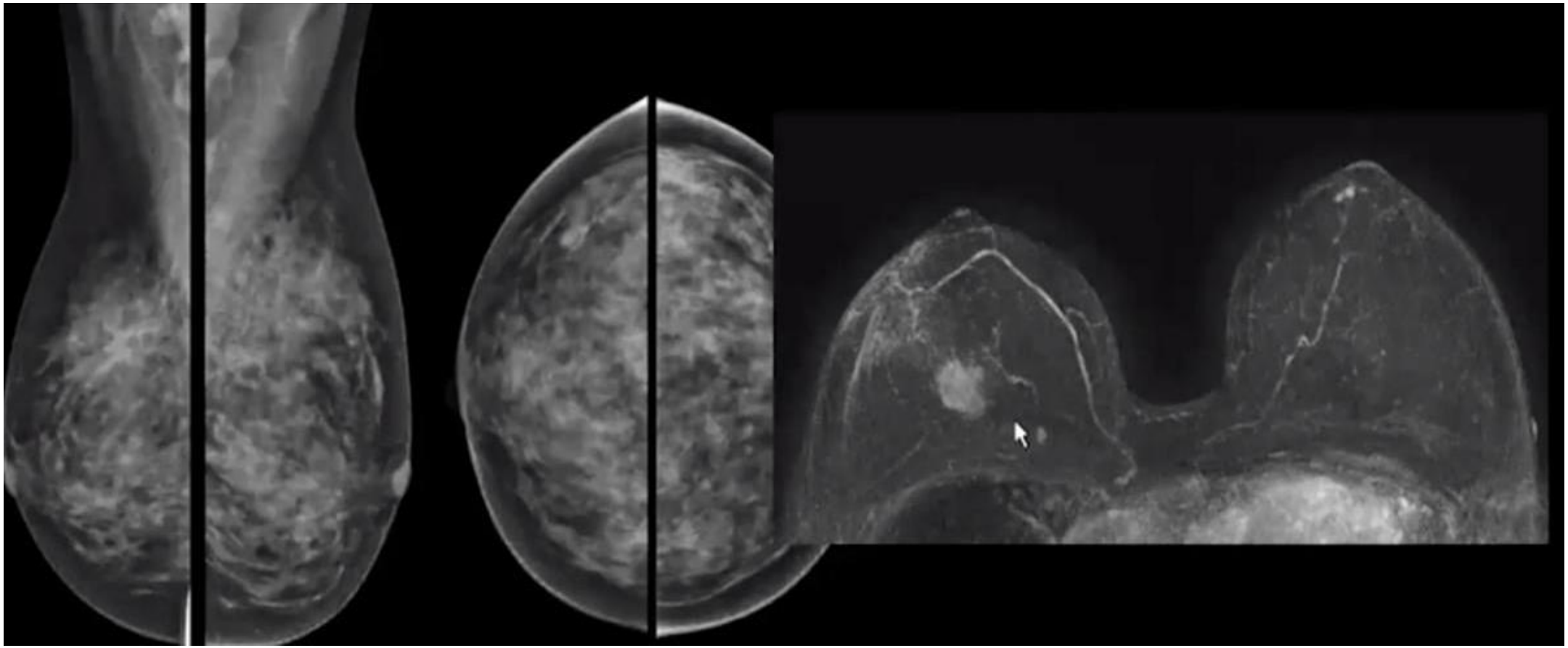
- ❑ High recall rate and biopsy rate: similar to HHUS
- ❑ Certain period of learning time is required to achieve the desirable PPV
- ❑ Biopsy under ABUS guidance: cannot perform
- ❑ Need re-exam HHUS
- ❑ ABUS diminished sensitivity for cancer in retroareolar and peripheral

*Breast cancer Screening in Women at Higher-Then-Average Risk: Recommendation From the ACR, 2020

Breast Cancer

Breast Cancer Screening: MRI of Breast

Breast Cancer



MRI of Breast

Strength of indication	Indication type
Absolute indications	▪ High-risk screening ▪ Occult breast cancer
Relative indications	▪ Equivocal results on mammogram and ultrasound ▪ Pre-operative evaluation: extend of disease ▪ Post-operative and/or post-treatment ▪ Implant assessment ▪ Treatment (neoadjuvant) monitoring ▪ Dense breast tissue

Breast Cancer

BI-RADS Assessment Categories

BI-RADS Category	Assessment	Recommendation
0	Incomplete examination	Additional imaging necessary
1	Normal	Yearly screening mammography
2	Benign findings	Yearly screening mammography
3	Probably benign, < 2% chance of malignancy	Short-interval follow-up
4 4A low probability 4B intermediate probability 4C high probability	Suspicious abnormality 1-3% chance of malignancy 3-50% chance of malignancy 51-94% chance of malignancy	Take appropriate action Biopsy or surgical excision
5	Suspicious abnormality, > 95% chance of malignancy	Take appropriate action, biopsy or surgical excision
6	Biopsy-proven malignancy	Take appropriate action

Breast imaging-reporting and data system (BIRADS)

American College of Radiology, 2015

Breast Cancer

Breast Cancer Screening: What?

