Benign Breast Disease

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Disclosure Information

I am the owner of and consultant for Pleasant Consulting LLC.

Client: AtlasMed

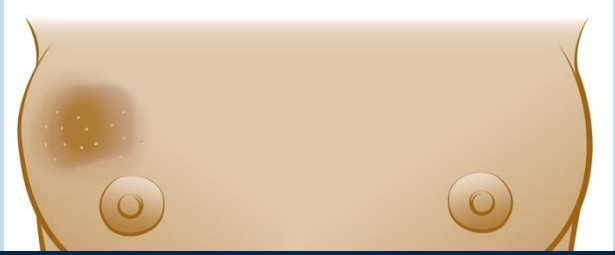
Objectives

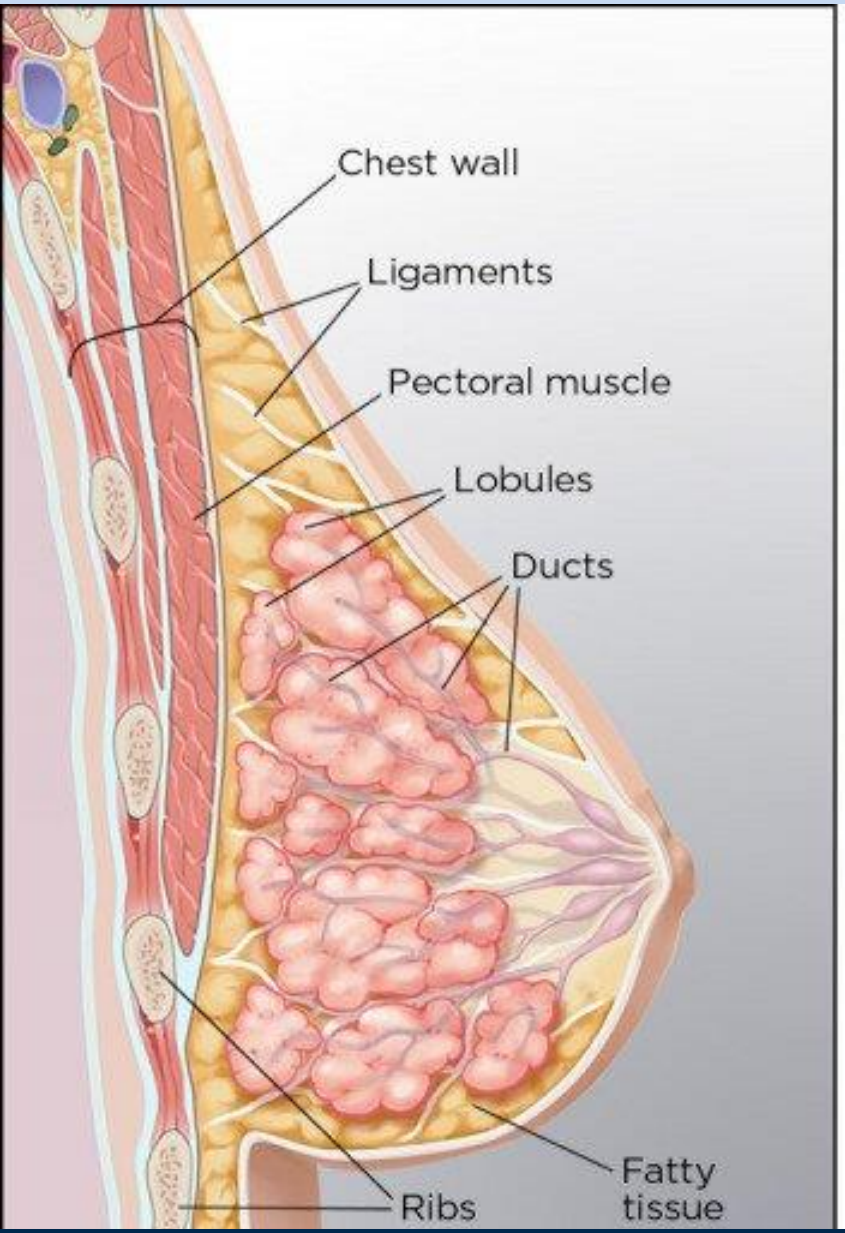
1. To understand workup and management of common breast symptoms
2. To recognize common benign breast pathologies
3. To understand management of benign breast disease that elevates breast cancer risk

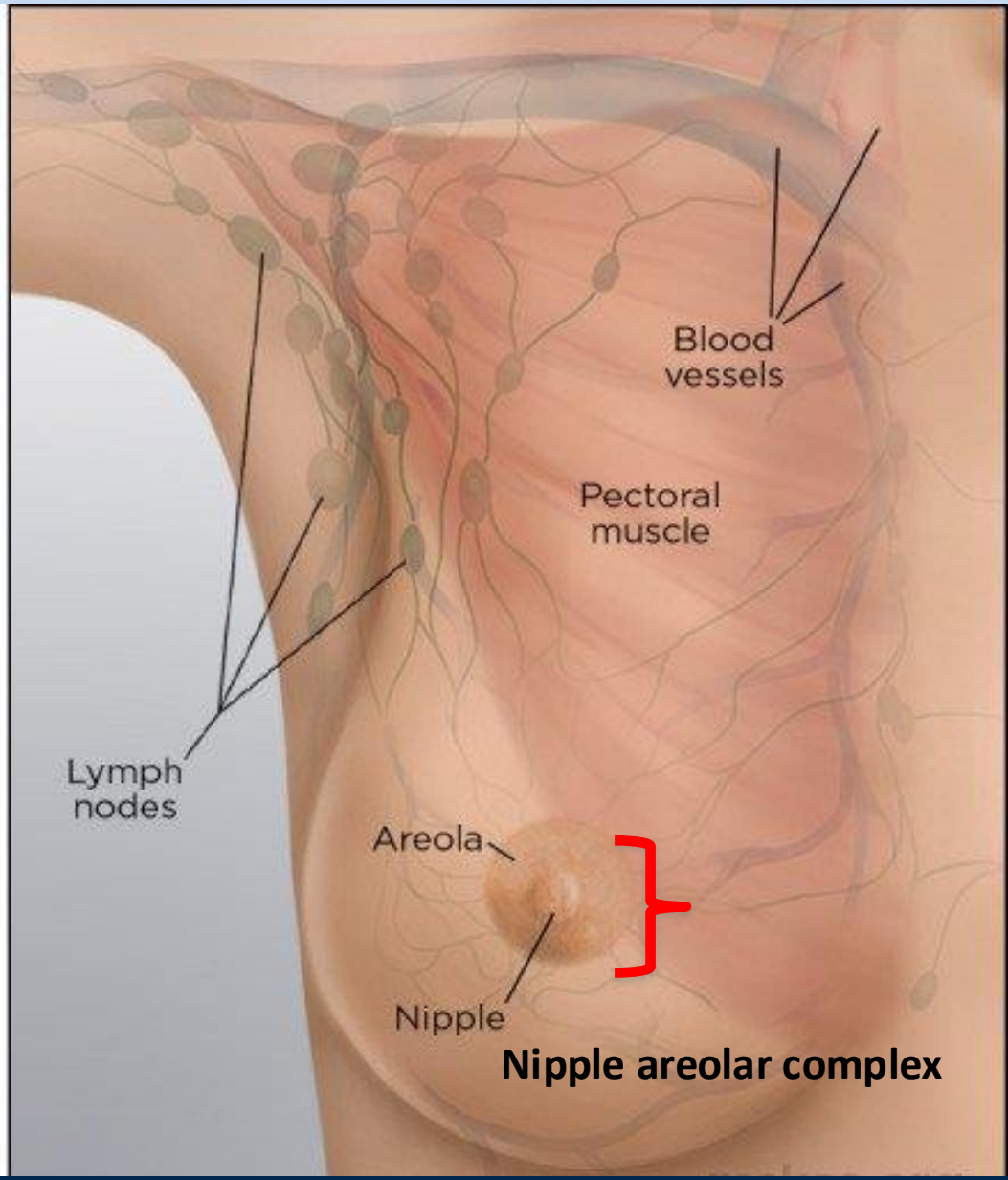
Case #1

- A 25 year old G1P1 with palpable right breast mass on exam. Firm and mildly tender.
  - Currently breastfeeding
  - Family hx: Mother and MGM died of breast cancer in 40s

  - What is the likely diagnosis?
  - How will you proceed with workup?
  - How would you describe the location of the lesion?

