

# Breast Problems: Clinical and Radiologic Evaluation

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CPD Jan 2018

# Disclosure

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- Relationships with commercial interests
    - None
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# Mitigating Potential Bias

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Not applicable

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# Objectives

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- ❑ Then and now “In Sixty” as a concept
  - ❑ Describe the differential diagnosis and appropriate diagnostic work up for a patient with a breast mass
  - ❑ Describe the evaluation of a patient with abnormal breast imaging
  - ❑ Understand where breast MRI may be utilized in the evaluation of breast problems
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# In Sixty

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- Concept is to “seamlessly” flow from one diagnostic test/clinical assessment to the next
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# Early Aughts

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- ❑ MBSP – abnormal mammogram, recommendation “diagnostic mammogram”
- ❑ GP books diagnostic mammogram, U/S recommended
- ❑ GP books U/S, biopsy may or may not be done at same appointment
- ❑ If biopsy done result sent to GP
- ❑ GP refers to surgery if cancer

# In Sixty

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- Abnormal imaging flows directly to next diagnostic evaluation with ongoing communication with GP/NP until proven benign with follow up recommendations or cancer diagnosis with consultation for treatment planning
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# Breast Lumps

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- Symptomatic patients reporting to physician
  - Found on “routine” CBE
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# What is a breast lump?

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Is it discrete?

Does it have to be distinct?

- History may give a clue
  - Examine without bias
  - Compare with opposite breast
  - When in doubt refer or reexamine
  - Reexamine (~6 wks) +/- imaging
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# Breast Lumps

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Standard of care is the “triple-test”

- Clinical breast examination
  - Imaging (mammography, U/S, both)
  - Biopsy (FNA or core)
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# BREAST LUMPS - DIAGNOSIS

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- History and clinical exam
    - **FNA**
    - Mammography – 1<sup>st</sup> test if >35y/o
    - U/S
    - **Core biopsy +/- Image -guidance**
    - **Incisional biopsy**
    - **Excisional biopsy**
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# BREAST LUMPS

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## □ Benign

- “Fibrocystic change”
  - Fibroadenoma (20-35)
  - Cyst (35-45)
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# BREAST LUMPS

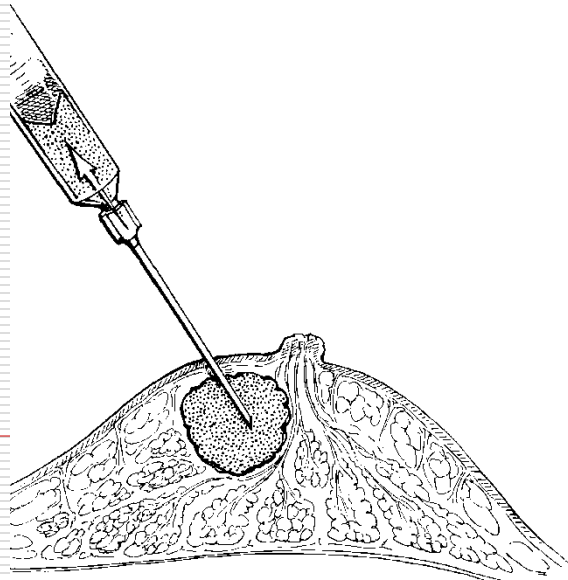
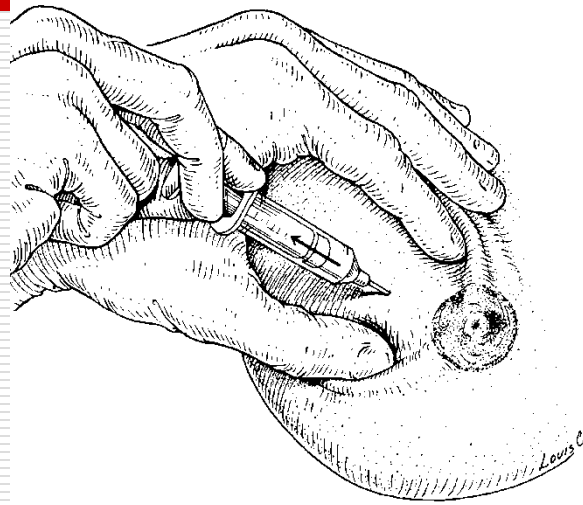
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## □ Malignant

- Cancer: in situ or invasive (98%)
  - Phyllodes tumor
  - Sarcoma (prior breast XRT)
  - Lymphoma
  - Other rare tumors
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# FINE NEEDLE ASPIRATION

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# Fine Needle Aspiration Biopsy