Average risk	Intermediate risk	High risk

- MMG or DBT (with accompanying planar or synthesized 2D images) is recommended
- Dense breasts: US, but should balance between cancer detection vs increased risk of false positive

MRI: Insufficient evidence for recommendation, may be considered as an adjunct to MMG depending upon risk factors (Decision should be made on a case-by-case basis)

MRI not recommended in average risk women >>> false positive

MRI is recommended as an adjunct to screening MMG

Breast Cancer Screening: What?

Average risk	Intermediate risk	High risk
❑ Annual screening MMG or DBT beginning at 40 years of age	❑ Beginning screening MMG or DBT earlier than 40 years of age	❑ Screening earlier than the general population

- No upper age limit for screening mammography
- Screening recommendations: when a woman's life expectancy exceeds 5 to 7 years

Breast Cancer

The screening recommendations in average-risk women in eligible

Guidelines	Age range For screening	Age to end screening	Screening methods	Screening intervals	Recommendations for other screening methods
WHO, 2014	40–49 years; 70–74 year 50–69 years	NR	MAM ● Conditional recommendation in well-resourced settings; ● Strong recommendation against screening in limited resource settings with weak or relatively strong health systems MAM ● Strong recommendation in well-resourced settings; ● Conditional recommendation in limited resource settings with relatively strong health systems	NR	NR
NCCN, 2019	25–39 years ≥ 40 years	■ Not established an upper age for screening; ■ Screening decisions should be based on severe comorbid conditions limiting life expectancy and no further intervention would occur based on the screening findings	Clinical encounter ● Includes breast cancer risk assessment, risk reduction, counseling, and CBE Clinical encounter ● Includes breast cancer risk assessment, risk reduction, counseling, and CBE; ● Category 1 recommendation MAM ● Category 1 recommendation; ● Consider tomosynthesis	Every 1–3 years Annual	■ Ultrasonography is used for diagnostic follow-up of an abnormality seen on screening MAM and palpable clinical concerns, not recommended as a universal supplemental screening test in average-risk women; ■ MRI is recommended in high-risk women; ■ Thermography and ductal lavage are not recommended

Abbreviations: BSE: Breast Self-Examination; CBE: Clinical Breast Examination; MAM: Mammography; NCCN: National Comprehensive Cancer Network; NR: No Recommendation; WHO: World Health Organization.

W. Ren et al, The Breast (2022) 85–99

Breast Cancer

The screening recommendations in average-risk women in eligible guidelines

Guidelines	Age range For screening	Age to end screening	Screening methods	Screening intervals	Recommendations for other screening methods
ACR (Average risk), 2017	≥ 40 years	The age to stop screening should be based on each woman's health status rather than an age-based determination	MAM	Annual	No sufficient data to support the use of breast MRI and MBI as a screening tool for average-risk women
ACOG, 2019	25–39 years ≥ 40 years	■ Continue until age 75 years; ■ > 75 years, the decision to discontinue should be based on a shared decision making process that includes a discussion of the women's health status and longevity	CBE ● Level C MAM ● Start no later than age 50; ● Level A CBE ● Level C	Every 1–3 years ● Level C Annual or biennial ● Level A Biennial (after age 55) ● Level A Annual ● Level C	■ Not recommend BSE [level B]; ■ CBE may be offered to asymptomatic, average-risk women in the context of an informed, SDM approach. (every 1–3 years for women aged 25–39 years and annually for women age 40 years and older)
USPSTF, 2016	40–49 years 50–74 years	75 years ● [I] statement (insufficient evidence)	MAM ● Discuss; offer if chosen by SDM; ● [C] recommendation MAM ● [B] recommendation	Biennial ● [C] recommendation Biennial ● [B] recommendation	■ No sufficient data to support DBT as a primary screening method [I statement]; ■ No sufficient data to support adjunctive screening with US, MRI, and DBT for women with dense breasts on an otherwise negative screening mammogram [I statement]

W. Ren et al, The Breast (2022) 85–99

Abbreviations: ACOG: American College of Obstetricians and Gynecologists; ACR: American College of Radiology; BSE: Breast Self-Examination; CBE: Clinical Breast Examination; MAM: Mammography; MRI: Magnetic Resonance Imaging; NR: No Recommendation; USPSTF: U.S. Preventive Services Task Force.

Breast Cancer

The screening recommendations in average-risk women in eligible guidelines (cont.)

Guidelines	Age range For screening	Age to end screening	Screening methods	Screening intervals	Recommendations for other screening methods
ESMO, 2019	40–49 years; 70–74years 50–69 years	NR	MAM [B] MAM [A]	NR Annual or biennial [A]	NR
CTFPHC, 2018	50–74 years	NR	MAM ● Conditional recommendation	Every 2–3 years ● Conditional recommendation	■ Not using MRI, tomosynthesis or US to screen for breast cancer in women who are not at increased risk [strong recommendation]; ■ Not performing CBE to screen for breast cancer [conditional recommendation]; ■ Not advising women to practice BSE to screen for breast cancer [conditional recommendation]
AWMF, DKG, and DKH, 2020	50–69 years	≥ 70 years: taking into consideration their individual risk profile and health status, as well as a life expectancy of more than 10 years	MAM	Biennial	Insufficient evidence about other imaging examination (tomosynthesis, US, MRI, or other techniques) contributes to a reduction in breast cancer mortality, neither as a supplemental examination nor a substitute for MAM

W. Ren et al, The Breast (2022) 85–99

Abbreviations: CTFPHC: Canadian Task Force on Preventive Health Care; DKG: German Cancer Society; DKH: German Cancer Aid; ESMO: European Society for Medical Oncology.