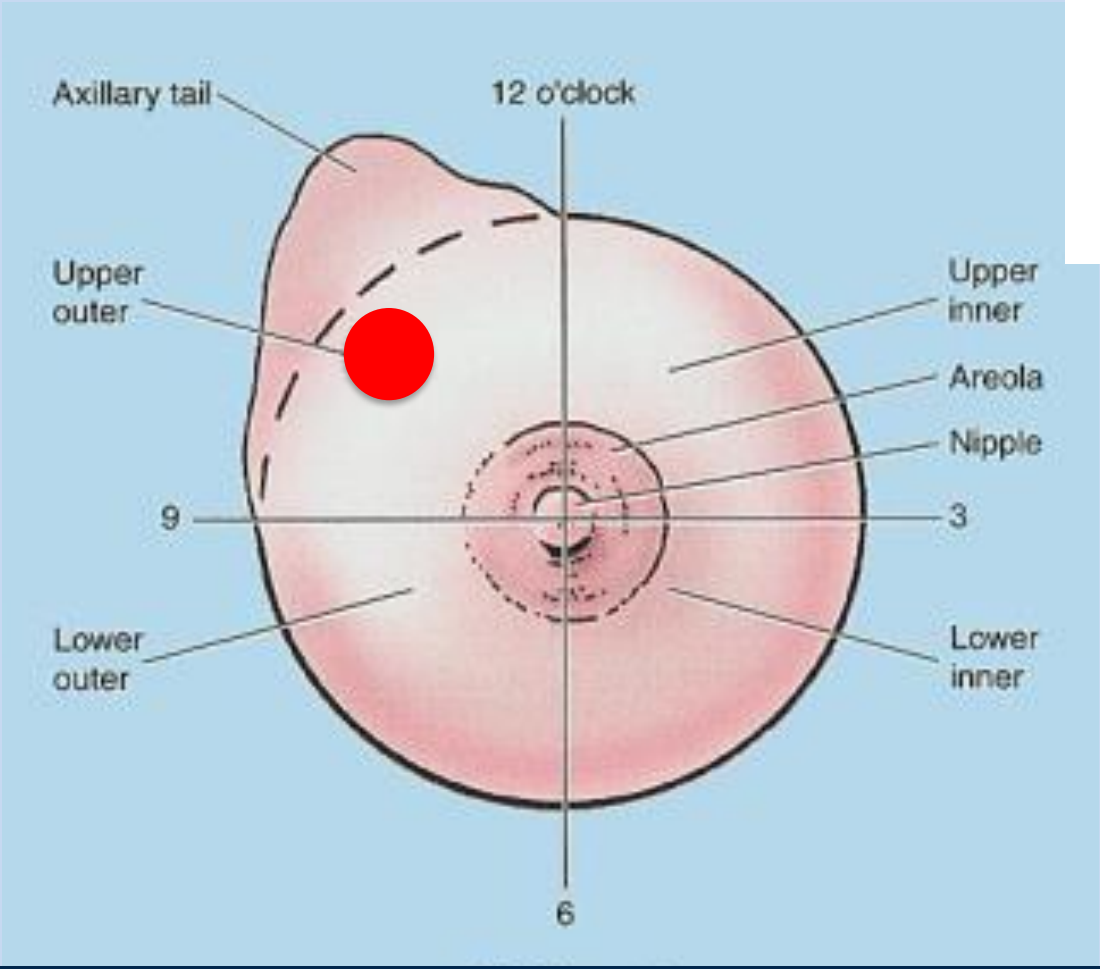






Nipple areolar complex

Make sure to give coordinates…



Breast Exam Findings

Pack of rubber bands

VS.

Marble, pebble, stone, jelly bean…

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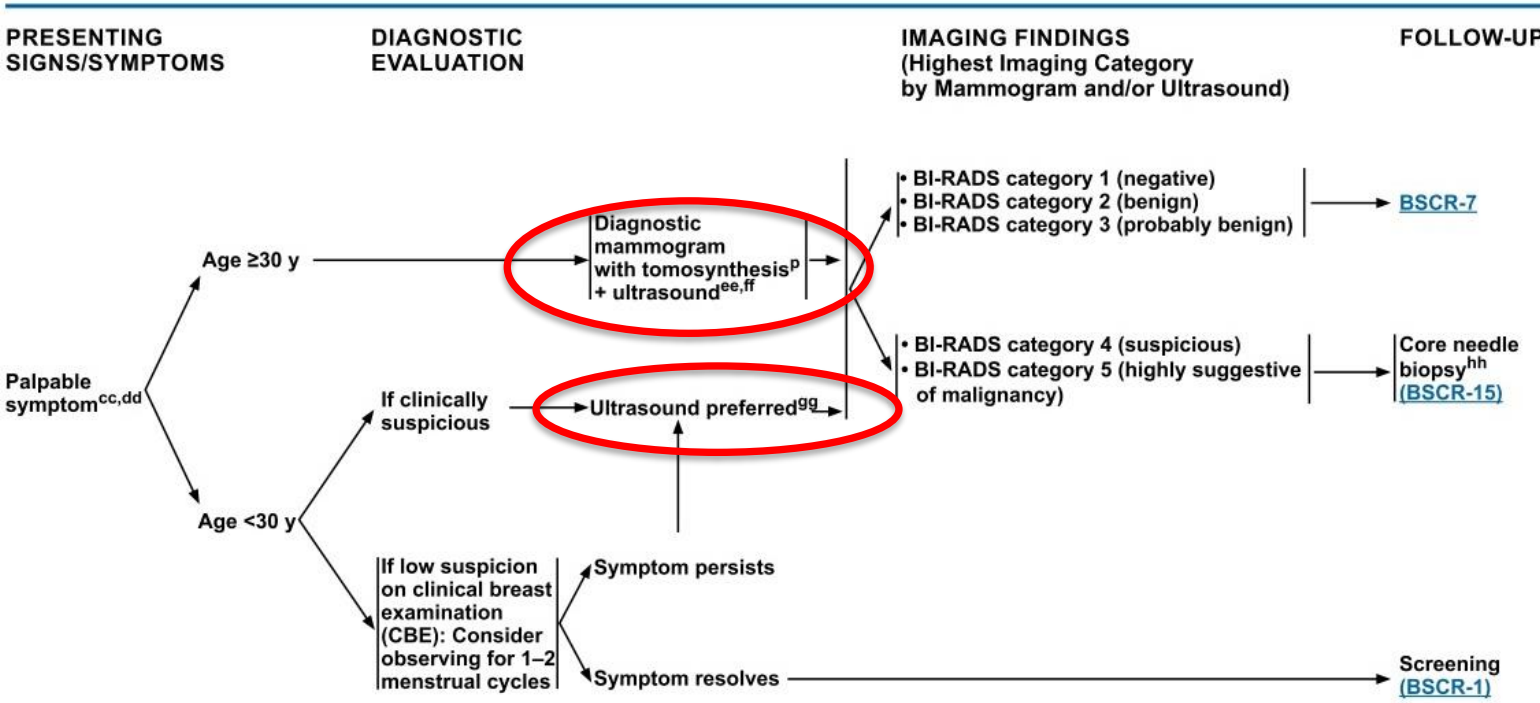
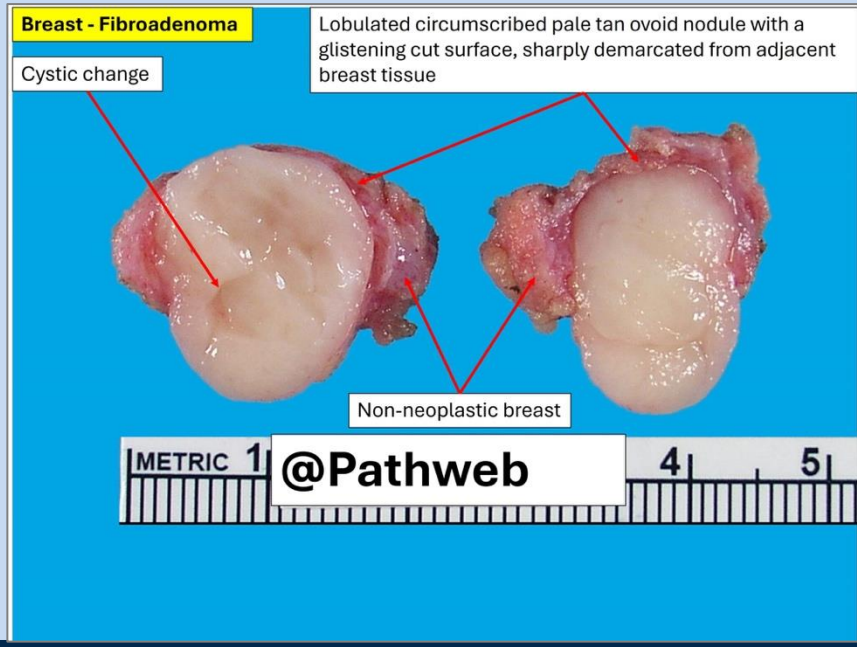


[p] Tomosynthesis can decrease call-back rates and improve cancer detection compared with 2D mammography alone.
[cc] Including mass, new-onset asymmetric thickening/nodularity, asymmetric breast enlargement, or change in shape/contour (which may be due to implant rupture). See https://www.fda.gov/media/131885/download and BSCR-6.
[dd] It is critical for the location of physical findings from CBE to be documented, as clock/quadrant location and distance from nipple to facilitate geographic correlation with imaging findings.
[ee] Ultrasound may not be necessary for a palpable finding with a definitively benign finding (eg, calcified fat necrosis) on mammogram.
[ff] CEM in combination with ultrasound may be used as an alternative if available.
[gg] If high suspicion for malignancy by ultrasound, obtain diagnostic mammogram.
[hh] Confirm geographic correlation between clinical and imaging findings.

Note: All recommendations are category 2A unless otherwise indicated.