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- Initial approach to palpable lumps
  - Technical aspects
    - “Fine” needle: 22 or 23 gauge
    - Negative suction (consider butterfly needle with assistant applying suction)
    - Release suction before exiting skin
    - Prep slides quickly
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# Abnormal mammograms

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- Palpable breast mass – manage breast lump
  
  - Normal CBE
    - Nodules/ masses/assymmetric density
    - Calcifications
      - Benign
      - Indeterminate
      - malignant
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# Mammograms

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- ❑ BIRADS I Normal
  - ❑ BIRADS II Normal, benign abnormality
  - ❑ BIRADS III Probably benign abnormality (< 2% risk of cancer)
  - ❑ BIRADS IV Indeterminate (20-30% risk of cancer)
  - ❑ BIRADS V High (>95%) probability of cancer
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# ABNORMAL MAMMOGRAM

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- History & physical exam
  - No palpable mass
    - How suspicious is the mammogram?
  - BIRADS III “probably benign” → 6 mo F/U mammogram (<2% CA)
  - BIRADS IV “indeterminate” → Biopsy
  - BIRADS V “suspicious” → Biopsy
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# Nonpalpable mammographic abnormality

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## Biopsy options

### ■ Core biopsy

- U/S if feasible (eg.nodules, masses)

- Stereotactic (eg.calcifications)

### ■ Surgical excision with wire localization

- If core not available or technically not feasible

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# IMAGE GUIDED BIOPSY – WHY?

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- A major goal of modern breast medicine is to minimize the number of patients who undergo open surgical biopsy for diagnosis.
  - A definitive diagnosis of cancer permits optimal preoperative workup and planning.
  - With a definitive preoperative cancer diagnosis clear margins are more likely to be obtained with initial lumpectomy
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# BREAST BIOPSY

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## Surgical Biopsy vs Core Needle Biopsy

Surgery removes the entire lesion.

If benign, core needle biopsy avoids unnecessary surgery.

If cancer, core needle biopsy allows full preoperative counseling and potentially fewer operations.

?Core needle biopsy more cost-effective

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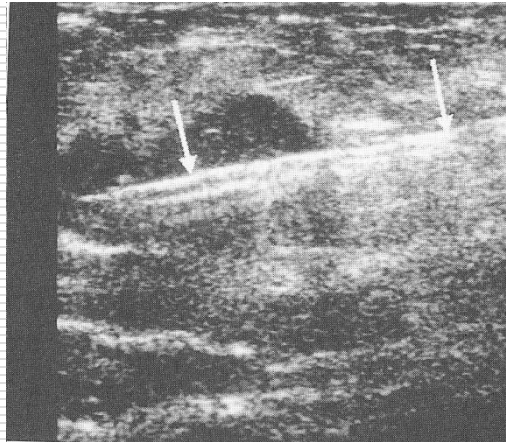
# Breast U/S

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- ❑ Poor screening tool
  - ❑ Optimal application is to evaluate nonpalpable masses/nodules/asymmetric densities on mammography
  - ❑ Useful evaluating “vague” asymmetric clinical findings which persist on reexamination
  - ❑ Not necessarily required for evaluating distinct palpable abnormalities (eg. Cysts, fibroadenomas, etc.)
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# U/S GUIDED CORE BIOPSY

