Review Article

Writing a Mammography Report

A mammography report is a key component of the breast cancer diagnostic process. Although mammographic findings were not clearly differentiated between benign and malignant lesion, the radiologist must assess the findings for chance of malignancy and guide the clinician for appropriate management. The report must be clear, concise and standardized for clinicians to understand.

For screening studies, the following questions need to be answered:

• Is the examination normal?
• Is there an area of concern requiring further evaluation?

Diagnostic Studies:

• If based on screening study, is anything confirmed? Are these findings consistent with breast cancer? What is the next step? Following complete work up, assessment categories 1 to 5 are used.¹
• The impression should consist of conclusion and specific recommendations rather than mammographic findings.
• Guidelines for writing such reports, based on the Breast Imaging Reporting and Data System (BI-RADS), developed by the American College of Radiology should be used. This will standardize mammography reporting so that the report is clear, understandable and decisive.²
• BI-RADS consists of a lexicon of terminology with definitions to provide standardized language, as described below.

Breast Imaging Reporting and Data System³

Assessment is incomplete

BI-RADS 0: Needs additional imaging evaluation and/or comparison to prior mammograms is needed.

• This means a possible abnormality may not be clearly seen or defined and more tests are needed, such as the use of spot compression (applying compression to a smaller area), magnified views, special mammogram views, or ultrasound. This also suggests that the mammogram should be compared with older ones to see if there have been changes in the area over time.
Assessment is complete

**BI-RADS 1: Negative**
- In this case, there is no significant abnormality to report. The breasts look the same with no masses, distorted structure, or calcifications. In this case, negative means nothing bad was found.

**BI-RADS 2: Benign finding**
- This describes a finding known to be benign, such as benign calcifications, intra-mammary lymph nodes, calcified fibroadenoma, fat containing lesion, implants, architectural distortion clearly related to prior surgery. This finding is recorded in the mammogram report to help compare with future mammograms.

**BI-RADS 3: Probably benign findings-Short interval follow up**
- The findings in this category have a good chance (greater than 98%) of being benign. The findings are not expected to change over time. Follow up with repeat imaging is usually done in 6 months and regularly thereafter until the finding is known to be stable (usually at least 2 years). This approach helps avoid unnecessary biopsy but allows for early diagnosis of a cancer should the suspicious area change over time.

**BI-RADS 4: Suspicious abnormality-Biopsy should be considered.**
- Findings do not definitely look like cancer but could be cancer. The radiologist is concerned enough to recommend a biopsy. The findings in this category can have a wide range of suspicion levels. For this reason, some radiologists may divide this category further:
  - 4A: finding with a low suspicious of being cancer, such as a palpable, partially circumscribed solid mass with ultrasound suspected fibro adenoma, a palpable complicated cyst and probable abscess
  - 4B: intermediate suspicion of malignancy
  - 4C: moderate suspicion, but no classic for malignancy

**BI-RADS 5: Highly suggestive of malignancy- Appropriate action should be taken.**
- The findings look like cancer and have a high chance more than 95% of being cancer. Biopsy is very strongly recommended, i.e.,
- A spiculated with irregular high-density mass
- A segmental or linear arrangement of fine linear calcification
- An irregular spiculated mass with pleomorphic microcalcification

**BI-RADS 6: Known biopsy proven malignancy but prior to definite therapies such as surgical excision, radiotherapy, chemotherapy.**
- A full diagnostic work up should be completed, which would include additional views, ultrasonography, and comparison with previous studies, before categorizing into category 1 to 5.

**The Sections of a Mammogram Report**
The format for mammography report should consist of:
1. Pertinent Information: Usually appears at the top of the report and typically includes the patient’s name, age and the reason for the mammogram (i.e., annual screening mammogram, referred by physician to evaluate new breast lump)
2. Clinical history: The patient’s medical and family history of breast cancer or other breast conditions. It may also include relevant medications the patient is taking, such as hormone replacement therapy.
3. Procedure: May explain what types of mammogram views were taken. Typical views for screening mammogram included the cranio-caudal view (CC) and the medio lateral oblique view (MLO). Typical views for diagnostic mammograms included CC, MLO and supplemental views tailored to the specific problem i.e., magnification views, spot compression and others.
4. Notation about comparison with previous studies.
5. A description of overall breast composition provided information about the accuracy of mammography for the breast being evaluated.
6. Significant findings and modifiers are described according to standardized terminology that has relevance in terms of potential for malignancy.