Breast Cancer

The screening recommendations in average-risk women in eligible guidelines (cont.)

Guidelines	Age range For screening	Age to end screening	Screening methods	Screening intervals	Recommendations for other screening methods
Cancer Australia, 2015	40–49 years 50–74 years	≥ 75 years: be eligible to receive free MAM, but do not receive an invitation to attend	MAM (discuss, by SDM) MAM	NR Biennial	No evidence to recommend for or against CBE
MOH of Singapore, 2010	40–49 years 50–69 years	≥70 years: be individualized by considering the potential benefits and risks of mammography in the context of current health status and estimated life expectancy	MAM [C] ● discuss, by SDM; MAM [A]	Annual [C] Biennial [A]	US and CBE are not routinely required
MOH of Malaysia, 2019	50–74 years	NR	MAM	Biennial	NR
NCC Japan, 2016	40–64 years 65–74 years	NR	MAM with CBE MAM without CBE	NR	CBE and US are not recommended for population-based screening
NCC China, 2021	≥ 45 years	NR	■ MAM ● Strong recommendation ■ US ● Strong recommendation	Annual or biennial ● Strong recommendation	■ Women with dense breast: combine MAM with US [strong recommendation]; ■ Not recommend MRI [strong recommendation]

W. Ren et al, The Breast (2022) 85–99

Abbreviations:; MOH: Ministry of Health; NCC: National Cancer Centre; NCCN: National Comprehensive Cancer Network; NR: No Recommendation.

Breast Cancer

The screening recommendations in average-risk women in eligible guidelines (cont.)

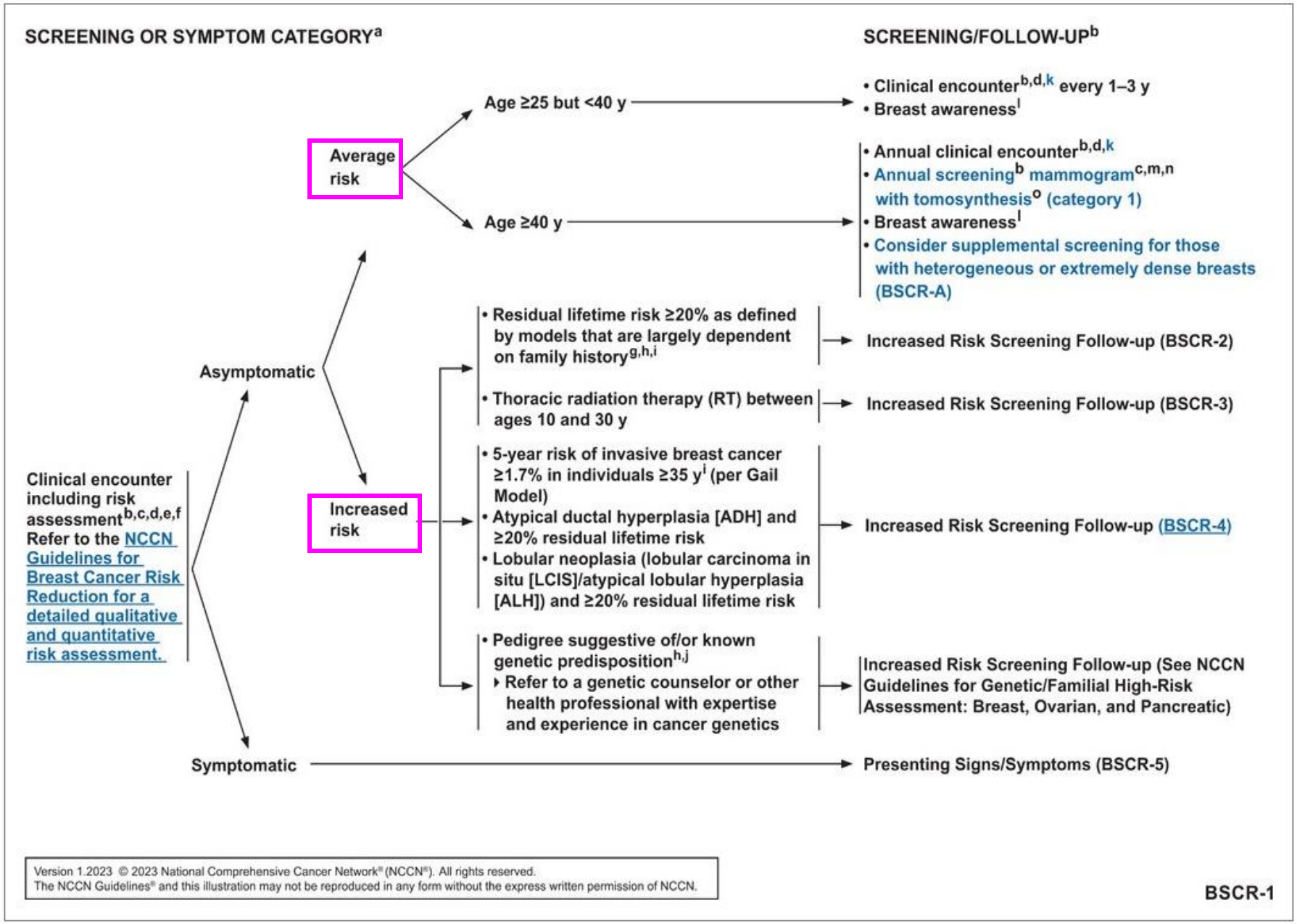
Guidelines	Age range For screening	Age to end screening	Screening methods	Screening intervals	Recommendations for other screening methods
MOH of Brazil, 2018	50–69 years	■ 75 years [strong recommendation]; ■ 70–74 years [weak recommendation]	MAM ● Weak recommendation	Biennial ● Strong recommendation	■ Recommend against BSE [weak recommendation]; ■ Recommend against MRI, US, thermography, and tomosynthesis, either alone or with MAM [strong recommendation]
CBR, SBM, and FEBRASGO, 2017	40–74 years	≥ 75 years ● Recommended for women with an expected survival >7 years, depending on comorbidities; ● Category D recommendation	MAM (preferably digital MAM) ● Category A recommendation	Annual ● Category A recommendation	■ US: be considered as an adjunct to mammography in women with dense breasts. [category B recommendation]; ■ MRI: no data to support breast cancer screening with magnetic resonance imaging for women within the population at average risk; ■ Tomosynthesis: be considered in association with digital mammography. [category B recommendation]