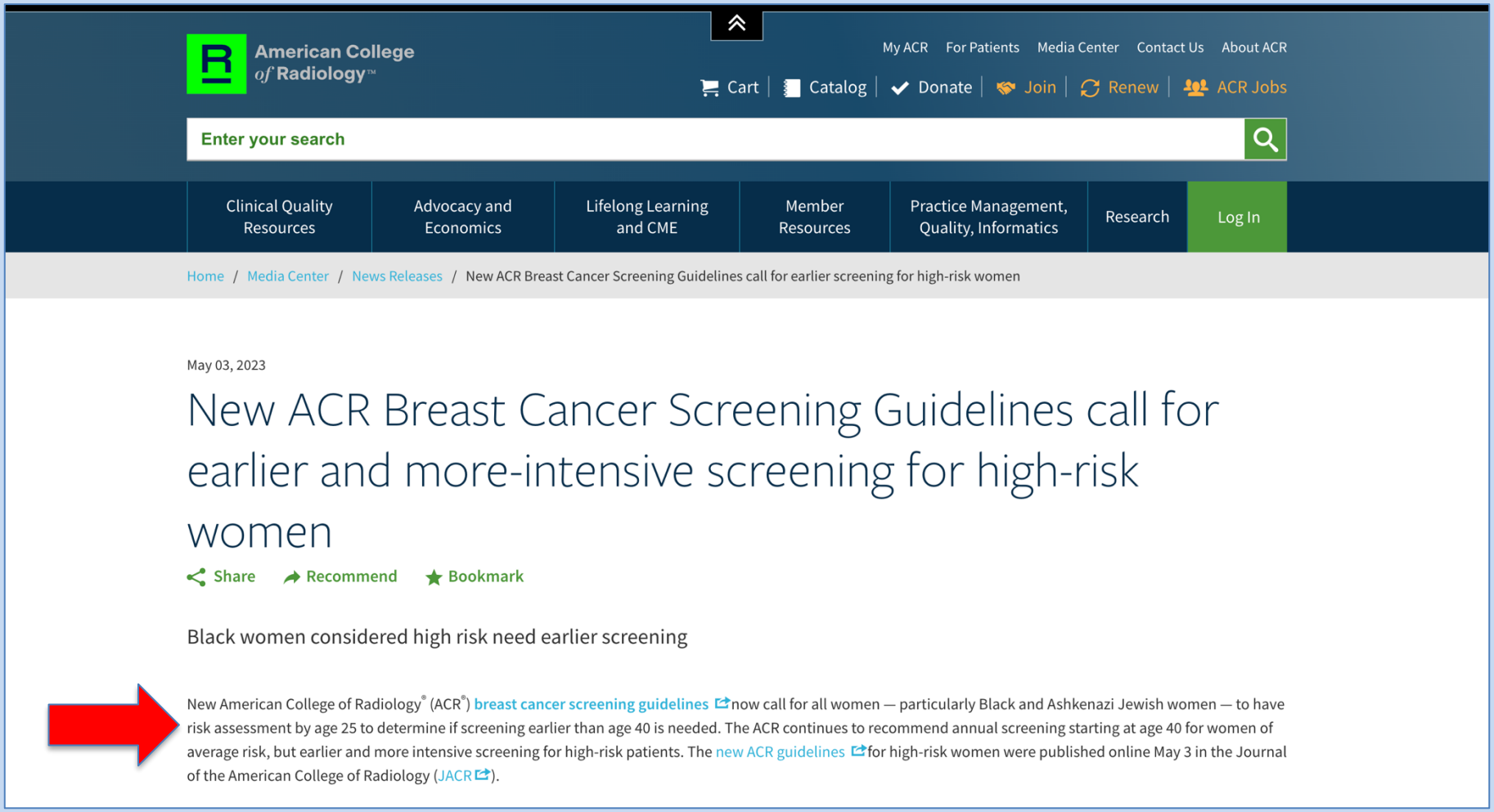
Fibroadenoma

- Common benign breast mass
- Can be monitored safely
- Removal only if painful or rapidly expanding



https://medicine.nus.edu.sg/pathweb/virtual-pathology-museum/01140-2/

1st Step in Determining Risk= Review personal & family cancer history!



Taken from: https://www.acr.org/Media-Center/ACR-News-Releases/2023/New-ACR-Breast-Cancer-Screening-Guidelines-call-for-earlier-screening-for-high-risk-women#:~:text=New%20American%20College%20of%20Radiology%20%C2%AE%20%28ACR%20%C2%AE%29,if%20screening%20earlier%20than%20age%2040%20is%20needed.

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BREAST SCREENING CONSIDERATIONS

General Considerations

- These guidelines are intended for individuals assigned female at birth with residual native breast tissue; however, these guidelines do not provide screening guidance for transgender individuals. Certain organizations have developed consensus-based guidelines for transgender individuals, such as the ACR Appropriateness Criteria. NCCN endorses these criteria. Transgender individuals should consult with their primary care physician to determine when/whether screening would be appropriate.
- Individuals should undergo breast cancer risk assessment by age 25 years and be counseled regarding potential benefits, risks, and limitations of breast screening in the context of their risk stratification.
- Shared decision-making is encouraged based on a patient's values and preferences (Discussion)
- Screening mammography decreases breast cancer mortality. Digital breast tomosynthesis is recommended, when available. Multiple studies show that tomosynthesis can decrease call-back rates and improve cancer detection compared with two-dimensional (2D) mammography alone, though long-term data on incremental mortality reduction have not yet been demonstrated. Radiation exposure may be increased, but remain within FDA guidelines and can be reduced with FDA-approved synthesized 2D reconstruction.
- Current evidence does not support the use of thermography as a screening procedure.

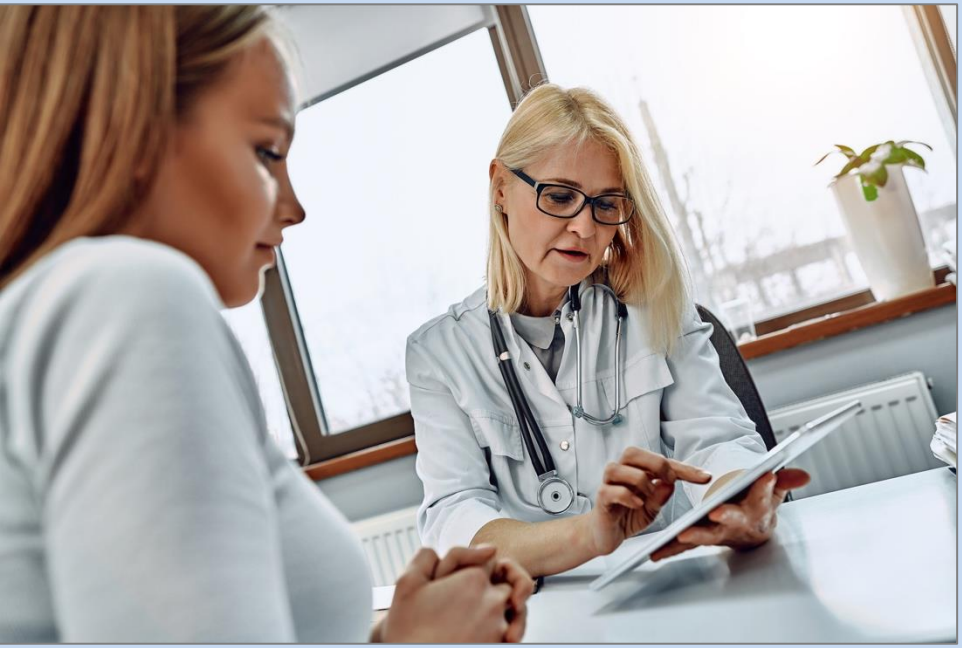
Upper Age Limit for Screening

- Upper age limit for mammographic screening is not yet established.
- Consider severe comorbid conditions limiting life expectancy (eg, ≤10 years) and whether therapeutic interventions would be appropriate and acceptable to the patient.

Continued

Note: All recommendations are category 2A unless otherwise indicated.

Gathering Family Hx



- **1st, 2nd, 3rd degree relatives**
- **Age of diagnosis**
- **Age of death**
- Pathology
- Any genetic testing
- Ethnicity (specifically Ashkenazi Jewish)

TESTING CRITERIA FOR HIGH-PENETRANCE BREAST CANCER SUSCEPTIBILITY GENES
(Genes such as *BRCA1, BRCA2, CDH1, PALB2, PTEN, STK11,* and *TP53.* See GENE-A)[a,g,h,i,j]

Testing is clinically indicated in the following scenarios:

- See General Testing Criteria on CRIT-1.
- Personal history of breast cancer with specific features:
  - ≤50 y
  - Any age:
    - ◊ Treatment indications
      - – To aid in systemic treatment decisions using PARP inhibitors for breast cancer in the metastatic setting[k,l] (See NCCN Guidelines for Breast Cancer)
      - – To aid in adjuvant treatment decisions with olaparib for high-risk,[m] HER2-negative breast cancer[j]
    - ◊ Pathology/histology
      - – Triple-negative breast cancer
      - – Multiple primary breast cancers (synchronous or metachronous)[n]
      - – Lobular breast cancer with personal or family history of diffuse gastric cancer (See NCCN Guidelines for Genetic/Familial High-Risk Assessment: Colorectal, Endometrial, and Gastric)
    - ◊ Male breast cancer
    - ◊ Ancestry: Ashkenazi Jewish
  - Any age (continued):
    - ◊ Family history[o]
      - – ≥1 close blood relative[p] with ANY:
        - breast cancer at age ≤50 y
        - male breast cancer
        - ovarian cancer
        - pancreatic cancer
        - prostate cancer with metastatic,[q] or high- or very-high-risk group (Initial Risk Stratification and Staging Workup in NCCN Guidelines for Prostate Cancer)
      - – ≥3 diagnoses of breast and/or prostate cancer (any grade) on the same side of the family including the patient with breast cancer
- Family history criteria: unaffected; or affected but does not meet above criteria
  - Individual with a first- or second-degree blood relative meeting any of the criteria listed above (except unaffected individuals whose relatives meet criteria only for systemic therapy decision-making).[r]
  - Individuals who have a probability >5% of a *BRCA1/2* P/LP variant based on prior probability models (eg, Tyrer-Cuzick, BRCAPro, CanRisk).[s]

Criteria met → GENE-1

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

Continued on CRIT-3

Footnotes on CRIT-2A

Note: All recommendations are category 2A unless otherwise indicated.

Red Flags for Testing!!!