Findings that are of significance in patient management should be reported. Overall density is significant in that small cancers can be missed. The terms fibrocystic disease, fibrocystic changes, fibrocystic tissues, dysplasia, and hyperplasia are inappropriate and should be eliminated from image interpretation. Histopathologic terms should be reserved for the pathologist.

The Bangkok Medical Journal Vol. 2 : September 2011 | 83
Terminology section for described mammographic findings:

**Breast Composition**

- Almost entirely fat (less than 25% glandular)
- Scatter fibrograndular densities (25% to 50% glandular)
- Heterogeneous dense (51% to 75% glandular)
- Extremely dense (>75% glandular)

**Mass**

- Shaped
  - Round
  - Oval
  - Lobular
  - Irregular
  - Margin
  - Circumscribed
  - Microlobulated
  - Obscured
  - Indistinct
  - Spiculated

**Density**

- Fat containing radiolucent: i.e., oil cyst, lipoma or galactocele
- Mixed lesion: i.e., Hamartoma or fibroadenolipoma

**Calcifications**

- Benign Calcification
  - Skin calcification
  - Vascular calcification
  - Coarse calcification
  - Large rod-like
  - Round: punctate < 0.5 mm
  - Lucent centered
  - Eggshell (< 1 mm in thickness): Fat necrosis, calcified cyst
  - Milk of calcium
  - Suture
  - Dystrophic
7. The report concludes with an overall assessment into a classification of the mammogram using the BI-RADS system developed by the American College Radiology (ACR).

8. Recommendation: Radiologists should give specific instructions on what actions should be taken next. For example, no action necessary, a six month follow-up mammogram, spot views, breast ultrasound, biopsy, etc.

9. Disclaimer: Radiologists should use disclaimer to communicate with clinician about the limitation of mammography and the meaning of a normal report.

For example
• Not all breast abnormalities show up on mammography. The false negative rate of mammography is approximately 10-15%.
• The management of a palpable abnormality must be based on clinical grounds.
• If you detect a lump or any other change in your breast before your next screening mammogram, consult your doctor immediately.
Example: Mammogram Report at the Bangkok Hospital

<table>
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<tr>
<th>Mammogram and Ultrasound Breasts Report</th>
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<tr>
<td><strong>Date:</strong></td>
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**Patient Order:** Mammogram and Ultrasound Breasts

**MAMMOGRAM AND ULTRASOUND BREASTS**

- **Clinical:** Screening

**Mammography:**
- **Technique:** CC and MLO views
- **Breast tissue:** Heterogeneously dense breast tissue, may lower the sensitivity of mammography
- **Mass:** Not detectable
- **Calcifications:** Not detectable
- **Architectural distortion:** Not detectable
- **Focal/breast asymmetry:** Not detectable
- **Skin thickening:** Not detectable
- **Others:**

**ULTRASOUND:**
- **Cystic mass:** Not detectable
- **Solid mass:** Not detectable
- **Abnormal vessels:** Not detectable
- **Other:**

**IMPRESSION:** No mammographic evidence of malignancy

**BI-RADS 1 (Negative)**

**SUGGESTION:** Self breast exam monthly and follow up study yearly

**Note:** The false negative rate of mammography is approximately 10%

Dense breast may obscure underlying neoplasm

Management of a palpable abnormality must be based on clinical assessment.

**BI-RADS 0:** Need additional image

**BI-RADS 2:** Benign Finding

**BI-RADS 3:** Probably Benign

**BI-RADS 4:** Suspicious Abnormality (4A: low, 4B intermediate, 4C moderate suspicious)

**BI-RADS 5:** Highly suggestive of malignancy

**BI-RADS 6:** Known malignancy
Conclusion

The use of mammographic screening to detect cancer at a preclinical stage is increasing rapidly. High quality imaging and accurate interpretation are critical elements for successful mortality reduction. The communication of the interpretation is being scrutinized in an effort to eliminate ambiguity and confusion. This can be accomplished by an organized approach to interpretation and a structure analysis of significant findings. These can grouped into BI-RADS by ACR to suggest a probability of malignancy.8

References