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# **FOLLOW UP OF ABNORMAL CLINICAL AND IMAGING FINDINGS OF THE BREAST: FIVE SELF-STUDY MODULES FOR PRIMARY CARE CLINICIANS**

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# **Breast Cancer Module II: Health History and Clinical Breast Examination**

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## **Module II Objectives**

Assessing clinical history and performing a thorough clinical breast examination (CBE) are essential to managing risk and preventing a delayed diagnosis of breast cancer. At the completion of this module, the clinician will be able to:

- Conduct a thorough breast health history;
- Determine the relative and absolute indicators that place a woman at higher than average risk;
- Identify the core competencies of a thorough CBE;
- Distinguish suspicious findings that require further diagnostic workup.

# Breast Health History

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As you know, conducting a medical history is an essential component of any exam. It represents the foundation for most recommendations for further evaluation. This module provides a basic review of the breast health history and is intended as a refresher for primary care clinicians, who complete medical histories as a routine but who may not include relevant questioning related to breast health.

A comprehensive breast health history should be conducted for asymptomatic and symptomatic women. It begins with a thorough risk and symptom assessment and continues throughout the clinical exam. It occurs through verbal and nonverbal interaction between the patient and clinician and includes the need to review the history and education materials with the patient.

## The History Should Include <sup>[1]</sup>:

- Identification and documentation of screening practices for breast health, when they were performed, and results. These procedures include breast self-examination (BSE), prior CBE, prior screening and diagnostic mammograms, and other breast imaging procedures such as ultrasound and magnetic resonance imaging.
- Inquiry about any breast changes and how they were identified. This includes changes in appearance of skin or nipples, presence of suspicious lumps, pain (focal vs general and constant vs cyclic), itching, or staining of garments or bed sheets that would indicate history of spontaneous nipple discharge. It includes a detailed description of the symptoms, their duration, and fluctuations associated with menstrual cycles.
- Assessment of breast cancer risk, which continues to present a challenge for primary care clinicians and their patients. The goal is to assess which women might be at high enough risk to merit further comprehensive risk assessment and screening plans appropriate to that level of risk. Furthermore, some higher-risk women might benefit from modification of behaviors or placement in risk-prevention trials to reduce their individual risk for breast cancer. Defining Breast

# Defining Breast Cancer Risk

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When applied to the study of health outcomes, risk is the probability or likelihood of an event happening based on individual characteristics (e.g., race, age) or exposures (e.g., excessive radiation exposure during childhood). As with other cancers, the risk of developing breast cancer may be expressed in several different ways, with the most common being lifetime risk, relative risk (RR), and absolute risk.

## Lifetime Risk

Over her lifetime (from birth to death), a woman has about a 1 in 8 chance of being diagnosed with breast cancer, and a 1 in 34 chance of dying from it.<sup>[2]</sup>

## Relative Risk

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Simply stated, RR is a ratio. It compares the percent change in risk of some health-related event in a population that has been exposed to an agent or risk factor to another group that has not.<sup>[3]</sup>

A relative risk of 1.0 indicates no difference in risk between groups, whereas a value greater than 1.0 suggests an increased risk for the group exposed to the agent or risk factor.<sup>[3]</sup> The higher the ratio, the higher the risk.

Because RR estimates are derived from studying groups of people, they are good for making statistical inferences but can be meaningless when applied to individuals. For example, the Women's Health Initiative (WHI) study was stopped early, due in part to evidence of a statistically significant 26% increase in breast cancer incidence among postmenopausal women taking estrogen and progestin. The incidence rate of breast cancer for women on hormone therapy was 38 per 10,000 compared with 30 per 10,000 in the placebo group. This difference of 8 cases per 10,000 women translated into a 20% RR increase. Each woman taking hormone therapy, however, had only a 0.08% increase risk of breast cancer, on average in any given year, compared with those taking placebo.<sup>[4]</sup> (See "Absolute Risk" section, below.) Clearly, these risk estimates differ drastically and underscore the importance of understanding that RR estimates may be applicable only to a single population or group of people.

## Absolute Risk

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Absolute risk refers to the number or proportion of individuals in a population who will (or will not) develop cancer during a specified period of time when exposed to a particular agent.<sup>[3]</sup> The 0.08% estimate given above represents the absolute risk of developing breast cancer per year of the study for women who took estrogen plus progestin. Thus, women on hormone therapy had only a slightly increased absolute risk of developing breast cancer over 1 year compared with those who did not take hormones.

## Risk Factors That May Influence Screening Practices

What risk factors are important to assess?

### Gender

Breast cancer is about 100 times more common in women than in men, making gender the largest single risk factor for this disease.<sup>[3]</sup>

### Age

After gender, age is the most dominant risk factor for breast cancer, with the incidence rate increasing significantly as age increases.<sup>[3]</sup>

According to ACS 2005-2006 Breast Cancer Facts and Figures, breast cancer incidence and death rates generally increase with age. During 1998-2002, 95% of new cases and 97% of breast cancer deaths occurred in women aged 40 and older.<sup>[3]</sup>

During 1998-2002, the median age at the time of breast cancer diagnosis was 61 years. This means that 50% of women who developed breast cancer were age 61 or younger and 50% were older than age 61 when diagnosed.<sup>[3]</sup> The link between age and breast cancer may be due to an accumulation of events over time, or perhaps to a single event that occurs with greater frequency in older age.<sup>[5,6]</sup>

**TABLE II-A: Age-Specific Probabilities of Developing Breast Cancer\***

If current age is...	Probability of breast cancer developing in next 10 years is:	Or 1 in...
20	0.05% or < 1%	1985
30	0.44% or < 0.5%	2229
40	1.46% or < 1.5%	68
50	2.73% or < 2.8%	37
60	3.82% or < 3.9%	26
70	4.14% or < 4.2%	24
Lifetime risk	13.22% or < 0.14%	7-8