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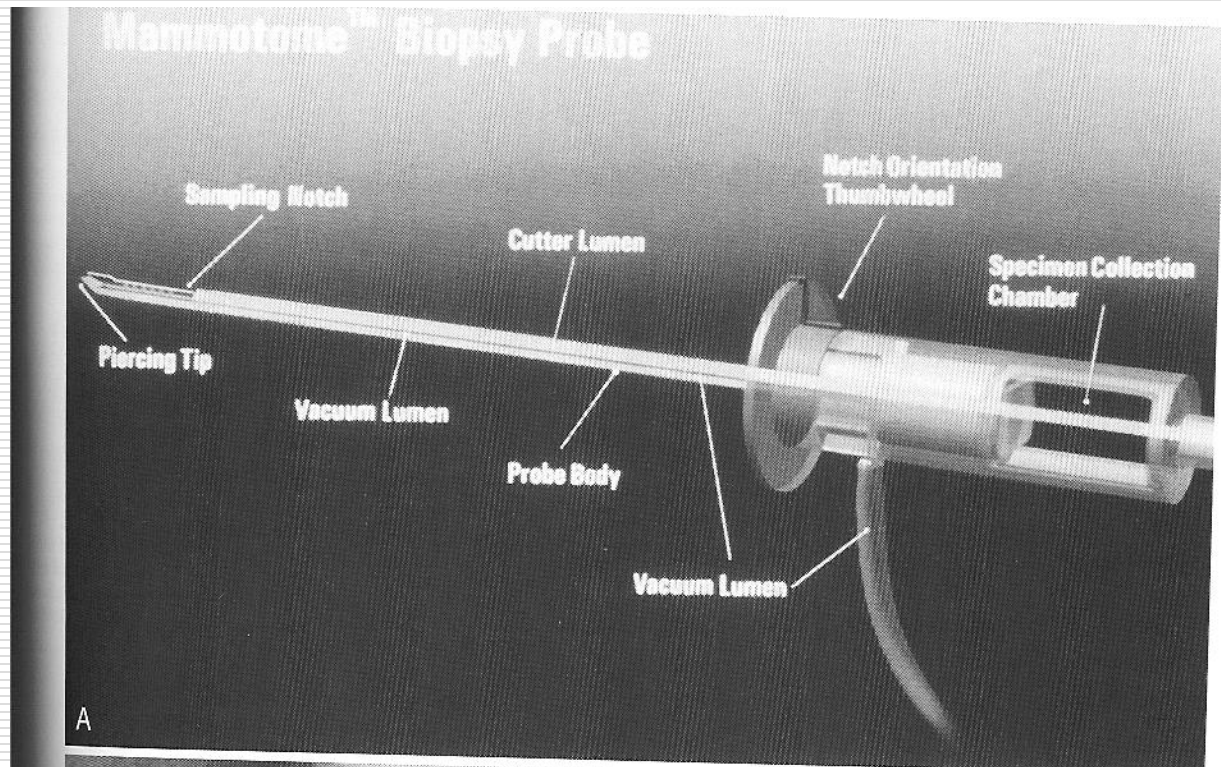
# STEREOTACTIC CORE BIOPSY

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# STEREOTACTIC BIOPSY PROBE

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# STEREOTACTIC CORE BIOPSY

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# SCNB- IMPORTANT PRINCIPLES

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- ❑ Appropriate evaluation of pre and post biopsy images
  - ❑ Correlation of pathology and imaging studies is mandatory ie. recognition of discordance
  - ❑ Importance of SCNB specimen radiograph
  - ❑ Follow up database
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# SCNB PROBLEMS

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- ❑ “Understaging”
  - ❑ Removal of the entire lesion
  - ❑ False negatives
  - ❑ Expanding “indications”
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# SCNB - “UNDERSTAGING”

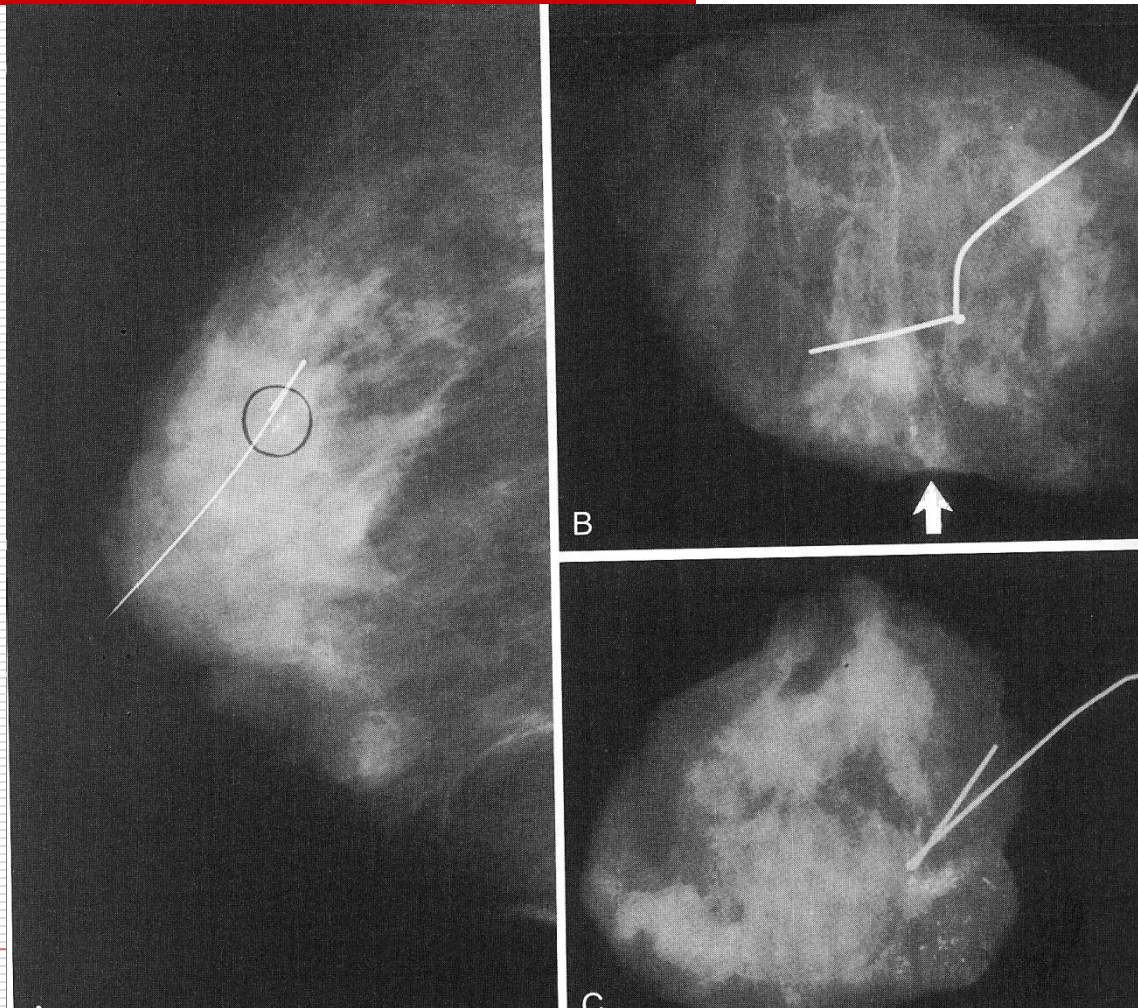
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- ❑ Up to 13% of lesions biopsied → “high risk lesions” eg. ADH, ALH, LCIS, radial scar
  - ❑ 25-58% will be upgraded to malignancy with NLBB
  - ❑ Histologic misinterpretation
  - ❑ Inadequate tissue sampling
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# WIRE LOCALIZED BIOPSY