W. Ren et al, The Breast (2022) 85–99

Abbreviations: CBR: The Brazilian College of Radiology and Diagnostic Imaging; FEBRASGO: Brazilian Federation of Gynecological and Obstetrical Associations; MOH: Ministry of Health;; SBM: The Brazilian Society for Breast Disease.

Breast Cancer

NCCN Guidelines : Breast cancer screening



NCCN Guidelines : Breast cancer screening

SCREENING OR SYMPTOM CATEGORY[a]	SCREENING/FOLLOW-UP
Increased Risk: **Residual lifetime risk ≥20% as defined by models that are largely dependent on family history[g,h,i]** →	• Clinical encounter[b,d,k] every 6–12 mo ▸ To begin when identified as being at increased risk, but not prior to age 21 y ▸ Consider referral to a genetic counselor or other health professional with expertise and experience in cancer genetics, if not already done ▸ Consider referral to a breast specialist as appropriate • Annual screening[b] mammogram[c,m] with tomosynthesis[o] ▸ To begin 10 years prior to when the youngest family member was diagnosed with breast cancer, not prior to age 30 y[p] or begin at age 40 y (whichever comes first) • Annual breast MRI[q,r] with and without contrast ▸ Consider contrast-enhanced mammography (CEM)[b] or molecular breast imaging (MBI)[b] for those who qualify for but cannot undergo MRI. Whole breast ultrasound[b] may be done if contrast-enhanced imaging or functional imaging is not available/accessible ▸ To begin 10 years prior to when the youngest family member was diagnosed with breast cancer, not prior to age 25 y[s] or begin at age 40 y (whichever comes first) • Consider risk reduction strategies (See NCCN Guidelines for Breast Cancer Risk Reduction) • Breast awareness[l]

[a] For individuals with a prior history of breast cancer, please refer to the NCCN Guidelines for Breast Cancer - Surveillance Section.
[b] Breast Screening Considerations (BSCR-A).
[c] Medicare and insurers allow the individual direct access to scheduling for screening mammography.
[d] At minimum, medical and family history should be reviewed and clinical encounter should encompass ongoing risk assessment, risk reduction counseling, and preferably a CBE even in individuals who are asymptomatic when feasible.
[g] Individuals with a residual lifetime risk of 15%–20% may be considered for supplemental screening on an individual basis, depending on risk factors.
[h] Risk models that are largely dependent on family history (eg, BRCAPRO, Tyrer-Cuzick, BOADICEA/CanRisk). See NCCN Guidelines for Breast Cancer Risk Reduction. There are significant limitations in interpretation of PRS. PRS should not be used for clinical management at this time and use is recommended in the context of a clinical trial, ideally including diverse populations. See NCCN Guidelines for Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic.
[i] See Comparison of Predictive Models for Risk Assessment (NCCN Guidelines for Breast Cancer Risk Reduction).
[k] Rationale for recommending clinical encounter is to maximize earliest detection of breast cancers and assure ongoing risk assessment, particularly in regions where mammographic screening may not be accessible. Randomized trials comparing incremental CBE versus mammographic screening have not been performed.
[l] Individuals should be familiar with their breasts and promptly report changes to their health care provider. See Symptomatic During Clinical Encounter, Presenting Signs and Symptoms (BSCR-5).
[m] Mammographic Evaluation (BSCR-18).
[o] Tomosynthesis can decrease call back rates and improve cancer detection compared with 2D mammography alone.
[p] Consider mammogram beginning at age 25 y on a case by case basis depending on family history.
[q] High-quality breast MRI requires a dedicated breast coil, access to biopsy under MRI guidance, experienced radiologists in breast MRI, and regional availability. MRI should be correlated with other breast imaging modalities.
[r] Many experts recommend alternating the mammogram and breast MRI with and without contrast every 6 months. While there is limited data to support this approach, the presumption is that this may lead to earlier identification of cancer.
[s] Except in rare circumstances of a family history of very early-onset breast cancers before age 30 years.