\*Among those free of cancer at beginning of age interval. Based on cases diagnosed from 2000-2002. Percentages and "1 in" numbers may not be numerically equivalent due to rounding. \*\*Probability derived from NCI DEVCAN software, Version 6.0. American Cancer Society, Surveillance Research, 2005

[http://www.cancer.org/docroot/STT/stt\\_0.asp](http://www.cancer.org/docroot/STT/stt_0.asp)

## Benign Breast Health History

Women with a history of benign breast condition(s) are at increased risk for developing breast cancer; however, this risk is not uniform and depends on the histopathology of the benign lesion, the patient's age, and whether there is a family history of breast cancer. In general, women with proliferative disease and evidence of cellular atypia or carcinoma in situ are at the highest risk of subsequently developing breast cancer. The younger the age at which a woman undergoes biopsy for benign breast disease, the greater her risk of later developing breast cancer (a 2-fold increase in RR for women younger than 50 years).<sup>[7]</sup> Moreover, a positive family history of breast cancer has an additive effect with proliferative changes or atypia, thereby further increasing one's risk of breast cancer.<sup>[6,8]</sup> Shown in Table II-B are the relative risks of developing breast cancer for different benign breast changes, as reported by the Cancer Committee of the College of American Pathologists.<sup>[9,10]</sup>

**TABLE II-B: Risk of Invasive Cancer with Benign Conditions**

<b>No Increased Risk (RR = 1.0)</b>	<b>Slightly Increased Risk (RR = 1.5-2.0)</b>	<b>Moderately Increased Risk (RR = 4.0-5.0)</b>	<b>Markedly Increased Risk (RR = 8.0-10.0)</b>
<ul style="list-style-type: none"> <li>• Adenosis other than sclerosing adenosis</li> <li>• Duct ectasia</li> <li>• Fibroadenoma without complex features</li> <li>• Fibrosis</li> <li>• Mild hyperplasia without atypia</li> <li>• Ordinary simple cysts</li> <li>• Simple apocrine metaplasia (no associated hyperplasia or adenosis)</li> <li>• Squamous metaplasia</li> </ul>	<ul style="list-style-type: none"> <li>• Atypical lobular hyperplasia</li> <li>• Fibroadenoma with complex features</li> <li>• Moderate or florid hyperplasia without sclerosing adenosis</li> <li>• Solitary papillomas without coexistent atypical hyperplasia</li> </ul>	<ul style="list-style-type: none"> <li>• Atypical ductal hyperplasia</li> <li>• Papillomatosis</li> </ul>	<ul style="list-style-type: none"> <li>• Lobular carcinoma in situ</li> </ul>

Adapted from California Department of Health Services Clinical Breast Examination, Proficiency and Risk Management.

# Malignant Breast Health History

With a history of breast cancer in 1 breast, the absolute risk of developing another primary breast cancer is 0.7% per year for the first 10 years. The 20-year cumulative risk is 4% to 21%.<sup>[3]</sup>

## Family History

Women with a positive family history of breast cancer are at an increased risk for the disease themselves. While estimates vary slightly, having 1 (maternal or paternal) first-degree (e.g., parents, siblings, child) or second-degree (e.g., grandparents, aunts/uncles, nieces/nephews) relative with breast cancer is thought to approximately double one's risk, while having 2 or more affected first- or second-degree relatives leads to a 3- to 5-fold increase in risk.<sup>[6,10]</sup>

The increase in risk is even greater in families with premenopausal onset, bilateral disease, ovarian cancer, or where multiple generations are affected. In some instances, an inherited mutation underlies a familial pattern of breast cancer. It is estimated that between 5% and 10% of breast cancer results from inherited mutations in breast cancer susceptibility genes. These genes include BRCA1 and BRCA2 in addition to less commonly involved genes such as PTEN, ATM, TP53, STK11, CDH1, and CHK2. The inheritance pattern is autosomal dominant for these conditions; therefore, the paternal and maternal family histories of cancer are equally important.<sup>[11-16]</sup>

For BRCA1 and BRCA2 mutation carriers, estimates of the cumulative risk of developing breast cancer vary widely. Reported estimates range from 35% to 85% for BRCA1 carriers and from 20% to 85% for BRCA2 carriers.<sup>[17-21]</sup>

The BRCA genes are most prevalent in Ashkenazi Jewish people, but have been found in multiple communities internationally, so it is important not to assume lack of a genetic component in women of other racial and ethnic heritages. Characteristics of families at high risk for carrying a BRCA1 or BRCA2 mutation include<sup>[10, 13]</sup>:

- Presence of breast and/ or ovarian cancer in the family, particularly in the same individual;
- At least 2 family members diagnosed with premenopausal breast cancer;
- Presence of male breast cancer;
- One or more family members diagnosed with breast cancer at any age and Ashkenazi Jewish ancestry;
- Presence of bilateral disease or more than 1 ipsilateral breast cancer; and
- Presence of ovarian cancer at any age and Ashkenazi Jewish ancestry.

Genetic testing should be completed only in the context of comprehensive genetic counseling. The United States Preventive Services Task Force (USPSTF) has recommended that clinicians offer genetic testing to several groups of women, outlined in Table 1.