Personal or family hx of:

- Multiple breast cancers
- Breast cancer ≤50 y/o
- Triple-negative breast cancer
- Male breast cancer
- Ovarian cancer
- Pancreatic cancer
- Metastatic prostate cancer
- Ashkenazi Jewish
- Family hx pathogenic variant (i.e., BRCA)

Case #2

- A 66 year old with unilateral bloody nipple discharge.
  - Concerned breast cancer risk due to dense breast tissue
  - Family Hx: Father died of prostate cancer at 69

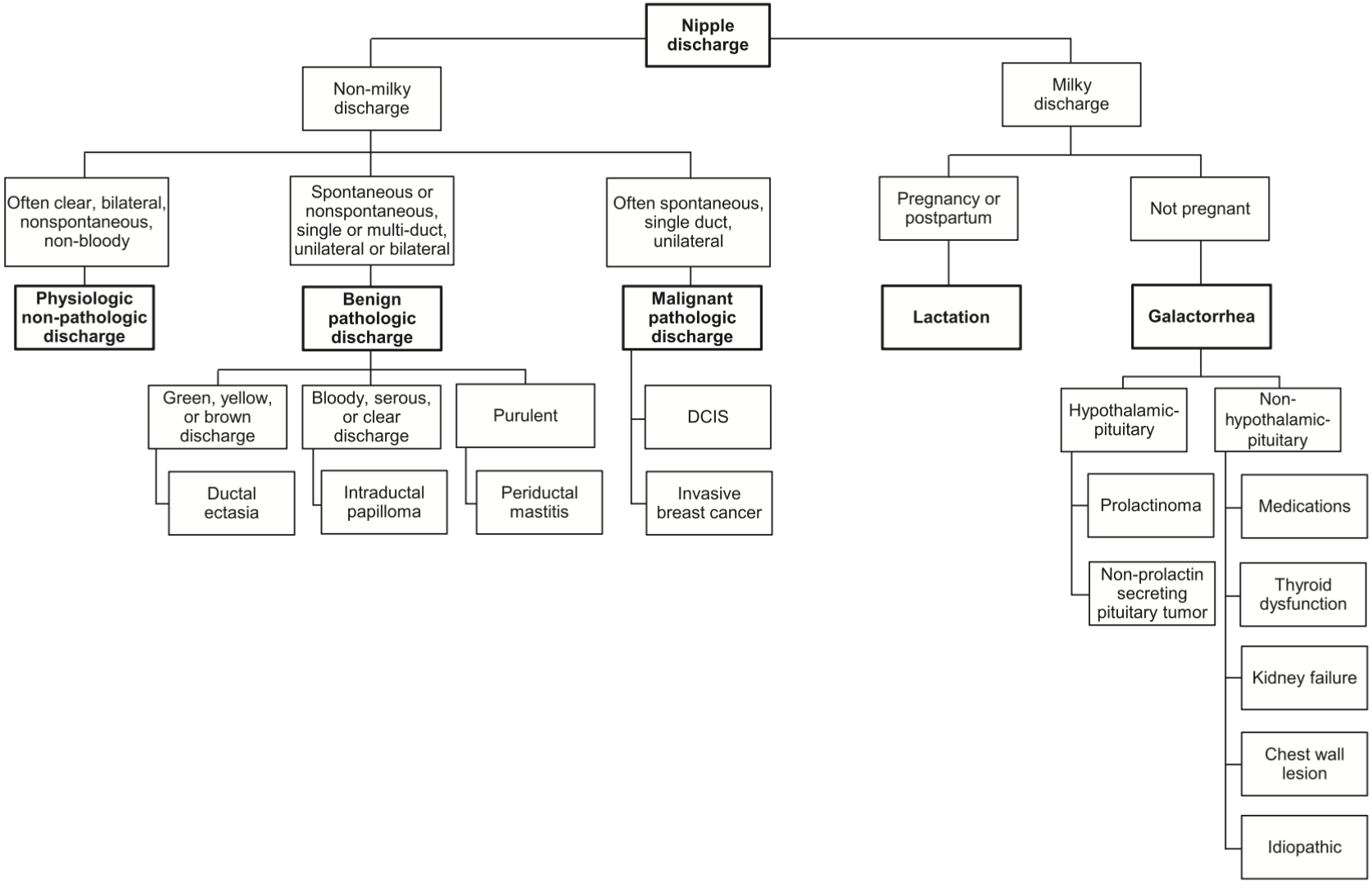
  - What is the most likely diagnosis?
  - How do you proceed with workup?
  - How do you address dense breasts?

Nipple Discharge

- **Workup:**
  - Imaging
  - Labs:
    - TSH
    - Prolactin
    - bHCG

For Galactorrhea:

Antihypertensives
Reserpine
Methyldopa
Verapamil
Psychotropics
Selective serotonin reuptake inhibitors
Tricyclic antidepressants
Antipsychotics (e.g., haloperidol, fluphenazine, risperidone)
Antiemetics
Metoclopramide
Hormonal therapy
Oral contraceptives
Thyrotropin-releasing hormone
Analgesics
Opiates (e.g., methadone, codeine)



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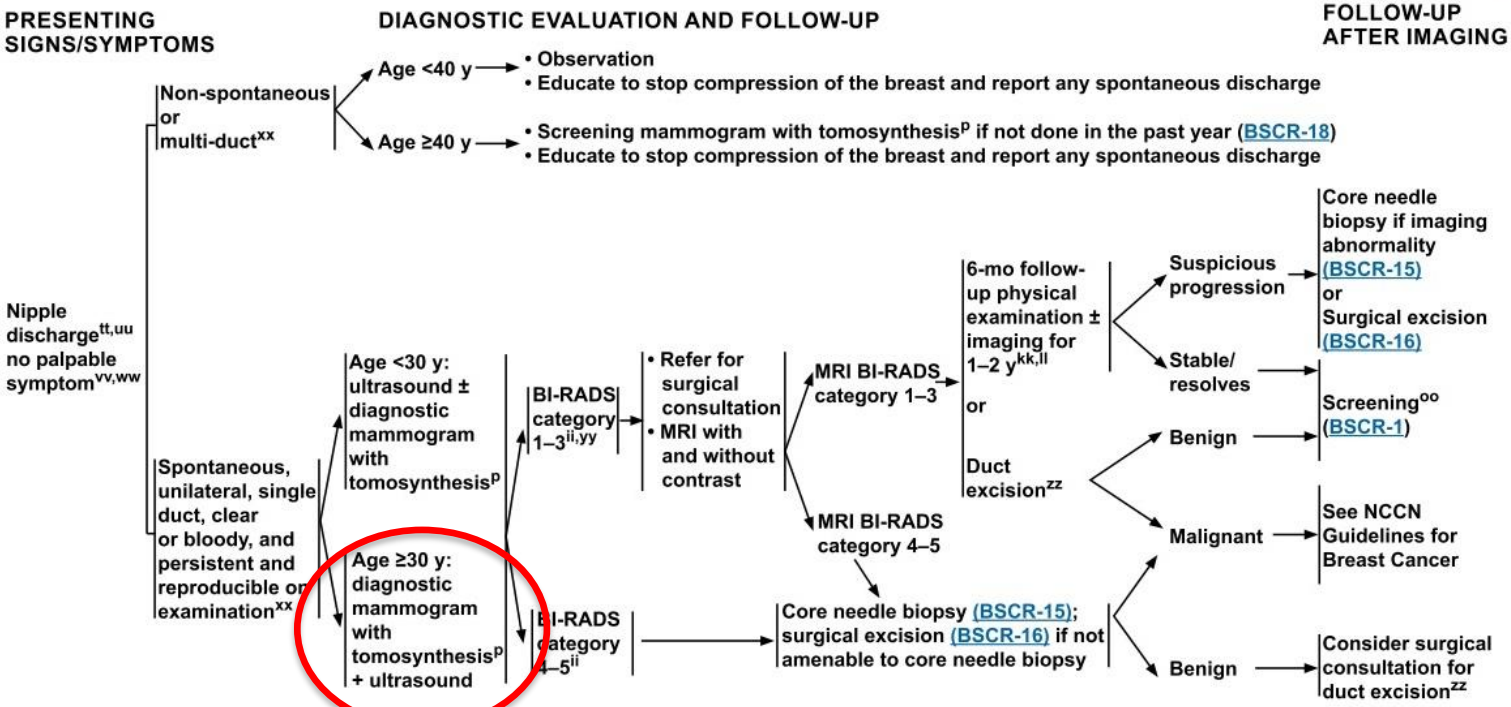
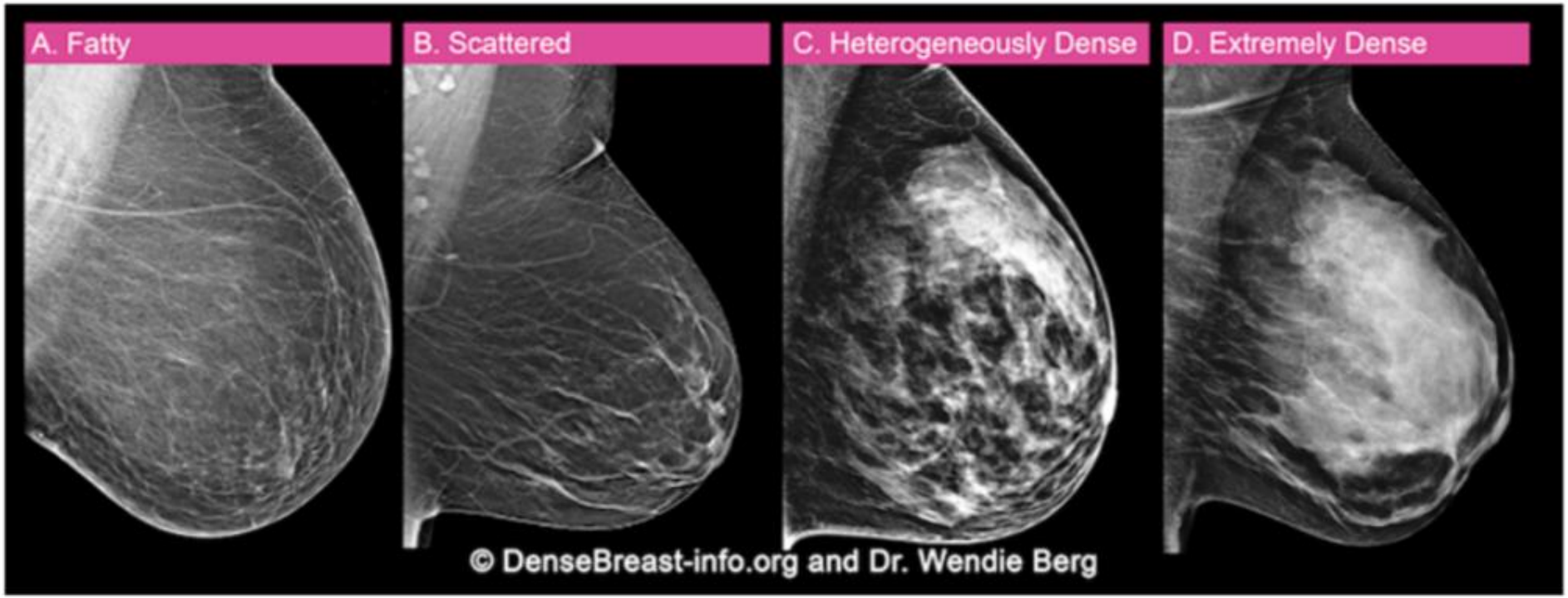