Breast Cancer

NCCN Guidelines : Breast cancer screening

SCREENING OR SYMPTOM CATEGORY[a] **SCREENING/FOLLOW-UP**

Increased Risk:

Thoracic RT between ages 10 and 30 y

Current age <25 y →

- **Annual clinical encounter[b,d,k]**
  - **Beginning 8 y after RT**
- **Breast awareness[l]**

Current age ≥25 y →

- **Clinical encounter[b,d,k] every 6–12 mo**
  - **Begin 8 y after RT**
- **Annual screening[b] mammogram[c,m] with tomosynthesis[o]**
  - **Begin 8 y after RT but not prior to age 25 y**
- **Annual breast MRI[q,r] with and without contrast**
  - **Consider CEM[b] or MBI[b] for those who qualify for but cannot undergo MRI. Whole breast ultrasound[b] may be done if contrast-enhanced imaging or functional imaging is not available/accessible**
  - **Begin 8 y after RT but not prior to age 25 y**
- **Consider risk reduction strategies (See NCCN Guidelines for Breast Cancer Risk Reduction)**
- **Breast awareness[l]**

[a] For individuals with a prior history of breast cancer, please refer to the NCCN Guidelines for Breast Cancer - Surveillance Section.
[b] Breast Screening Considerations (BSCR-A).
[c] Medicare and insurers allow the individual direct access to scheduling for screening mammography.
[d] At minimum, medical and family history should be reviewed and clinical encounter should encompass ongoing risk assessment, risk reduction counseling, and preferably a CBE even in individuals who are asymptomatic when feasible.
[k] Rationale for recommending clinical encounter is to maximize earliest detection of breast cancers and assure ongoing risk assessment, particularly in regions where mammographic screening may not be accessible. Randomized trials comparing incremental CBE versus mammographic screening have not been performed.
[l] Individuals should be familiar with their breasts and promptly report changes to their health care provider. See Symptomatic During Clinical Encounter, Presenting Signs and Symptoms (BSCR-5).
[m] Mammographic Evaluation (BSCR-18).
[o] Tomosynthesis can decrease call back rates and improve cancer detection compared with 2D mammography alone.
[q] High-quality breast MRI requires a dedicated breast coil, access to biopsy under MRI guidance, experienced radiologists in breast MRI, and regional availability. MRI should be correlated with other breast imaging modalities.
[r] Many experts recommend alternating the mammogram and breast MRI with and without contrast every 6 months. While there is limited data to support this approach, the presumption is that this may lead to earlier identification of cancer.

Breast Cancer

NCCN Guidelines : Breast cancer screening

SCREENING OR SYMPTOM CATEGORY[a]	SCREENING/FOLLOW-UP
Increased Risk:	
5-year risk of invasive breast cancer ≥1.7% in individuals ≥35 y (per Gail Model)[i]	• Clinical encounter[b,d,k] every 6–12 mo ‣ To begin when identified as being at increased risk by Gail Model • Annual screening[b] mammogram[c,m] with tomosynthesis[o] ‣ To begin when identified as being at increased risk by Gail Model • Consider risk reduction strategies (See NCCN Guidelines for Breast Cancer Risk Reduction) • Breast awareness[l] • Consider supplemental screening for those with heterogeneous or extremely dense breasts (BSCR-A)
ADH[t] or Lobular neoplasia (LCIS/ALH) and ≥20% residual lifetime risk	• Clinical encounter[b,d,k] every 6–12 mo ‣ To begin at diagnosis of ADH or lobular neoplasia (LCIS/ALH) • Annual screening[b] mammogram[c,m] with tomosynthesis[o] ‣ To begin at diagnosis of ADH or lobular neoplasia (LCIS/ALH) but not prior to age 30 y • Consider annual breast MRI[b,q,r] with and without contrast ‣ Consider CEM[b] or MBI[b] for those who qualify for but cannot undergo MRI. Whole breast ultrasound[b] may be done if contrast-enhanced imaging or functional imaging is not available ‣ To begin at diagnosis of ADH or lobular neoplasia (LCIS/ALH) but not prior to age 25 y • Consider risk reduction strategies (See NCCN Guidelines for Breast Cancer Risk Reduction) • Breast awareness[l]

[a] For individuals with a prior history of breast cancer, please refer to the NCCN Guidelines for Breast Cancer - Surveillance Section.
[b] Breast Screening Considerations (BSCR-A).
[c] Medicare and insurers allow the individual direct access to scheduling for screening mammography.
[d] At minimum, medical and family history should be reviewed and clinical encounter should encompass ongoing risk assessment, risk reduction counseling, and preferably a CBE even in individuals who are asymptomatic when feasible.
[i] See Comparison of Predictive Models for Risk Assessment (NCCN Guidelines for Breast Cancer Risk Reduction).
[k] Rationale for recommending clinical encounter is to maximize earliest detection of breast cancers and assure ongoing risk assessment, particularly in regions where mammographic screening may not be accessible. Randomized trials comparing incremental CBE versus mammographic screening have not been performed.
[l] Individuals should be familiar with their breasts and promptly report changes to their health care provider. See Symptomatic During Clinical Encounter, Presenting Signs and Symptoms (BSCR-5).
[m] Mammographic Evaluation (BSCR-18).
[o] Tomosynthesis can decrease call back rates and improve cancer detection compared with 2D mammography alone.
[q] High-quality breast MRI requires a dedicated breast coil, the access to biopsy under MRI guidance, experienced radiologists in breast MRI, and regional availability. MRI should be correlated with other breast imaging modalities.
[r] Many experts recommend alternating the mammogram and breast MRI with and without contrast every 6 months. While there is limited data to support this approach, the presumption is that this may lead to earlier identification of cancer.
[t] Risk depends on age at diagnosis.