### **Table 1. Recommendations from the USPSTF Regarding Who Should Be Tested for Breast Cancer Genetic Mutations**

- Those with a family history of breast or ovarian cancer that includes a relative with a known deleterious BRCA mutation
- For non-Ashkenazi Jewish Women:
  - Two first-degree relatives with breast cancer, one of whom was diagnosed before 50 years of age
  - A combination of 3 or more first- or second-degree relatives with breast cancer regardless of age at diagnosis
  - A combination of both breast and ovarian cancer among first- and second-degree relatives
  - A first-degree relative with bilateral breast cancer
  - A combination of 2 or more first- or second-degree relatives with ovarian cancer, regardless of age at diagnosis
  - A first- or second-degree relative with both breast and ovarian cancer at any age
  - History of breast cancer in a male relative
- For Ashkenazi Jewish Women:
  - Any first-degree relative (or 2 second-degree relatives on the same side of the family) with breast or ovarian cancer

Adapted from: Genetic risk assessment and BRCA mutation testing for breast and ovarian cancer susceptibility: recommendation statement. *Ann Intern Med.* 2005; 143:355.

Predisposition testing for breast cancer gene mutations is now supported by evidence-based medicine. Gene tests can confirm the presence or a germline mutation, thus revealing a high probability (but not a certainty) of cancer. Genetic testing mandates pretest and posttest genetic counseling to provide ample opportunity to consider a range of issues, including medical management options, implications for relatives, and genetic privacy. Genetic testing should not be performed without adequate genetic and psychological counseling support, which is best provided by a genetic counselor or other experienced genetic professional.

Negative gene tests must be interpreted with caution. If a mutation has already been demonstrated in the family, then a negative result generally excludes inheritance of familial

cancer risk; such individuals have a cancer risk that is similar to that of the general population. However, a negative genetic test in the context of a family without a known genetic cause (i.e., no positive result yet demonstrated) may represent a false-negative result. In general, such patients should be managed on the basis of existing family history. Gene test results that reveal variants of uncertain significance, primarily missense mutations, should not be regarded as positive results. Management should be guided by existing family history.

A family history of associated cancers may suggest a cancer predisposition syndrome other than BRCA1 and BRCA2. Associated cancers of other syndromes include: thyroid, pancreatic, melanoma, gastric, ovarian sex cord tumors, colorectal, prostate (especially before age 55-60), endometrial, adrenocortical, childhood sarcoma, leukemia/lymphoma, brain tumor, and others. Referral for genetic risk assessment is merited to identify other breast cancer hereditary syndromes.

## **Hormonal Factors**

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The use of hormone therapy is associated with an increased RR of breast cancer. The WHI reported a 24% increase in invasive breast cancer. However, the WHI was stopped early (after a mean of 5.2 years) because the data monitoring and safety board determined that health risks for women taking combined estrogen and progestin therapy exceeded the benefits. Coronary heart disease, stroke, and venous thromboembolic disease were all increased in women taking combined estrogen and progestin therapy. Colorectal cancer, hip fracture, and other fractures were reduced.

The estrogen-only arm of the study (for women with a prior hysterectomy) was continued another 1 1/2 years until, similarly, the risk for stroke was found to be increased. After the 7 years of follow-up, heart disease risk was not affected. Invasive breast cancer risk was decreased for these women, although not statistically significant. These findings were unanticipated and contrary to most observational studies, which report a modest increase in breast cancer risk with estrogen alone and greater risk for estrogen and progestin use.

The Nurses' Health Study found users of unopposed estrogen therapy to be at an increased risk of breast cancer, but only after longer-term use. Among current estrogen users, there was a linear increase in breast cancer risk with increasing duration of use; however, the relative risk was not statistically significant until current use exceeded 20 years. For women who currently used estrogen only for less than 10 years, there was not an increased risk of breast cancer. The dosage of estrogen used as well as the type of estrogen used (conjugated equine estrogen vs estradiol) and their impact on the risk of breast cancer need further study.

Hormone use is more frequently reported to be associated with ER+ (estrogen receptor positive) and PR+ (progesterone receptor positive) breast cancers. These cancers, when diagnosed early, are associated with less morbidity and lower mortality than ER-negative and PR-negative breast cancers. <sup>[22-29]</sup>

## Radiation Exposure

Radiotherapy to the chest, mantle, or abdomen in childhood, adolescence, or young adulthood for the treatment of cancer (e.g., Hodgkin's disease, non-Hodgkin's lymphoma, soft tissue sarcoma, neuroblastoma, or Wilm's tumor) is associated with a significantly increased risk of breast cancer. <sup>[30-35]</sup> Women treated with mantle irradiation for childhood Hodgkin's diseases appear to face the largest increase in risk, with an incidence of breast cancer of 14% by age 40 years. While the onset of breast cancer has been reported as early as 8 years after radiation exposure, the median interval from radiation is between 13 and 16 years. <sup>[30,31]</sup> In addition, postmenopausal women receiving therapeutic radiation for skin problems may be at increased risk for breast cancer, as well as individuals exposed to very frequent x-rays used to monitor scoliosis or tuberculosis. <sup>[32, 36, 37]</sup>

## Other Risk Factors

### Reproductive History

Reproductive events that affect a woman's exposure to endogenous hormones have been linked to breast cancer risk. Overall, risk increases across a range of years of exposure and, therefore, women who did not have a full-term birth prior to age 30 are at highest risk overall.

- Bulleted list should read:
- Early age at menarche;
- Late age at menopause;
- Late age at first childbirth; and
- Nulliparity.

## Lifestyle Factors

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Understanding lifestyle risk factors and prevention strategies allows clinicians to counsel women appropriately. While the studies continue to evolve regularly, there is adequate evidence for promoting dialogue, enhancing a partnership in the plan of action, and moving women along a continuum of behavior change as necessary.

