BI-RADS®
Update

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No Disclosures
BI-RADS History

1980s
Quality Issues

ACR Accreditation
BI-RADS
1994

2003
4th Edition
MRI, US

January 2014 5th Edition
In General

• More consistency of terms among 3 lexicons - mammo, US and MRI
• Elimination of descriptors that mean the same
• Can separate assessment from management
Lexicon

MAMMOGRAPHY
Breast Composition

A. Fatty
B. Scattered
C. Heterogeneously Dense
D. Extremely Dense
Breast Composition-A

The breasts are almost entirely fatty

The breast is almost entirely fat
(<25% glandular)
Breast Composition-B

There are scattered areas of fibroglandular density

There are scattered fibroglandular densities (approximately 25-50% glandular)
Breast Composition-C

The breasts are heterogeneously dense, which may obscure small masses.

The breast tissue is heterogeneously dense, which could obscure detection of small masses (approximately 51%-75% glandular).
Breast Composition-D

The breasts are extremely dense, which lowers the sensitivity of mammography (≥75% glandular).
Mass

• Shape

• Margins
Masses-Shape

- Oval
- Round
- Irregular

Lobulated
Masses-Margin (no change)

- Circumscribed
- Obscured
- Microlobulated
- Indistinct
- Spiculated
Masses-Density (no change)

- High Density
- Equal Density
- Low Density
- Fat Containing

Use Asymmetry not Density when describing tissue that is asymmetric but not a mass.
Calcifications

- Morphology
- Distribution
Morphology: Typically Benign

- Skin
- Vascular
- Coarse or “Popcorn-Like”
- Large Rod-Like
- Round <1mm
  - Punctate <0.5mm
- Rim
- Dystrophic
- Milk of Calcium
- Suture
Rim

Eggshell

Lucent centered
Intermediate concern (amorphous coarse heterogeneous)
Morphology: Suspicious

- Amorphous
- Coarse Heterogeneous
- Fine Pleomorphic
- Fine-linear or Fine-linear branching
Suspicious Calcifications

4B
- Amorphous
- Coarse
- Heterogeneous
- Fine Pleomorphic

4C or 5
- Fine-linear or Fine-linear branching
Calcifications: Distribution

- Diffuse
- Regional >2cm
- Grouped ≤2cm
- Linear
- Segmental

Scattered
Clustered
Architectural Distortion
Asymmetries

• Asymmetry
  – Area of fibroglandular tissue on 1 view
  – Usually summation artifact

• Global Asymmetry
  – At least one quadrant asymmetric fibroglandular tissue
  – Usually normal variant
Asymmetries

• **Focal Asymmetry**
  - 2 views, less than one quadrant
  - 0.5-1% risk of malignancy if persists with no explanation after work up
    - BI-RADS 3 on baseline study

• **Developing asymmetry**
  - Focal asymmetry that is new or larger
  - 15% risk of malignancy=BI-RADS 4
Solitary Dilated Duct

- Rare Finding
- Consider additional imaging evaluation and tissue diagnosis unless benign etiology demonstrated
Lexicon

ULTRASOUND
Masses-Shape

- Oval
- Round
- Irregular

Lobulated
Masses-Margin

- Circumscribed
- Angulated
- Microlobulated
- Spiculated
- Indistinct
  - Echogenic transition zone
Masses-Orientation

- Parallel
- Not parallel
- Wider-than-tall
- Taller-than-wide
BIRADS 3

- Solid, oval, circumscribed, parallel
- Complicated cyst
- Clustered microcysts
Tissue Composition-Screening

• Homogeneous background echotexture
  - Fat

• Homogeneous background echotexture
  - Fibroglandular tissue

• Heterogeneous background echotexture
Elasticity

- Soft
- Intermediate
- Hard
Lexicon

MRI
Amount of Fibroglanular Tissue

A. Almost entirely Fat
B. Scattered areas of Fibroglanular Tissue
C. Heterogeneous Fibroglanular Tissue
D. Extreme Fibroglanular Tissue

“Density” is a radiographic term (Mammography)
Background Parenchymal Enhancement

- Minimal
- Mild
- Moderate
- Marked
Finding-Focus, Mass, NME
Findings

Current Lexicon
• Focus <5mm
• Mass any size
• Non-Mass Enhancement (NME)

Retired
• Foci (as lesions )
• Non-Mass Like Enhancement
Mass
(Nearly same as Mamm/US)

• Shape
  -round, oval, irregular

• Margins
  – Circumscribed
  – Non-Circumscribed
  • Spiculated
  • Irregular
  (no indistinct)
NME

- Focal area
- Linear
- Segmental
- Regional
- Diffuse

Ductal
Internal Enhancement Patterns

- Homogeneous
- Heterogeneous
- Clumped (think pleomorphic)
- Clustered Ring
- Tippled, reticular/dendritic
- Central enhancement
- Enhancing septations
Kinetic Curve Assessment

- Fast >100%
- Medium 50-100%
- Slow <50%
- Persistent >10%
- Plateau
- Washout ≤10%
Category 0-Avoid!

- Need prior study
- Rare instance that mammo/US may confirm benign lymph node or fat necrosis
Category 3?

• New unique focus with benign morphology and kinetics
• Mass on initial exam with benign morphology and kinetics
• Not BPE, NME
Category 6
Reporting Guidance
Wording the Report

• Comparison to previous examination may be irrelevant.
• Management recommendations have been separated from assessment categories to provide better flexibility.
Location
Assessment Categories

1. Negative
2. Benign
3. Probably Benign
4. Suspicious
5. Highly Suggestive of Malignancy
BI-RADS 3 Management

* Unless resolves or becomes clearly benign
Concordant Management Recommendations

1. Age appropriate screening

2. Six or Twelve month Follow-up

3. "Biopsy should be performed in the absence of clinical contraindication"

4. "Recommend surgical excision when clinically appropriate"
Discordant Imaging and Management Recommendations: Examples

- Suspicious nipple discharge, mammogram and US negative.
- Known positive margins, MRI negative.
- Post BCT imaging benign, on 6 month mammography.
Questions?
Thank You