[p] Tomosynthesis can decrease call-back rates and improve cancer detection compared with 2D mammography alone.
[ii] Assessment Category Definitions (BSCR-C).
[kk] Patients should be instructed to monitor for and report any changes.
[ll] Imaging modality would depend on original imaging. Probably benign findings are typically monitored at 6, 12, and 24 months.
[oo] Continue regular screening with age-appropriate imaging modality.
[tt] A list of drugs that can cause nipple discharge (not all-inclusive): psychoactive drugs, antihypertensive medications, opiates, oral contraceptives, and estrogen.
[uu] For bilateral milky discharge consider endocrine workup.
[vv] If palpable symptom, see BSCR-6.
[ww] Nipple smear cytology and ductography are not routinely recommended.
[xx] Spontaneous multi-duct discharge that is milky may be due to pregnancy, and if not, should be evaluated for galactorrhea. Greenish, coffee-colored, yellow, brown/black multi-duct discharge is nearly always non-neoplastic, and reassurance can be provided. However, if the discharge is bothersome to the patient, referral to a breast specialist may be considered.
[yy] If BI-RADS category 3 finding is unrelated to nipple discharge, manage mammographic finding by BSCR-18.
[zz] Based on clinical suspicion and patient preference.

Note: All recommendations are category 2A unless otherwise indicated.

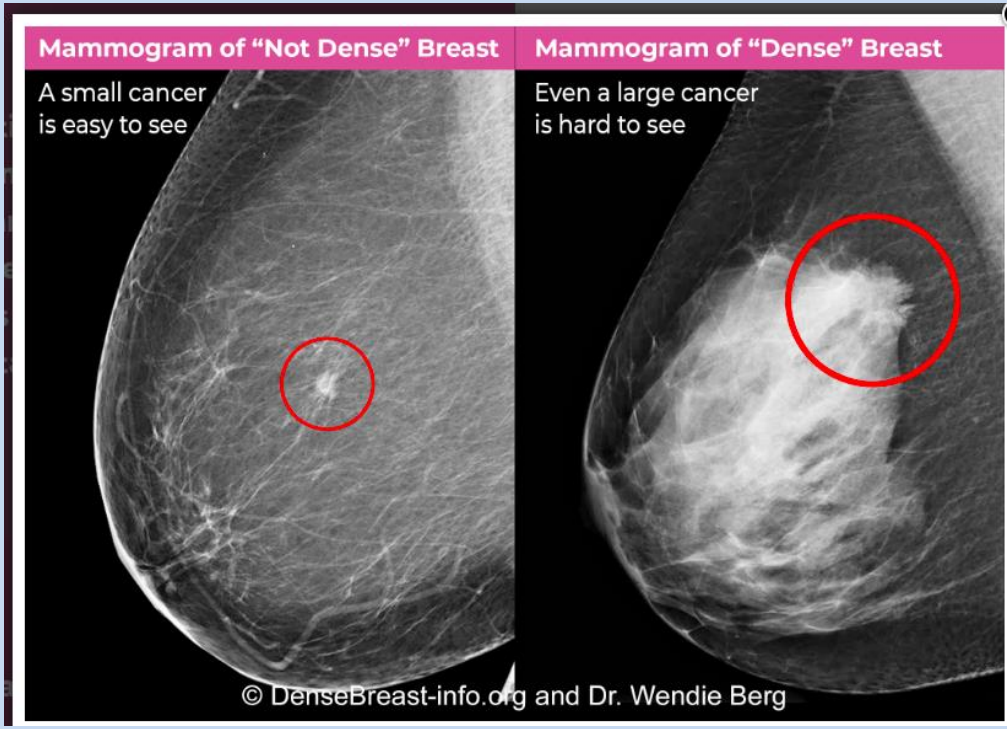
Dense Breasts are a Risk Factor for Breast Cancer



https://densebreast-info.org/for-patients/5-facts-you-should-know/

Dense Breasts

- ~50% population
- Decreases sensitivity of mammogram
- Providers required to inform, but **no consensus on supplemental screening**

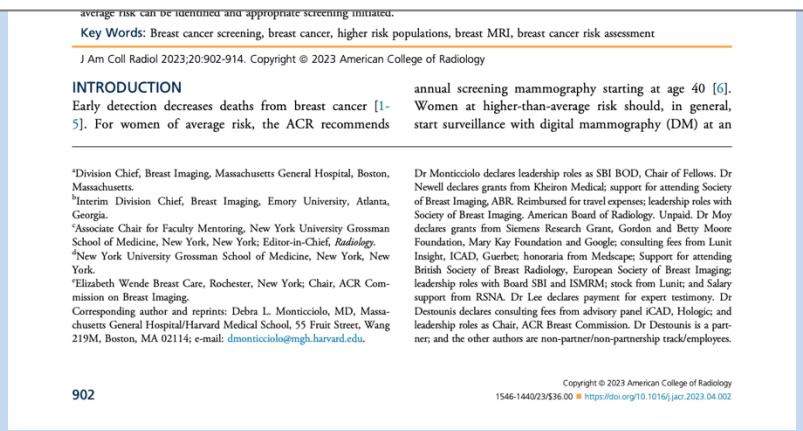


https://densebreast-info.org/for-patients/5-facts-you-should-know/

American College of Radiology (ACR)

Abstract

Early detection decreases breast cancer death. The ACR recommends annual screening beginning at age 40 for women of average risk and earlier and/or more intensive screening for women at higher-than-average risk. For most women at higher-than-average risk, the supplemental screening method of choice is breast MRI. Women with genetics-based increased risk, those with a calculated lifetime risk of 20% or more, and those exposed to chest radiation at young ages are recommended to undergo MRI surveillance starting at ages 25 to 30 and annual mammography (with a variable starting age between 25 and 40, depending on the type of risk). Mutation carriers can delay mammographic screening until age 40 if annual screening breast MRI is performed as recommended. Women diagnosed with breast cancer before age 50 or with personal histories of breast cancer and dense breasts should undergo annual supplemental breast MRI. Others with personal histories, and those with atypia at biopsy, should strongly consider MRI screening, especially if other risk factors are present. For women with dense breasts who desire supplemental screening, breast MRI is recommended. For those who qualify for but cannot undergo breast MRI, contrast-enhanced mammography or ultrasound could be considered. All women should undergo risk assessment by age 25, especially Black women and women of Ashkenazi Jewish heritage, so that those at higher-than-average risk can be identified and appropriate screening initiated.



average risk can be identified and appropriate screening initiated.

Key Words: Breast cancer screening, breast cancer, higher risk populations, breast MRI, breast cancer risk assessment

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INTRODUCTION

Early detection decreases deaths from breast cancer [1-5]. For women of average risk, the ACR recommends annual screening mammography starting at age 40 [6]. Women at higher-than-average risk should, in general, start surveillance with digital mammography (DM) at an

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1546-1440/23/$36.00 ■ https://doi.org/10.1016/j.jacr.2023.04.002

https://www.acr.org/Media-Center/ACR-News-Releases/2023/New-ACR-Breast-Cancer-Screening-Guidelines-call-for-earlier-screening-for-high-risk-women