### **Factors associated with increased risk are listed below.** <sup>[45]</sup>

- Alcohol consumption has consistently been associated with increased breast cancer risk, perhaps due to the increased estrogen and androgen levels associated with alcohol use. The exact levels remain controversial.
- Body mass index (BMI) greater than or equal to 25; adult weight gain.
- Combined HT (estrogen and progesterone) presents greater risk than estrogen alone, but the risk decreases 5 years after discontinuing therapy.

### **Factors associated with decreased risk include** <sup>[45]</sup>:

- Breastfeeding
- Exercise

## Putting Breast Cancer Risk in Context

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Many women are uninformed or misinformed about their risk. They may make preliminary decisions about risk based on emotions, reports in the media, or discussions with friends and family members.

Many studies have shown that women, particularly those with a family history of breast cancer, overestimate their risk of being diagnosed with or dying from breast cancer.[47-51] Other studies suggest a tendency to underestimate risk, regardless of risk factors. <sup>[48, 52-54]</sup>

Inaccurate risk perceptions are troubling because they may divert attention from other health issues, expose women to unnecessary stress and anxiety, and lead to the inappropriate use of screening or diagnostic modalities.

Developed in 1990 and modified over time, the Gail model is a tool that can be useful in making referrals to risk assessment counseling or referral to a clinical trial; primary care clinicians must exercise caution in using it as a workup for a breast problem, as it is only for asymptomatic patients. The Gail model is applicable to women who are undergoing regular mammographic surveillance who have no prior history of invasive or noninvasive breast cancer. Of importance, the Gail model is not a comprehensive genetic risk model and does not substitute for eliciting a detailed family history. In particular, the Gail model does not assess any details concerning the paternal family history, age of breast cancer onset in relatives, presence of ovarian cancer or male breast cancer, or Jewish ancestry. Utilization of genetic risk models or referral for genetic risk assessment is merited rather than reliance on the Gail model. <sup>[55]</sup>

## Gail Model Risk Calculation

- Instead of continuing with age and others, calculate risk using the National Cancer Institute (NCI) Risk Assessment Tool, if possible: <http://bcra.nci.nih.gov/brc/>.
- A 5-year risk of 1.7% or greater may be considered "increased risk."
- After ruling out the presence of select personal and family history risk factors, Age and Other Risk Factors will capture most women at increased risk, but may overestimate risk for some women.

## Age and Breast Cancer Risk

A woman aged 65 with average risk factors has a 2% risk of developing breast cancer within the next 5 years (Gail Model); this risk will increase with age; a woman's personal risk should be evaluated on an individual basis.

Women with a 5-year risk of 1.7% meet FDA criteria for receipt of approved chemoprevention (e.g., Tamoxifen); however, the potential benefits of treatment must be weighed against the associated risk of serious side effects for the individual woman.

**Which of the following is least important when assessing for risk factors for breast cancer?**

Age

Personal and family history of breast cancer

Previous chest radiation for treatment of lymphoma

Not breastfeeding prior to age 30

Obesity

# Chemoprevention of Breast Cancer

While assessment for high risk is intended to identify those women who should be considered for further follow-up, it does not minimize the need for a thorough screening and diagnostic work-up as indicated (Figure 1). It only may change the intervals between screenings. Additional guidance on chemoprevention of breast cancer and genetic testing is available from the US Preventive Services Task Force at the following Web sites:

[www.ahrq.gov/clinic/3rduspstf/breastchemo/breastchemorr.htm](http://www.ahrq.gov/clinic/3rduspstf/breastchemo/breastchemorr.htm) and

[www.ahrq.gov/clinic/uspst05/brcagen/brcagenrs.htm](http://www.ahrq.gov/clinic/uspst05/brcagen/brcagenrs.htm).

Risk factors should be part of the health history and CBE evaluation process. Higher risk warrants further evaluation when it is supported by findings from the health history. Patients expect you to ask about their family history, even if it is or is not in their self-reported medical history file. Failure to ask compromises their sense of provider competence.

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The following Breast Health History Form can be used with women who possess "red flags" for increased risk for breast cancer, such as: personal history of breast cancer, proliferative breast health history, family history of breast cancer (or other related cancers), chest radiation, and/or no term birth prior to age 30.

*Please answer the questions below about your breast health. Your answers will help us develop a breast health plan that is right for you. Feel free to ask for help if you don't understand any of the questions or are not sure how to answer them.*

1. Name \_\_\_\_\_  
\_\_\_\_\_

2. Today's Date \_\_\_\_\_ Date of birth \_\_\_\_\_ Age \_\_\_\_\_  
\_\_\_\_\_

**3. Any recent changes and/or concerns:**

<i>Right</i>		<i>Left</i>	<i>Cyclic</i>	
<input type="checkbox"/>	Suspicious lump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	History of nipple discharge*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Nipple/skin retraction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Skin dimpling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Redness/swelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Rash/scaling/itching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Breast pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	None			

\*Nipple discharge discovered on garments and clothing, or bed linens and sleepwear.

**4. Have you ever had any of the following examinations of your breast?**

*Physical exam of the breast by a clinician:*

- No
- Don't know
- Yes, most recent one was: \_\_\_\_\_

Results:

\_\_\_\_\_

*Mammogram - an x-ray of your breast (not a chest x-ray) or ultrasound:*

- No
- Don't know
- Yes, most recent one was \_\_\_\_\_

Results:

\_\_\_\_\_

*Other imaging (eg, ultrasound, MRI) or breast procedures (eg, biopsy):*

- No
- Don't know
- Yes.

If yes, what was done:

\_\_\_\_\_

When was it done?

