

Clinical Practice Guidelines – Breast Disease Site

Guideline Title:	Breast Magnetic Resonance Imaging (MRI) and High Risk Hereditary Breast Cancer	Date: (O):	June 30, 2011
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Tumor Group:	Breast Disease Site Group	Page:	1 of 4
Issuing Authority:	Dr. Rick Bhatia Clinical Chief, Diagnostic Imaging	Date Signed:	November 26, 2012
Adapted From:	Alberta Health Services “risk reduction and surveillance strategies for individuals at high genetic risk for breast and ovarian cancer”, April 2011 (13).		

Introduction:

The Eastern Health Breast Disease Site Group’s definition of “**high risk**” would be those patients who have any of the following:

1. a known mutation in BRCA1, BRCA2, CDH1 (Hereditary Diffuse Gastric Cancer), or other genes predisposing to a markedly elevated breast cancer risk;
2. an untested first- or second-degree relative of a carrier of such a genetic mutation;
3. a family history consistent with a hereditary breast cancer syndrome, mutation unknown. Individuals eligible for MRI in such families would be *first-* (parent, child, sibling) and *second-degree* (grandparent, aunt, uncle, niece, nephew, or half-sibling) relatives of individuals with breast and ovarian cancer, where there are:
 - a) Four or more relatives with breast* or ovarian** cancer at any age *on the same side* of the family, who are all first- or second-degree relatives of one another **or** in a pattern suggestive of a hereditary cancer predisposition;
 - b) Three first- or second-degree relatives with breast* or ovarian** cancer, *on the same side* of the family, with **one or more** of the following:
 - One person affected < 50 years of age,
 - Breast and ovarian cancer in the same individual, bilateral or multifocal breast cancer in one individual,
 - Male breast cancer.

* includes ductal carcinoma in-situ (DCIS), but not lobular carcinoma in-situ (LCIS).

** refers to invasive non-mucinous epithelial ovarian cancer, includes cancer of the fallopian tubes or primary peritoneal cancer; excludes borderline ovarian tumors.

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To begin to identify these individuals, the physician would need to complete a thorough clinical history, family history, as well as a consult to medical genetics.

The Eastern Health Breast Disease Site Group recommends screening for all patients at risk of developing hereditary breast cancer in the form of:

- a monthly self-breast exam,
- clinical breast exam once or twice a year,
- an annual mammography from the age of 25-30 years,
- and an annual MRI from the age of 25-30 years to age 65-74 years (MRI should be performed 6 months following the initial mammography, and continued to alternate both investigations every 6 months).

MRI is a noninvasive imaging technique that does not involve exposure to radiation. The primary goal of providing breast MRI to high risk women would be to reduce subsequent breast cancer mortality through early detection. Adversely, due to its highly variable specificity, MRI carries the potential risk of false-positive and false-negative findings. False-positives result in anxiety, further testing and possible biopsy for the patient, while false-negatives will miss a true cancer at a potentially curable stage.

Question:

What is the recommended screening protocol for breast MRI in “**high risk**” patients?

Target Population:

These recommendations apply to all patients who are deemed to be at high risk, as per the definition of Eastern Health, for the development of hereditary breast cancer.

Supporting Evidence:

Magnetic Resonance Imaging (MRI) has been shown to be superior in sensitivity to mammography, but significantly lower in specificity, resulting in a higher false-positive rate. Therefore, the recommendation would be for its use in screening only those patients at high risk for hereditary breast cancer (1-5).

If a patient does fit the criteria for high risk, annual screening breast MRI will be requested by the referring physician, and reported by a radiologist with specific training in breast MRI. For optimal screening, the high risk patient should have an initial mammography, followed in 6 months by the performance of a breast MRI. Continue to alternate mammography and breast MRI every 6 months.

Breast MRI should be scheduled during the second week of the menstrual cycle (days 5 to 13) in premenopausal women. Occasionally, areas of normal hormonally sensitive breast tissue may enhance intensely on MRI which may cause a false positive reading. Therefore, examination is best performed in mid-menstrual cycle (6).

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Recommendations:

All patients who meet the criteria for being at high risk of developing hereditary breast cancer should undergo annual screening breast MRI, if requested by a referring physician. Optimally, the high risk patient should have an initial mammography, followed in 6 months by the performance of a breast MRI. Continue to alternate mammography and breast MRI every 6 months.

Search Strategy:

Literature searches for this guideline were conducted in Pubmed and the Cochrane Library, using keywords “magnetic resonance imaging” and “breast” and “neoplasms” and “screening” and “high risk” and also “guidelines”. Guideline searches were also carried out on the websites of the world’s most highly respected cancer organizations and agencies. All selected literature articles and source guidelines were in English and dated after the year 2000, (unless the selection was an earlier landmark study) up to March 2011. The inclusion/exclusion process consisted of selecting guidelines from reputable international cancer organizations, with preference given to those from Canadian sources where possible. Seven source guidelines were identified and conformed to our search criteria, from which six were selected due to currency of content and/or were Canadian in origin (7-13).

The six identified source guidelines (8-13) were put through the ADAPTE process (14)(including an AGREE II assessment)(15), and the Alberta Health Services (AHS) “risk reduction and surveillance strategies for individuals at high genetic risk for breast and ovarian cancer” guideline was chosen to be adapted for use in our guideline (13). The AHS guideline was selected as the optimal choice due to its applicability, quality and currency of content.

There has been much debate but no consensus on the ‘grading of evidence’ in Canada. Presently, Canadian experts in the field of guideline development are involved in an ongoing in-depth analysis of the functionality of grading. Until such time as a report is released of their findings, and a consensus reached on whether to assign a grade of recommendation to a guideline, this group has decided to forgo the use of grading.

No competing or conflicts of interest were declared.

Disclaimer:

These guidelines are a statement of consensus of the Breast Disease Site Group regarding their views of currently accepted approaches to diagnosis and treatment. Any clinician seeking to apply or consult the guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

Contact Information:

For more information on this guideline, please contact Dr. Nancy Wadden MD FRCPC, St. Clare’s Mercy Hospital, St. John’s, NL; Telephone 709-777-5657. For access to any of our guidelines, please visit our Cancer Care Program website at www.easternhealth.ca

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