Breast Cancer

คำแนะนำในการตรวจคัดกรองมะเร็งเต้านมของสถาบันต่างๆ ในประเทศไทย

สถาบันมะเร็งแห่งชาติ

วิธีการตรวจคัดกรองเพื่อค้นหามะเร็งเต้านม มีอยู่ 3 วิธี

1. การตรวจเต้านมด้วยตนเอง (breast self examination: BSE)
2. การตรวจเต้านมโดยแพทย์หรือบุคลากรทางการแพทย์ที่ได้รับการฝึกอบรม (clinical breast examination: CBE)
3. การตรวจด้วยเครื่องถ่ายภาพรังสีเต้านม (mammography: MM)

Breast Cancer

สถาบันมะเร็งแห่งชาติ

1.1. การตรวจคัดกรองมะเร็งเต้านมในระดับประชากร (**mass screening)**

1.1.1. กลุ่มอายุ 20 ปีขึ้นไปควรตรวจเต้านมด้วยตนเองเดือนละครั้ง

1.1.2.อายุ 40-69 ปี ให้ตรวจเต้านมด้วยตนเองเดือนและครั้ง และได้รับการตรวจโดยเจ้าหน้าที่สาธารณสุขอย่างน้อยปีละ 1 ครั้ง

1.1.3. อายุ 70 ปีขึ้นไปให้พิจารณาเป็นรายๆไป

1.2. การคัดกรองมะเร็งเต้านมแบบสมัครใจ **(Voluntary screening)**

1.2.1.อายุ 20 ปีขึ้นไป ตรวจเต้านมด้วยตนเองเดือนละครั้ง หากพบข้อสงสัยให้ปรึกษา และตรวจเต้านมโดยเจ้าหน้าที่ สาธารณสุขทุก 3 ปี

1.2.2.อายุ 40-69 ปี ให้ตรวจเต้านมด้วยตนเองทุกเดือน และไปรับการตรวจเต้านมโดยบุคลากรสาธารณสุข ปีละ 1 ครั้ง และตรวจด้วยแมมโมแกรมทุก 1-2 ปี

1.2.3.อายุ 70 ปีขึ้นไป ให้พิจารณาเป็นรายๆไป

Breast Cancer

สถาบันมะเร็งแห่งชาติ

กลุ่มเสี่ยง (high risk)

ผู้หญิงกลุ่มนี้ควรได้รับการตรวจคัดกรองมะเร็งเต้านมเหมือนกับกลุ่มผู้หญิงทั่วไป แต่ควรจะต้องเริ่มตรวจเร็วขึ้น เช่น ในกรณีที่มีญาติสายตรงเป็นมะเร็งเต้านมที่อายุน้อยกว่า 50 ปี หรือวัยก่อนหมดประจำเดือน ควรทำการตรวจคัดกรองเมื่ออายุที่ญาติเป็นมะเร็งเต้านมลบออก 10 ปี และควรตรวจทุก 1 ปี

Breast Cancer

ศูนย์ถันยรักษ์ โรงพยาบาลศิริราช

- ผู้หญิงที่มีอายุตั้งแต่ 20 ปีขึ้นไป แนะนำให้ตรวจเต้านมด้วยตนเองทุกเดือน ในช่วงอายุนี้ไม่จำเป็นต้องทำแมมโมแกรม
- ผู้หญิงที่มีอายุตั้งแต่ 35 ปีขึ้นไป แนะนำให้ตรวจเต้านมด้วยตนเองทุกเดือน และควรตรวจแมมโมแกรมทุก 2 ปี
- ผู้หญิงที่มีอายุตั้งแต่ 40 ปีขึ้นไป แนะนำให้ตรวจเต้านมด้วยตนเองทุกเดือน และควรตรวจแมมโมแกรมทุก 1 ปี
- ผู้หญิงที่มีอายุตั้งแต่ 50 ปีขึ้นไป แนะนำให้ตรวจเต้านมด้วยตนเองทุกเดือน และควรตรวจแมมโมแกรมทุก 1-2 ปี
- สำหรับกลุ่มที่มีประวัติในครอบครัวเป็นมะเร็งเต้านม หรือมีประวัติได้รับการฉายรังสีที่หน้าอก ควรปรึกษาแพทย์ เพราะอาจจะต้องตรวจแมมโมแกรมเร็วกว่าปกติ