\_\_\_\_\_

Results:

\_\_\_\_\_

**5. Personal and Family History**

Please indicate with a check mark whether you or your family members listed in the column on the left have had any of the conditions listed in the top row of the table. If there are other cancers in yourself or these family members, please write in the type. Provide information about your biological (blood) relatives only. This should include your relatives who are living and deceased. If you are adopted, please include information about your biological (blood) relatives, if known.

	Breast Cancer at or Before Age 50	Breast Cancer After Age 50	Breast Cancer in a Male Relative	Ovarian Cancer	Other Cancers* (please specify)	Recurrence Dates if Applicable
Yourself						
Your parents						
Your brothers and sisters						
Your children						
Your father's parents						
Your mother's brothers and sisters						
Your mother's parents						
Your father's brothers and sisters						

**\*Examples of other cancers include colorectal, thyroid, prostate, endometrial, pancreatic, adrenocortical, melanoma, childhood sarcoma, leukemia/lymphoma, and brain.**

If yes to personal history of breast cancer, please respond below:

**What treatments did you have for breast cancer?**

- Surgery: what type? \_\_\_\_\_
- Radiation: how long? \_\_\_\_\_
- Chemotherapy: how long? \_\_\_\_\_
- Hormones: how long? \_\_\_\_\_

6. **Have you or a family member tested positive for a mutation in a breast cancer susceptibility gene (eg, BRCA1, BRCA2, ATM, PTEN, STK11, TP53, CDH1, or CHK2)?**

- Yes If yes, what gene? \_\_\_\_\_
- No
- Don't know/not sure

7. **Do you have Ashkenazi Jewish ancestry (risk of an inherited form of breast and ovarian cancer is higher in this ancestry)?**

- Yes
- No
- Don't know/not sure

8. **Indicate if you have every had any of the following procedures:**

- Breast surgery other than for cancer (implants, reduction, other)
- Radiation treatment to your upper torso

9. **What medications are you currently on?**

- None
- \_\_\_\_\_
- Don't know/not sure

10. **Have you had a live birth before age 30?**

- Yes
- No
- Don't know/not sure

11. **Have you entered menopause (no menstruation for 12 or more months)?**

- Yes If yes, at what age did menopause begin? \_\_\_\_\_ years
- No
- Don't know/not sure

12. **Have you used hormone therapy (estrogen alone or combined estrogen and progesterone) for more than 5 years?**

- Yes
- No
- Don't know/not sure

13. **Have you had your ovaries removed?**

- No
- Yes If so, one or both? \_\_\_\_\_

14. *On average, do you drink more than 1 alcoholic beverage a day?*

- Yes
- No
- Don't know/not sure

15. *How would you rate your lifetime risk for developing breast cancer compared to most women?*

- Low
- Medium
- High
- Don't know

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Figure 1. Breast Cancer History and Risk Assessment. <sup>[50]</sup> Republished with permission from the California Department of Health Services, Clinical Breast Examination, Proficiency and Risk Management.

## Clinical Breast Examination Skills

### What is the value of quality CBE?

The best available evidence on the efficacy of CBE and mammography demonstrates that in routine clinical practice, CBE sensitivity is 26%-35% <sup>[56-57]</sup> and mammography sensitivity ranges from 90% in women over 70 years of age down to 60%-70% in women under 45 years of age. <sup>[56,59]</sup> However, the Canadian National Breast Screening Study (CNBSS) demonstrated that CBE alone, in a 10- to 15-minute exam, can be as effective as CBE plus mammography in reduction of breast cancer mortality, with a sensitivity of approximately 75%. <sup>[60-62]</sup>

### What are the critical skills to assess for suspicious abnormalities?

Several evaluations of clinician performances of CBE found that many need improvements in this clinical skill. <sup>[1, 63]</sup> What are the essential components of a comprehensive CBE? This module addresses the purpose of CBE, the essential components of a comprehensive CBE, outlines interpretation and reporting of findings, and addresses a plan of action based on the patient's breast health status. Failure in any of these components threatens the potential for success of CBE to lead to the early detection and treatment of breast cancer and other breast abnormalities.

Neither CBE nor mammography should be substituted for the other as an independent exam for detecting breast abnormalities. CBE and mammography are complementary examinations and, when performed optimally, consistently detect early-stage (0, 1) lesions that have the most potential to be cured. Evidence supports the independent contributions of each exam in screening and diagnosis of breast disease and suggests that CBE may play a particularly important screening role for women with cancer not detectable on mammography or women not age appropriate for mammography. <sup>[64-66]</sup>

## Ideal Time Frame for CBE

As referenced in the chapter on anatomy and physiology, the ideal time frame for CBE is Day 5 to 10 after the onset of the menstrual flow. This will minimize the confusion that can be related to physiologic changes (e.g., increased nodularity) and reduce tenderness during the exam. Postmenopausal women can be examined at any time if they are not on hormone therapy, with the exception of cyclical HT, which should follow the time frame noted for premenopausal women. The decision to reschedule at a more optimal time of the menstrual cycle needs to be carefully balanced against the likelihood of the woman returning for a repeat exam.