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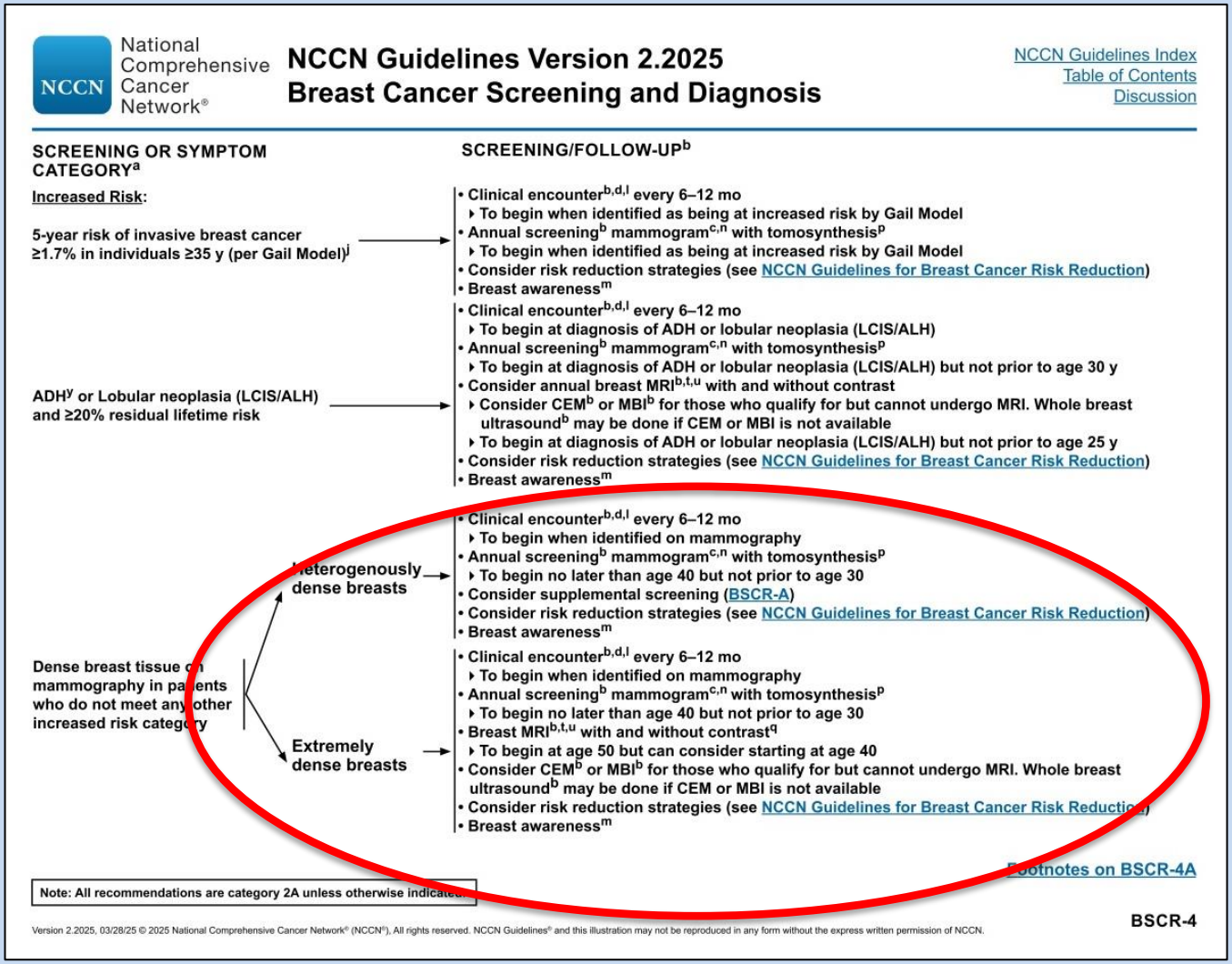

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SCREENING OR SYMPTOM CATEGORY[a]	SCREENING/FOLLOW-UP[b]
Increased Risk: 5-year risk of invasive breast cancer ≥1.7% in individuals ≥35 y (per Gail Model)[j]	• Clinical encounter[b,d,l] every 6–12 mo ▸ To begin when identified as being at increased risk by Gail Model • Annual screening[b] mammogram[c,n] with tomosynthesis[p] ▸ 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[m]
ADH[y] or Lobular neoplasia (LCIS/ALH) and ≥20% residual lifetime risk	• Clinical encounter[b,d,l] every 6–12 mo ▸ To begin at diagnosis of ADH or lobular neoplasia (LCIS/ALH) • Annual screening[b] mammogram[c,n] with tomosynthesis[p] ▸ To begin at diagnosis of ADH or lobular neoplasia (LCIS/ALH) but not prior to age 30 y • Consider annual breast MRI[b,t,u] 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 CEM or MBI 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[m]
Dense breast tissue on mammography in patients who do not meet any other increased risk category → Heterogenously dense breasts	• Clinical encounter[b,d,l] every 6–12 mo ▸ To begin when identified on mammography • Annual screening[b] mammogram[c,n] with tomosynthesis[p] ▸ To begin no later than age 40 but not prior to age 30 • Consider supplemental screening (BSCR-A) • Consider risk reduction strategies (see NCCN Guidelines for Breast Cancer Risk Reduction) • Breast awareness[m]
Dense breast tissue on mammography in patients who do not meet any other increased risk category → Extremely dense breasts	• Clinical encounter[b,d,l] every 6–12 mo ▸ To begin when identified on mammography • Annual screening[b] mammogram[c,n] with tomosynthesis[p] ▸ To begin no later than age 40 but not prior to age 30 • Breast MRI[b,t,u] with and without contrast[q] ▸ To begin at age 50 but can consider starting at age 40 • Consider CEM[b] or MBI[b] for those who qualify for but cannot undergo MRI. Whole breast ultrasound[b] may be done if CEM or MBI is not available • Consider risk reduction strategies (see NCCN Guidelines for Breast Cancer Risk Reduction) • Breast awareness[m]

Footnotes on BSCR-4A

Note: All recommendations are category 2A unless otherwise indicated.

BSCR-4

Nccn.com

Case #3

- A 35 year old athlete with focal left breast pain.
  - Family hx: none; reports Ashkenazi Jewish ancestry
  - Meds: on cyclic OCP

- How do you proceed with workup?

Medications Associated with Mastalgia

Mastalgia	**Hormonal therapy**
	Oral contraceptives
	Estrogen and progesterone hormonal therapy
	Clomiphine
	Antimicrobials
	Metronidazole
	Ketoconazole
	Antihypertensives and cardiac medications
	Methyldopa
	Spironolactone
	Digoxin
	Psychotropics
	Selective serotonin reuptake inhibitors (e.g., fluoxetine, sertraline, escitalopram)
	Serotonin and norepinephrine reuptake inhibitors (e.g., velafaxine, duloxetine)
	Tricyclic antidepressant (e.g., amitriptyline, imipramine, doxepin)
	Antipsychotics (e.g., risperidone, haloperidol, chlorpromazine, zotepine, amisulpride)
	Antihistamines
	Cimetidine
	Other medications
	Oxymetholone
	Domperidone
	Carboprost

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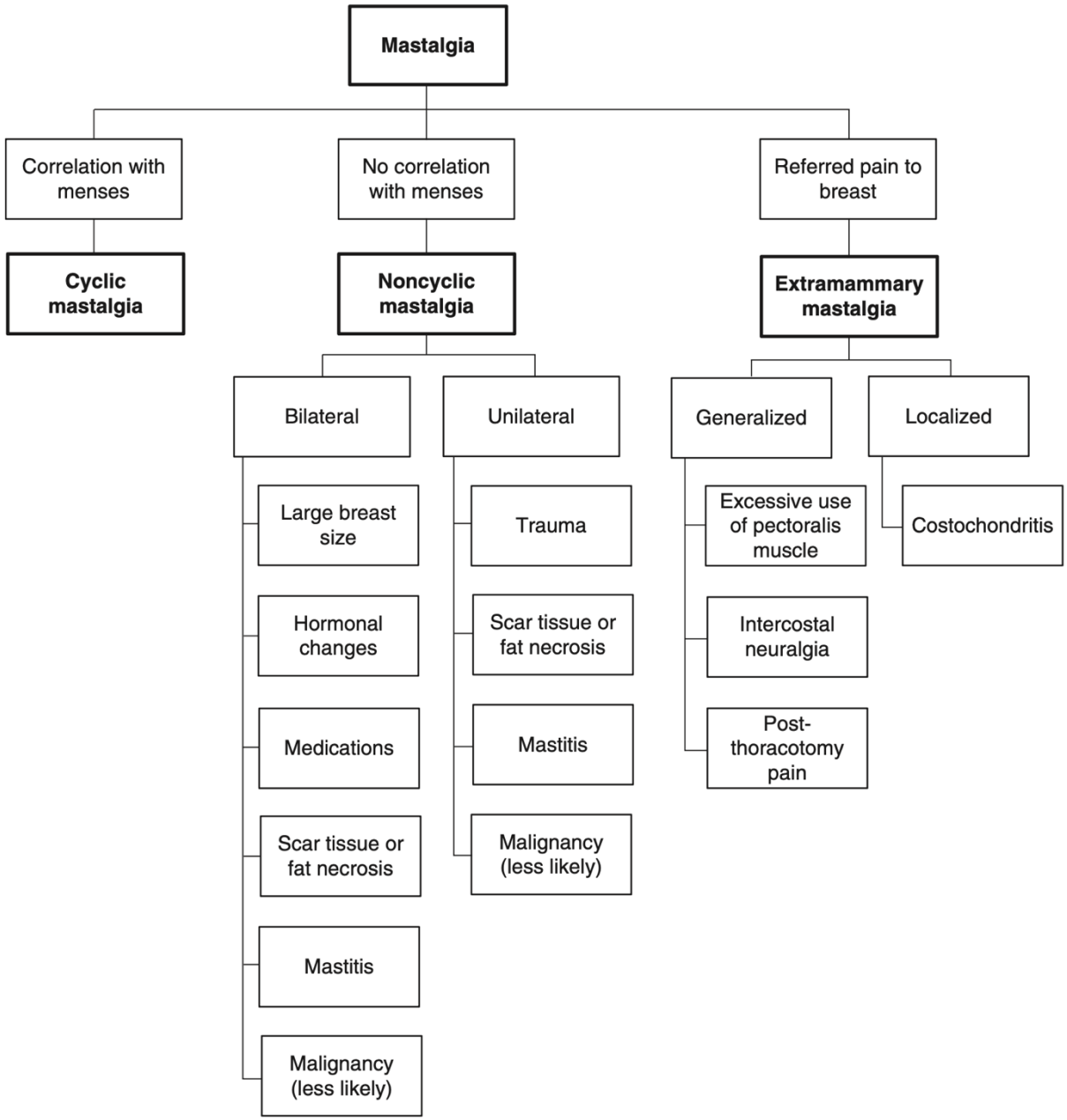