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# Breast MRI in Oncology

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## □ Applications

- Investigate a suspected occult breast malignancy
  - Screen select populations
  - Evaluate the ipsilateral and contralateral breast in the setting of a documented breast cancer?
  - Diagnose locally recurrent breast cancer?
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# Breast MRI and Axillary Nodal Metastases

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- Nodal disease consistent with a breast primary with a normal CBE, mammogram and U/S
  - R/O distant metastatic disease
  - Surgical treatment options
    - Mastectomy and ALND
    - ALND and breast irradiation
    - BCT and ALND (if primary can be identified)
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# Breast MRI and Axillary Nodal Metastases

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- ❑ A breast primary will be identified in at least half of these patients
  - ❑ Allows for optimal treatment of the breast: mastectomy or BCT
  - ❑ If MRI is negative the majority of these patients will be offered breast irradiation if they do not have mastectomy
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# Breast MRI and Screening

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- ❑ Mammography has an established role in breast screening.
  - ❑ Clinical trials are ongoing to evaluate breast MRI as a screening tool. Reports of 1-4% cancer yield on initial screening MRI in “high risk” populations; up to 4-9% in BRCA mutation carriers.
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# Breast MRI and Screening

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- American Cancer Society Guideline Apr 2007

Screening MRI is recommended for women with ~ 20-25% or greater lifetime risk of breast cancer.