## Consider Using a Chaperone for the Procedure

Local practices and expectations differ with regard to the use of chaperones, but the presence of a third party in the examination room can confer benefits for both patient and clinician, regardless of the sex of the chaperone or clinician. An American College of Obstetricians and Gynecologists (ACOG) published opinion states that the request by either a patient or a clinician to have a chaperone present during a physical examination should be accommodated irrespective of the clinician's sex. [67]

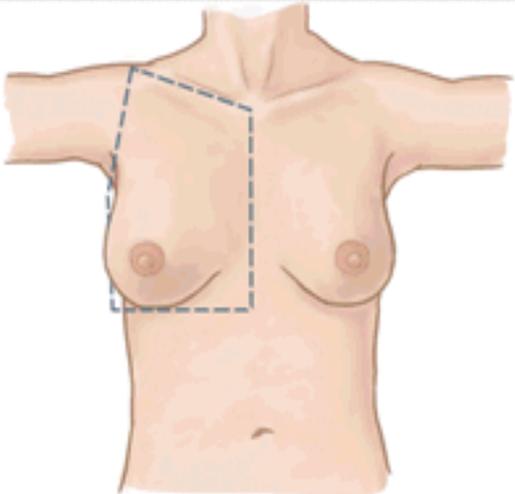
## Essential Components of CBE

CBE is intended to detect breast abnormalities or evaluate patient reports of symptoms in an effort to find early-stage breast cancer. While CBE is practiced extensively in the United States and continues to be recommended by many leading health organizations, clinicians remain very divided on the level of evidence to support the procedure and their confidence in performing it. The American Cancer Society (ACS) and the Centers for Disease Control and Prevention (CDC) have concluded that CBE can contribute to early detection and has offered recommendations for efforts to further study and determine the best methods for performance and reporting findings from CBE. [1] Figure 2 outlines the essential components of the CBE as supported in the ACS/CDC consensus report noted above.

Figure 2

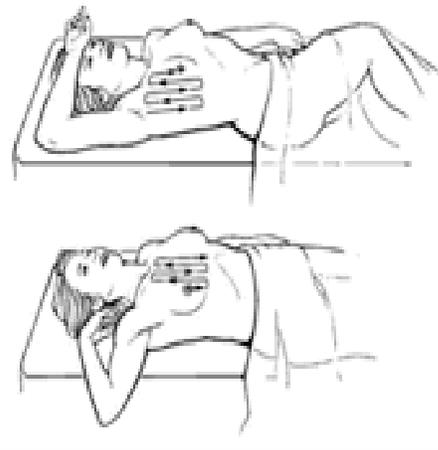
<b>Lymph Node Palpation</b>	<p>Patients should be sitting for the axillary, supra-, and infraclavicular lymph node palpation. During the examination of the axilla for lymph nodes, support the elbow to relax the shoulder girdle musculature. Note whether any nodes are palpable.</p> <p>If palpable, note the consistency of the nodes and whether the nodes are</p> <ul style="list-style-type: none"><li>□ Clinically negative (normal in size, 1 cm or less, soft and mobile) or</li><li>□ Suggestive of disease (large, firm, hard, tender or fixed).</li></ul> <div data-bbox="764 1549 1373 1856"></div>
-----------------------------	--

Figure 2

<p><b>Visual Inspection</b></p>	<ul style="list-style-type: none"> <li>□ Once a breast health history has been completed, a visual inspection of the patient's breasts should be performed as she sits with her hands pushing tightly on her hips. This position contracts the pectoralis major muscles and enhances identification of asymmetries. When conducting the visual inspection, the provider should: Assess symmetry in breast shape or contour (subtle changes)<sup>(1,64,66)</sup></li> <li>□ Assess skin changes, particularly any skin erythema, dimpling, retraction, or peau d'orange, lymphedema, nipple changes (scaling and retraction) and venous pattern,<sup>(1,66,67)</sup> and</li> <li>□ Visually inspect each nipple. Unless the woman has a history of spontaneous nipple discharge, squeezing the nipple during CBE is not recommended.</li> </ul> <p>Visual inspection takes significantly less time than palpation. Prior to the exam, time should be taken to explain the technique and what to look for. Teaching women this allows them to monitor changes in appearance over time. This patient education approach will also help minimize awkwardness and potential misunderstandings during the exam.</p>
<p><b>Perimeter</b> <i>Republished with permission from Dr. Elizabeth Steiner</i></p>	<p>The perimeter includes all of the breast tissue and is shaped like a pentagon (as opposed to the traditional perception of the breast as a conical structure). The examiner should use the following landmarks to thoroughly cover all of this area:</p> <ul style="list-style-type: none"> <li>□ Down midaxillary line;</li> <li>□ Across the inframammary ridge at the fifth or sixth rib;</li> <li>□ Up the lateral edge of the sternum;</li> <li>□ Across the clavicle; and</li> <li>□ Back to the midaxilla.</li> </ul> 
<p><i>Republished with permission from NEJM Copyright © 2005 Massachusetts Medical Society. All rights reserved.</i></p>	<p>Cancer can occur anywhere along the nipple line and it is important to assess for skin changes in this area.</p> 

**Pattern of Search and Positioning**

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- The full extent of breast tissue should be covered using vertical strips or other geometric pattern. (1,66,87)
- Some suggest starting the search at the axilla.
- If a mastectomy has been performed, the chest wall, skin, and incision should be included. Palpate for subdermal nodules that may indicate a local recurrence.
- Cover all the breast tissue sequentially and be sure to cover all areas of the perimeter as illustrated.
- Examine outer quadrants in a side lying position with breast tissue floating evenly on chest wall.
- Examine inner quadrants (as necessary) in a supine position with breast tissue floating evenly on chest wall.