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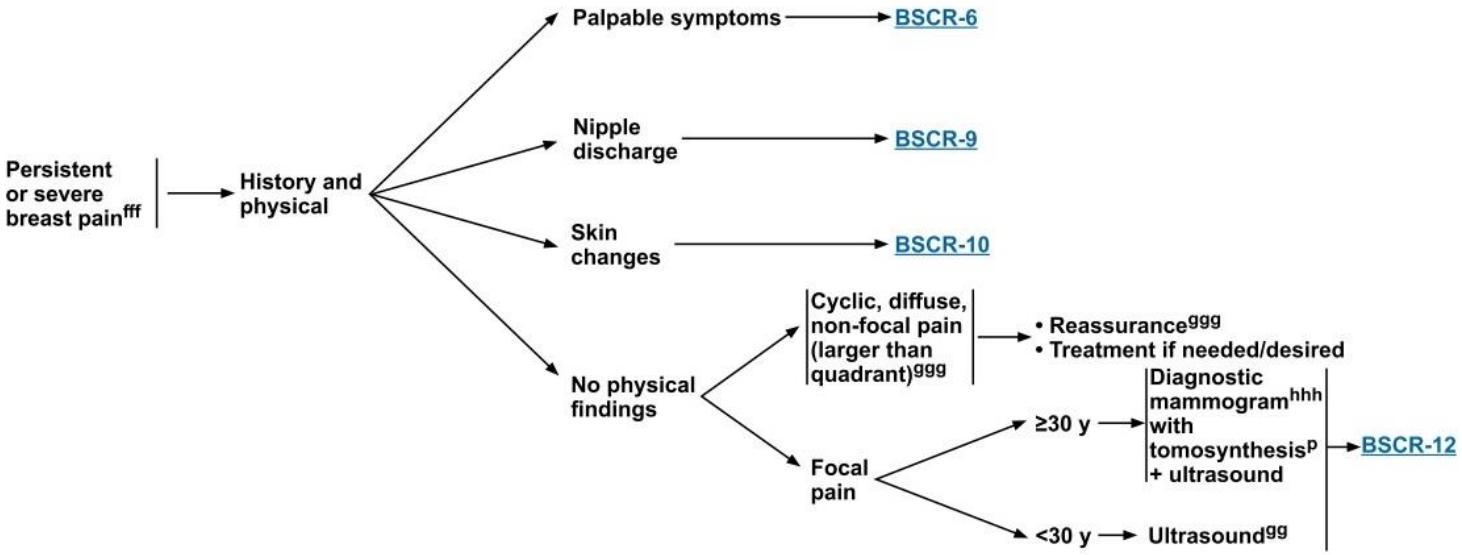
PRESENTING SIGNS AND SYMPTOMS **FOLLOW-UP EVALUATION**

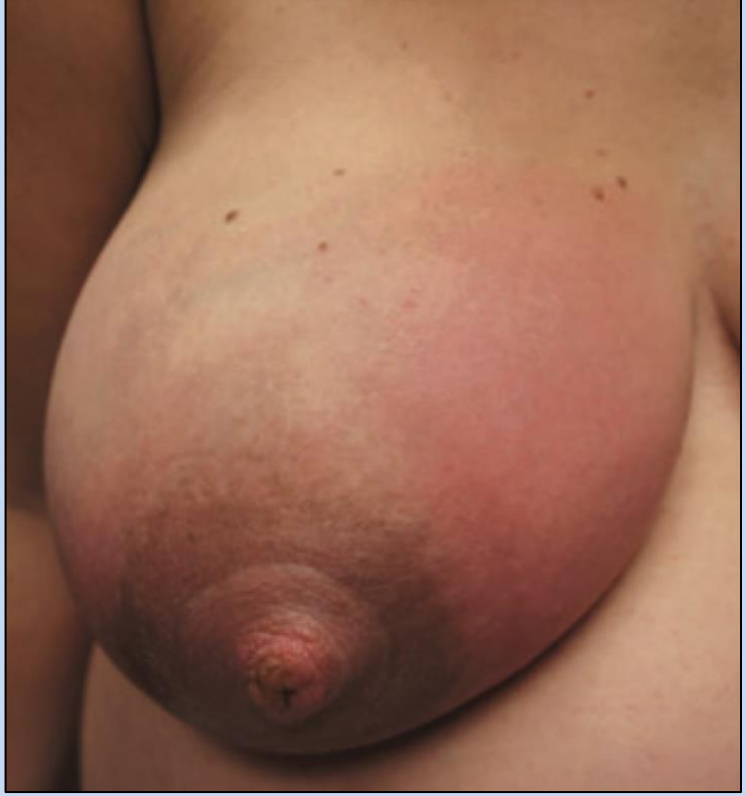


[p] Tomosynthesis can decrease call-back rates and improve cancer detection compared with 2D mammography alone.
[gg] If high suspicion for malignancy by ultrasound, obtain diagnostic mammogram.
[fff] Defined as a minimum of 4–6 weeks duration; prior to that, symptomatic management unless patient reports other symptoms also present such as associated redness or mass. If other symptoms present, physical examination should be done at that time.
[ggg] Ensure that mammographic screening is up-to-date.
[hhh] There are some clinical circumstances such as a suspected painful simple cyst in which ultrasound would be preferred as the first imaging modality and may suffice for individuals aged 30–39 years. Mammogram may not be necessary if performed and results were negative within the past 6 months. See Discussion.

Note: All recommendations are category 2A unless otherwise indicated.

Mastalgia Treatment

- Well-fitted and supportive bras (sports bra)
- Dietary: limit caffeine, fat, salt
- Evening primrose oil (2,000-3,000mg/day)
- NSAIDS
- Heating pads
- OCP?
- FDA: danzol (100mg BID)
- Tamoxifen
- Bromocriptine



Case #4

- A 31 year old postpartum patient presents with painful red breast. She is breastfeeding and is not fully emptying from the right breast which is warm to touch.
  - PMH: Hx Hodgkin's Lymphoma

Mastitis

BOX 1. EMPIRIC ANTIBIOTIC MANAGEMENT[58,74]

First line

- Dicloxacillin or flucloxacillin 500 mg QID for 10–14 days
- Where dicloxacillin and flucloxacillin are not available, cloxacillin can be used alternatively; however, oral bioavailability is more variable with cloxacillin.[75] All drugs have low Relative Infant Dose of the drug.[76]
- Cephalexin 500 mg QID for 10–14 days
  - Broader coverage including gram negative rods; does not need to be taken separately from meals

Second line

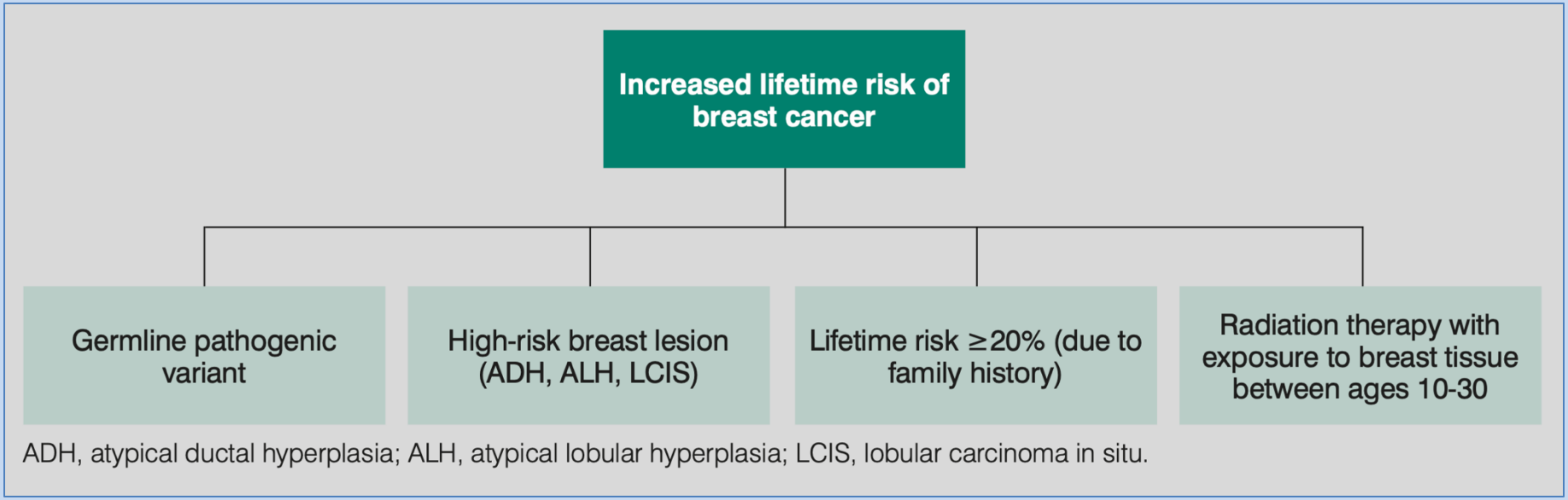
- Clindamycin 300 mg four times daily for 10–14 days
- Trimethoprim-sulfamethoxazole DS BID for 10–14 days
  - Not recommended for mothers of children with G6PD deficiency. Use with caution in mothers with premature infants or infants with hyperbilirubinemia, especially under 30 days old.[77]

Academy of breastfeeding medicine clinical protocol #36

Refractory Mastitis

- If no improvement:
  - Consider MRSA
  - Order breast imaging
  - Breast milk culture
  - Skin punch biopsy (Inflammatory breast cancer)

Who is “high risk” for breast cancer?