Breast Cancer

ข้อเสนอแนะการตรวจคัดกรองมะเร็งเต้านมที่เหมาะสมสำหรับประเทศไทย

Breast Self Awareness

มีขอบเขตมากกว่าการตรวจเต้านมด้วยตนเอง **(Breast Self Examination)** สตรีควรทราบปัจจัยเสี่ยง และสามารถที่จะควบคุมปัจจัยเสี่ยงเหล่านั้นให้ได้ เช่น การควบคุมน้ำหนักไม่ให้อ้วน การไม่ดื่มเครื่องดื่มที่มี แอลกอฮอล์ และถ้ามีปัจจัยเสี่ยง ให้ปรึกษาแพทย์เพื่อที่จะจัดการปัจจัยเสี่ยงเหล่านั้น **Nation comprehensive cancer Network (NCCN)** แนะนำให้ให้สตรีควรมี **Breast Self Awareness** ตั้งแต่อายุ 25 ปี

สถาบันมะเร็งแห่งชาติ, กรมอนามัย, กรมการแพทย์ และมูลนิธิถันยรักษ์

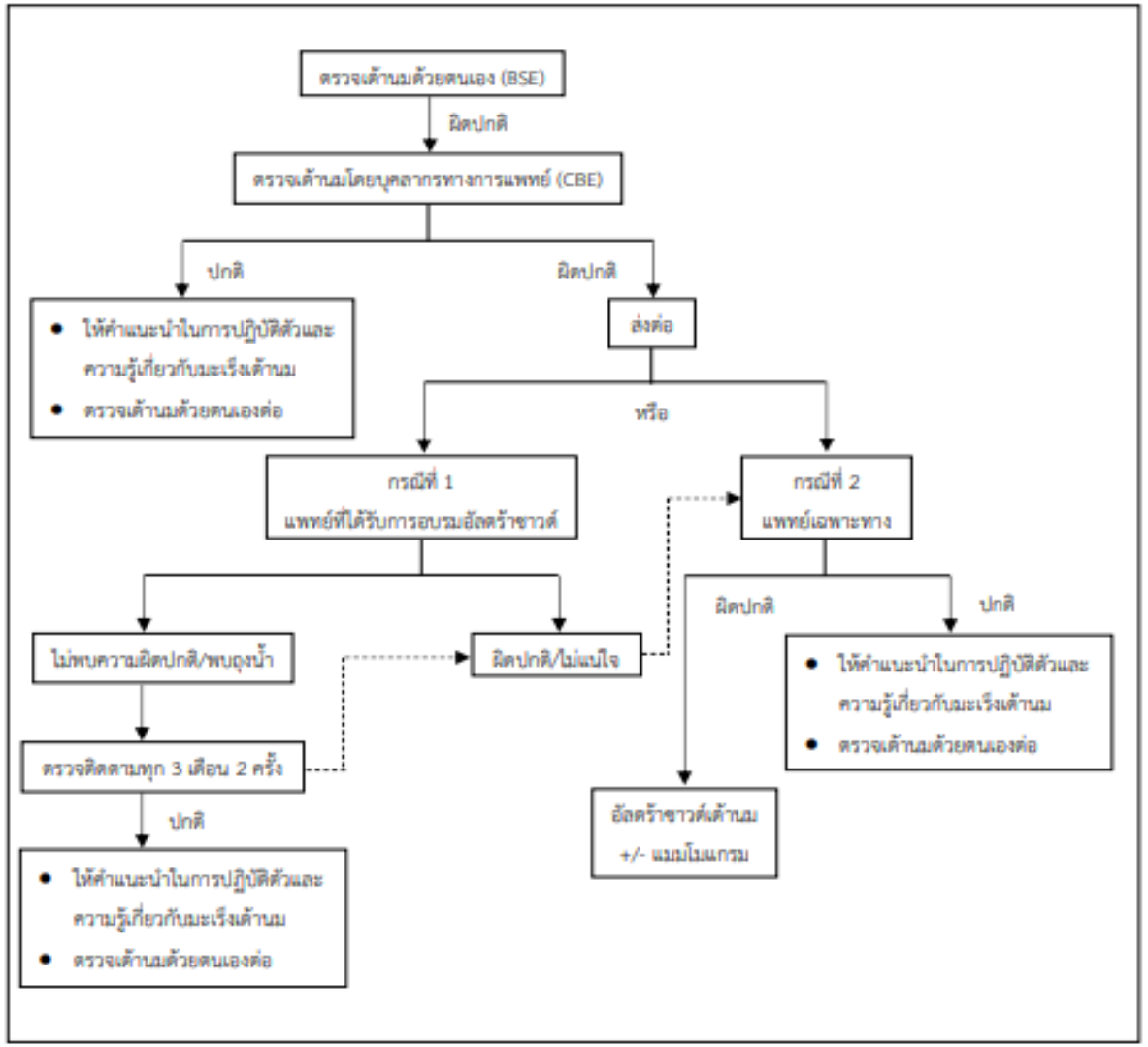
Breast Cancer

Breast Self Awareness

Breast Self Awareness คือ การทำความคุ้นเคยกับเต้านมตนเอง เพื่อให้ทราบว่าเต้านมปกติเป็นอย่างไร สตรีทุกคนต้องมีส่วนร่วมในการสร้างความตระหนักต่อเต้านมตนเอง เพราะการกระทำดังกล่าว จะสามารถพบการเปลี่ยนแปลงของเต้านมตนเอง และเมื่อพบการเปลี่ยนแปลง เช่น พบก้อน หรือมีของเหลวออกจากหัวนมให้รีบไปพบแพทย์