<p><b>Palpation</b></p> <p><i>Republished with permission from the California Department of Health Services, Clinical Breast Examination, Proficiency and Risk Management.</i></p>	<p>The clinician should palpate one breast at a time using the pads of the middle three fingers. Palpate with overlapping dime size circular motions.<sup>[1,66,67]</sup> Breast tissue in the upper outer quadrant and under the areolar complex and nipple should be especially be covered thoroughly, as these are the two most common sites for cancer to occur. The goals of palpation are early detection of small lesions (&lt;1 cm) in the asymptomatic patient and assessment and characterization of the symptomatic patient.</p>
	<div style="display: flex; justify-content: space-around;"> <div data-bbox="414 409 852 630">  <p>Use the pads of three fingers to examine every inch of your breast tissue.</p> </div> <div data-bbox="852 409 1380 630"> <p>Move your fingers in circles about the size of a dime.</p>  </div> </div>
<p><b>Pressure</b></p> <p><i>Photographs courtesy of Dr. Vladimir Lange, Lange Productions.</i></p>	<p>Each area of tissue should be examined using three sequential levels of pressure—light, medium, and deep—corresponding to subcutaneous, midlevel, and chest wall. Adapt the palpation to the size, shape, and consistency of tissue. Each palpation uses all three levels of pressure before coming back to light and moving on to the next overlapping palpation.</p> <div style="display: flex; justify-content: space-around;">    </div>
<p><b>Patient Education</b></p>	<p>For all women, suggest appropriate intervals for breast cancer screening. Stress the importance of regular rescreeing. After explaining the benefits and limitation of BSE, <b>some</b> women are interested and want to become familiar with their breast tissue:</p> <ul style="list-style-type: none"> <li>□ Teach breast self-exam, provide printed BSE instructions, and reinforce frequency, and check for patient understanding and agreement.</li> <li>□ Have the patient demonstrate her technique. Provide additional teaching as needed. Many providers find it helpful to use a silicone model to sensitize the woman's fingers to the differences between benign nodularity and a discrete mass.</li> <li>□ Make sure that patients can distinguish what different types of tissue feel like (eg, a provider might ask, "Can you feel the difference in this tissue? If not, how would you describe the feel of this tissue? Would you describe this as thick or lumpy?"). Ask for permission to guide their hand and help distinguish areas of different tissue texture.</li> <li>□ Emphasize that BSE should not be used as a substitute for getting a CBE or mammogram.</li> </ul>

## Figure 2. Essential components of clinical breast examination

Compare symmetry (eg, nodularity and tissue thickening) between the breasts by examining the "mirror image" part of each breast at the same time. Symmetrical nodularity or thickening is rarely a sign of disease. On the other hand, any asymmetrical finding needs to be evaluated.

Dr. Harold P. Freeman

Breast Surgeon, Harlem Hospital, New York, NY

**Which of the following core competencies of CBE are considered important to assess for suspicious abnormalities?**

- Adequate time to palpate every cubic mm of breast tissue
- Use of 3 sequential depths of pressure with each palpation
- Comparing a suspicious finding in 1 breast with the exact location in the other breast
- Visual inspection of the skin of the entire breast perimeter
- All of the above
- All but the visual inspection

## Interpretation and Reporting

CBE is not capable of differentiating benign from malignant conditions; the primary function of CBE is to identify abnormalities that warrant further evaluation. Interpreting the visual and tactile observations of CBE is complex. A variety of patient characteristics can influence CBE interpretation, including:

- Patient age and parity;
- Relative ease of exam due to ratio of parenchymal tissue to adipose/fibrous tissues;
- Menopausal status, ovarian cycle phase; and
- Health history.

At its simplest, the results of CBE can be interpreted in 2 ways:

**Negative CBE** – No abnormalities on visual inspection or palpation; and

**Abnormal CBE** – Asymmetrical finding on palpation. Further evaluation and possible referral is necessary. Finding will reflect a continuum of possible outcomes, from “probably benign” to “highly suspicious of cancer.” Determination of benign or malignant status, however, can be established only through further evaluation.

Reporting should follow the same sequence as the exam itself and cover the elements listed in Table II-C.

**TABLE II-C: Clinical Breast Examination Reporting**

<p><b>Negative CBE:</b> Normal Breast Characteristics</p>	<p><b>Abnormal CBE:</b> Abnormal Breast Characteristics</p>
<p><b>Visual Inspection</b> - describe:</p> <ul style="list-style-type: none"> <li>• Scarring</li> <li>• Symmetry of breast shape and appearance of skin and nipple-areolar complex</li> </ul> <p><b>Lymph Node Palpation</b> - no palpable nodes (or soft nodes &lt; 1 cm) at</p> <ul style="list-style-type: none"> <li>• Infra- and supraclavicular region</li> <li>• Axillary region</li> </ul> <p><b>Breast Palpation</b> – describe results with respect to:</p> <ul style="list-style-type: none"> <li>• Degrees of nodularity (examiners should not describe normal nodularity as a fibrocystic condition nor describe normal cyclic breast tenderness as a pathologic condition)</li> <li>• Symmetry or nodularity</li> <li>• Tenderness</li> </ul> <p>As previously discussed under symptoms in the health history, it is imperative to document patient-identified complaints, particularly if you are unable to identify the abnormality. Include:</p> <ul style="list-style-type: none"> <li>• Location of reported abnormality;</li> <li>• Changes since discovery; and</li> <li>• Position the patient was in when the abnormality was discovered</li> </ul>	<p><b>Visual Inspection</b> - describe:</p> <ul style="list-style-type: none"> <li>• Contour (skin retraction, dimpling, peau d'orange)</li> <li>• Color (erythema)</li> <li>• Texture (skin thickening or lymphedema) Nipple scaling or retraction</li> <li>• Nipple inversion</li> <li>• Asymmetry of shape or size</li> <li>• Asymmetrical venous pattern change Location of finding according to a clock face</li> <li>• Size/extent of abnormal finding</li> </ul> <p><b>Breast Palpation</b> - for each palpable abnormality (including breast tissue and infra- and supraclavicular and axillary lymph nodes), describe:</p> <ul style="list-style-type: none"> <li>• Discrete or 3-dimensional dominant mass or 2-dimensional thickening</li> <li>• Location:</li> <li>• According to the face of the clock,</li> <li>• Cm from the nipple, and</li> <li>• Depth (subcutaneous, mid-level, next to chest wall)</li> <li>• Size (mm or cm)</li> <li>• Shape (round, oblong, lobular, irregular)</li> <li>• Mobility (mobile, fixed to skin or chest wall)</li> <li>• Consistency (soft; similar to surrounding breast tissue; hard)</li> <li>• External texture (smooth, irregular)</li> </ul> <p><b>Nipple discharge</b></p> <ul style="list-style-type: none"> <li>• Spontaneous or expressed</li> <li>• Color</li> <li>• Number of involved ducts</li> </ul> <p>Right or left breast, or both</p>