ADH, atypical ductal hyperplasia; ALH, atypical lobular hyperplasia; LCIS, lobular carcinoma in situ.

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Case #5

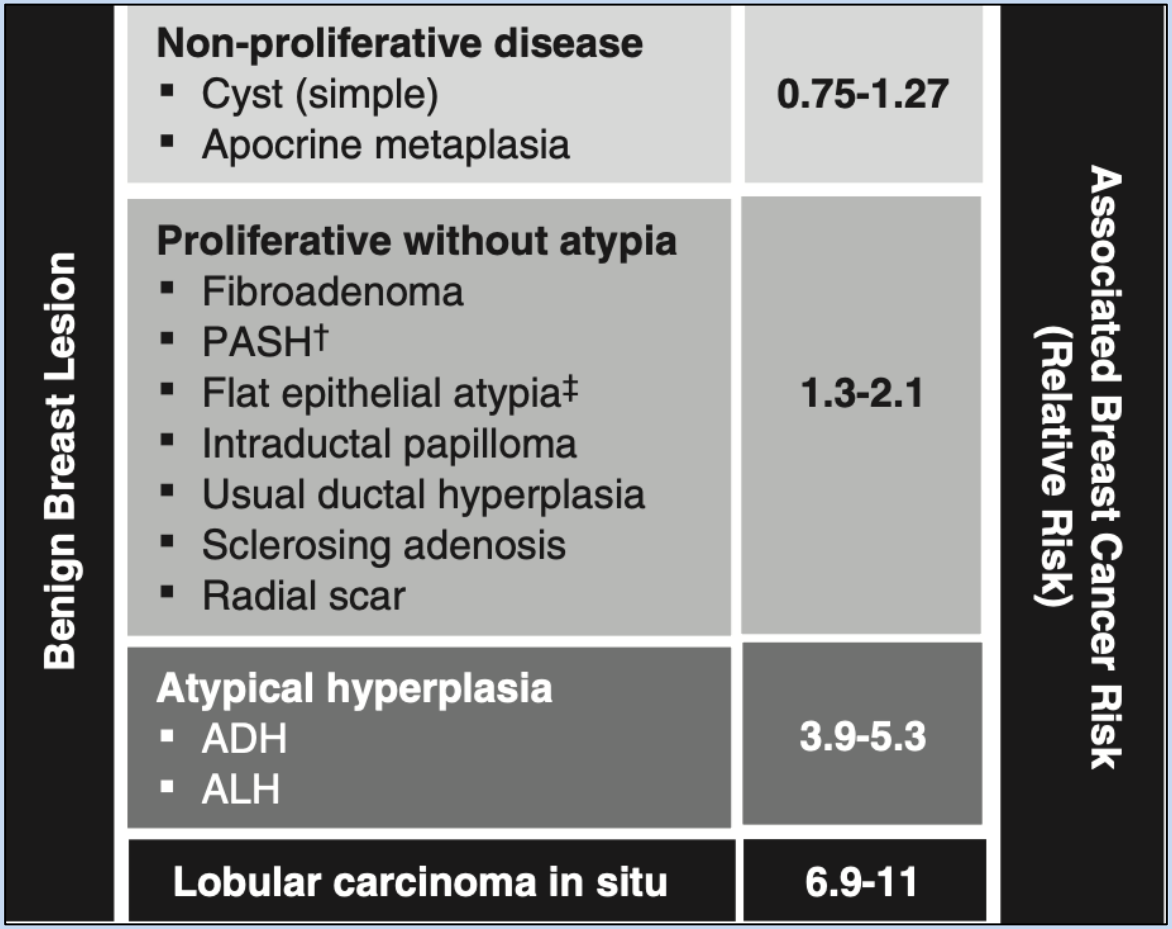
- An asymptomatic 52 year old underwent screening mammogram and had BIRADS 4. She underwent biopsy which showed **atypical ductal hyperplasia**.
  - What is the next step?
  - How will she be screened moving forward?

Final Assessment Categories

Category		Management	Likelihood of cancer
0	Need additional imaging or prior examinations	Recall for additional imaging and/or await prior examinations	n/a
1	Negative	Routine screening	Essentially 0%
2	Benign	Routine screening	Essentially 0%
3	Probably Benign	Short interval-follow-up (6 month) or continued	>0 % but ≤ 2%
4	Suspicious	Tissue diagnosis	4a. low suspicion for malignancy (>2% to ≤ 10%) 4b. moderate suspicion for malignancy (>10% to ≤ 50%) 4c. high suspicion for malignancy (>50% to <95%)
5	Highly suggestive of malignancy	Tissue diagnosis	≥95%
6	Known biopsy-proven	Surgical excision when clinical appropriate	n/a

https://radiologyassistant.nl//breast/bi-rads/bi-rads-for-mammography-and-ultrasound-2013

Benign Breast Disease & Associated Cancer Risk



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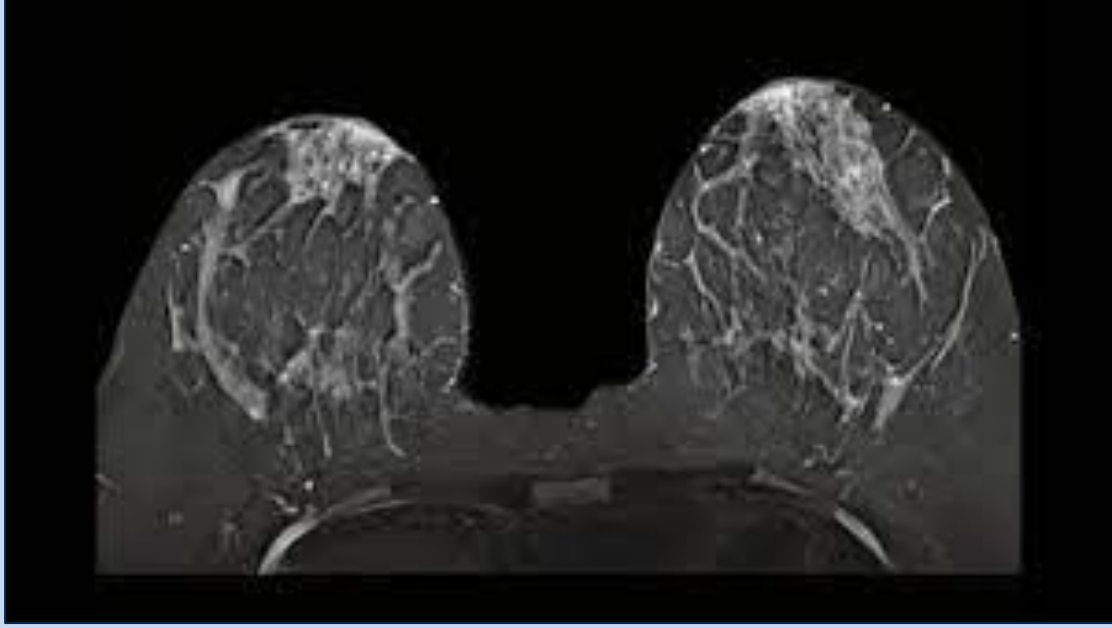
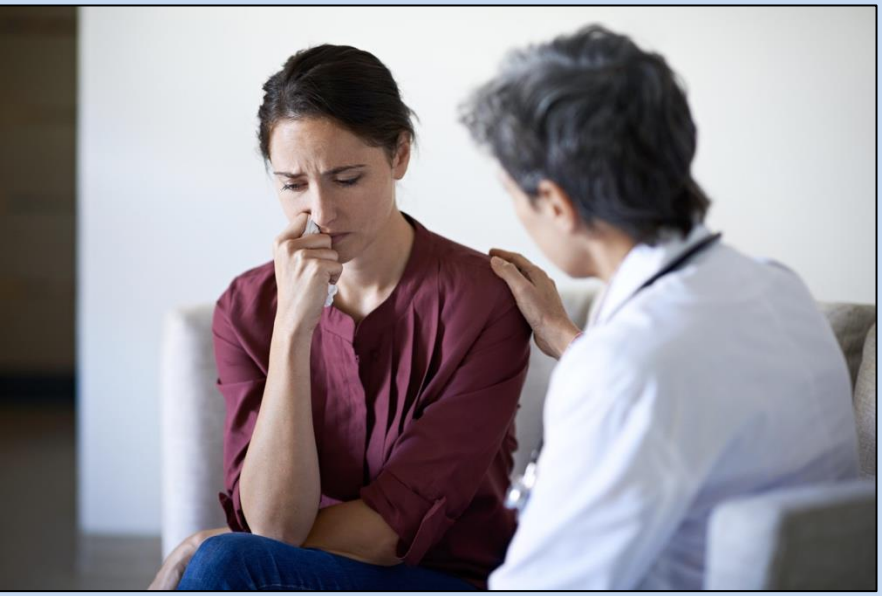
Breast MRI



- **High sensitivity**
- **Supplemental imaging for those at increased risk**
- IV contrast with gadolinium
  - FDA: can stay in brain for months or years; no harm to date

https://www.breastlink.com/services/breast-imaging/breast-mri/

Challenges to Breast MRI



- COST!
- Anxiety & claustrophobia→
  - Benzodiazepine
  - Abbreviated MRI
- Unable to lie prone
- False positives

Conclusions

Conclusions

- Diagnostic imaging is generally indicated for most breast symptoms
- Use visit as opportunity to explore family cancer history
- Not everything is breast cancer, but… breast cancer is common

Thank you!

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