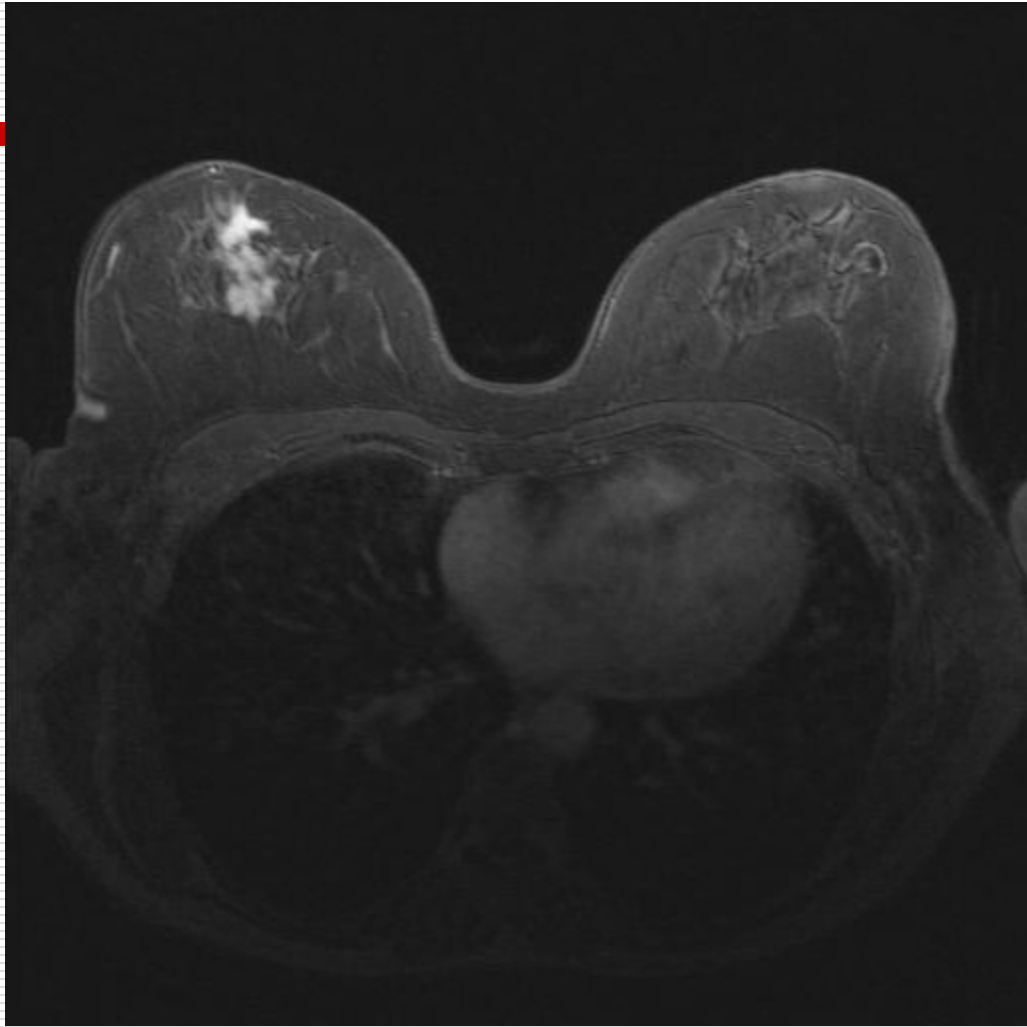
This would include BRCA gene carriers, others with a strong family history of breast or ovarian cancer and women treated for Hodgkins disease with mantle irradiation.

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# Breast MRI and Screening

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- ❑ Several groups have demonstrated that the cancer yield with MRI is superior to both mammography and ultrasound.
  - ❑ Is there a subset of high risk women who benefit? Women with fatty replaced breasts **do not** benefit.
  - ❑ Costs of biopsies, false positive and negative exams
  - ❑ Impact on decision making
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# MRI and Screening

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An expensive, invasive test with high false-positive rates should not be performed in the general population.

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# Breast MRI to Assess the Contralateral Breast

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- ❑ Should we look for contralateral breast cancer?
  - ❑ ~10% of women with breast cancer will develop a contralateral malignancy.
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# MRI and Diagnosis of Locally Recurrent Breast Cancer

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- Evaluation of the conserved/reconstructed breast
  - Cannot distinguish reliably between postoperative inflammation and residual disease at margins
  - ? Role in surveillance of patients after mastectomy/reconstruction with close/positive margins
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# Breast MRI Limitations

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- ❑ MRI-directed biopsy (vs sonographic correlation)
  - ❑ Quality
    - Eg. physiologic cyclical changes in MRI
  - ❑ Availability
  - ❑ Cost and access
  - ❑ Radiologic expertise
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# Breast MRI

## Practical Applications

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- ❑ Screening BRCA carriers and prior mantle irradiation Hodgkins patients
  - ❑ Evaluation of the ipsilateral and contralateral breast in the patient with mammographically occult documented breast cancer prior to BCT
  - ❑ Evaluation of the contralateral breast in the patient with dense breasts choosing mastectomy and reconstruction
  - ❑ Identification of the primary in the patient with axillary metastases following normal CBE, mammography and breast U/S
  - ❑ Further evaluation of a possible breast cancer recurrence in the native or reconstructed breast
  - ❑ Not useful as a general screening tool
  - ❑ Not necessary in the fatty replaced breast
  - ❑ Not necessary in the patient choosing mastectomy
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# Breast Health Centre

## How can you help us

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- ❑ Reassure patients with normal CBE and breast pain
  - ❑ Obtain mammograms in patients >35 years and breast mass or nipple discharge
  - ❑ Aspirate breast lumps
  - ❑ Patients with abnormal mammograms:
    - “probably benign” six month mammogram recommended – Okay do not refer
    - “indeterminate” calcifications reassure most (70%) are benign; if cancer usually in situ – refer
    - “suspicious” calcifications/mass – refer +/- phone
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# Questions?

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