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A model "CBE Results Documentation Form"[10] (Figure 3) was developed by The California Breast Expert Workgroup and supports the reporting criteria published by ACS/CDC. [1] It has been modified slightly to be consistent with the contents of this module.

<b>CBE RESULTS DOCUMENTATION FORM</b>		Place Chart Sticker Here		
<b>Breast Health History</b>	<b>Purpose of Visit</b> <input type="checkbox"/> Annual screening <input type="checkbox"/> Recall <input type="checkbox"/> Short-term fu ___ mos. <input type="checkbox"/> Other: _____	<b>Date of Last CBE</b> _____ <input type="checkbox"/> Negative <input type="checkbox"/> Abnormal <input type="checkbox"/> Unknown	<b>Breast Cancer History</b> Mother/Sister/Daughter Age(s) ___/___/___ Self-Age ___ <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> Lumpectomy <input type="checkbox"/> Radiation <input type="checkbox"/> Mastectomy <input type="checkbox"/> Chemo <input type="checkbox"/> Axillary node dissection	
	<b>Patient Concerns</b> <input type="checkbox"/> Lump <input type="checkbox"/> Nipple discharge <input type="checkbox"/> Nipple skin retraction <input type="checkbox"/> Erythema / swelling <input type="checkbox"/> Rash / scaling <input type="checkbox"/> Breast pain <input type="checkbox"/> Other: _____ <input type="checkbox"/> None	R    L    Cycle <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Related Breast History</b> _____ Date: Last menstrual period _____ Date: Previous biopsy(s) _____ Date: Start HRT _____ Date: Augmentation/reduction _____ Date: Reconstruction	
<b>Physical Exam</b>	<b>Breasts</b> Fine nodularity Dense nodularity Skin edema Nipple/aerolar change Tenderness Nipple discharge Mass Symmetry	R    L    O'Clock <input type="checkbox"/> <input type="checkbox"/> _____ <input type="checkbox"/> <input type="checkbox"/> _____ Yes No <input type="checkbox"/> <input type="checkbox"/>	Distance from Nipple _____ _____ _____ _____ _____ _____ _____ _____	Depth of Pressure _____ _____ _____ _____ _____ _____ _____ _____
	<b>Discrete Mass</b> Shape    Margins    Size    Texture    Mobility    Other <input type="checkbox"/> round <input type="checkbox"/> well-defined <input type="checkbox"/> <5 mm <input type="checkbox"/> soft <input type="checkbox"/> fixed <input type="checkbox"/> _____ <input type="checkbox"/> oval <input type="checkbox"/> ill-defined <input type="checkbox"/> 5-10 mm <input type="checkbox"/> hard <input type="checkbox"/> mobile <input type="checkbox"/> _____ <input type="checkbox"/> irregular <input type="checkbox"/> _____ <input type="checkbox"/> 1-2 cm <input type="checkbox"/> rubbery    _____	<b>Lymph Nodes</b> WNL Enlarged Fixed Mobile	<b>Axillary</b> R    L <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Clavicular</b> Supra    Infra R    L    R    L <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Results</b>	<b>CBE Result Date</b> _____ <input type="checkbox"/> No breast abnormality <input type="checkbox"/> Benign breast condition <input type="checkbox"/> Probably benign breast condition <input type="checkbox"/> Abnormal: rule out breast cancer	<b>Imaging Referral Date</b> _____ <input type="checkbox"/> Screening mammogram <input type="checkbox"/> Diagnostic mammogram <input type="checkbox"/> Ultrasound <input type="checkbox"/> Other	<b>Patient Education</b> <input type="checkbox"/> Importance of annual screen <input type="checkbox"/> Referral follow-up <input type="checkbox"/> Breast self-examination <input type="checkbox"/> Other	
	<b>Overall Summary</b> _____ _____ _____			
<b>Case Management</b>	<b>Date</b> _____ <input type="checkbox"/> CBE & imaging results concordant <input type="checkbox"/> CBE & imaging discordant <input type="checkbox"/> Patient notified of mammogram results <input type="checkbox"/> Patient informed and referred <input type="checkbox"/> Referral for risk assessment counseling	<b>Date</b> _____ <input type="checkbox"/> Radiology/imaging workup <input type="checkbox"/> Surgical consult <input type="checkbox"/> Return for CBE in 1 2 3 mos. <input type="checkbox"/> Return for CBE in 6 mos. <input type="checkbox"/> Return in one year for annual CBE Other _____		
	<b>Final Diagnosis</b> Date _____ Diagnosis _____ <b>Clinician Signature</b> _____			

\*\*\* = scar    ● = palpable mass  
 ○ = dimpling    ▲ = uncertain thickening

Figure 3. CBE results documentation form. Republished with permission from the California Department of Health Services, Clinical Breast Examination, Proficiency and Risk Management.

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