สถาบันมะเร็งแห่งชาติ, กรมอนามัย, กรมการแพทย์ และมูลนิธิถันยรักษ์

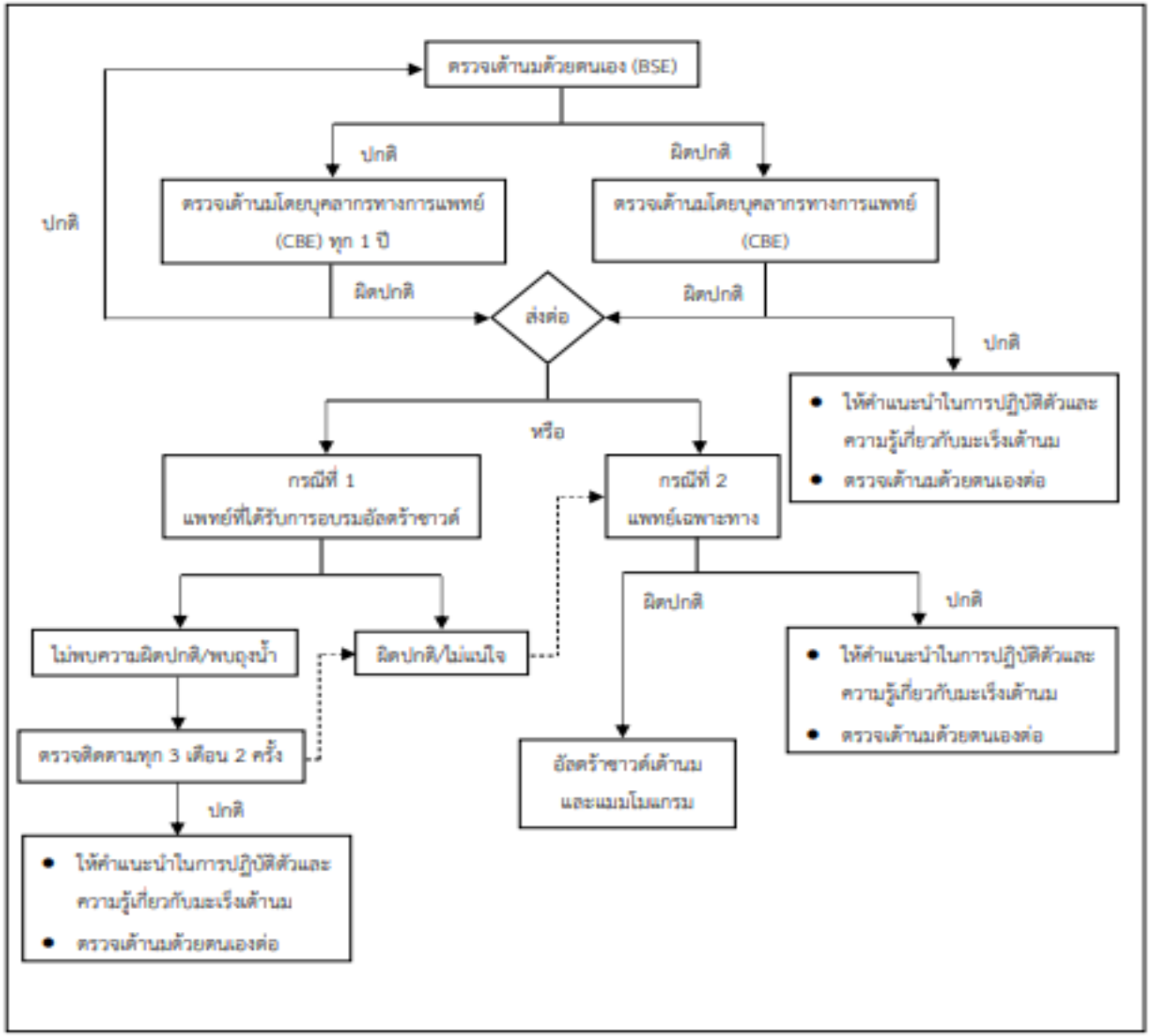
แนวทางการคัดกรองมะเร็งเต้านมในผู้หญิงไทยอายุ 30-39 ปี



หมายเหตุ หลังจากการคัดกรองแล้วพบความผิดปกติ ควรมีช่องทางในการทำแมมโมแกรมและอัลตร้าซาวด์ที่รวดเร็ว

สถาบันมะเร็งแห่งชาติ, กรมอนามัย,
กรมการแพทย์ และมูลนิธิถันยรักษ์

แนวทางการคัดกรองมะเร็งเต้านมในผู้หญิงไทยอายุ 40-70 ปี



หมายเหตุ หลังจากการคัดกรองแล้วพบความผิดปกติ ควรมีช่องทางในการทำแมมโมแกรมและอัลตร้าซาวด์ที่รวดเร็ว

สถาบันมะเร็งแห่งชาติ, กรมอนามัย, กรมการแพทย์ และมูลนิธิถันยรักษ์

Breast Cancer