

# AU InforMed

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Guest Editors: Delisa Shephard, Kelly South, Kristen Wheelles, Pharm.D. Candidates 2014



## Key Inforbits

- Overview of Breast Cancer
- Screening and Staging
- Risk Factors
- Treatment Strategies
- Prevention
- Support

## October is Breast Cancer Awareness Month

### Overview

Breast cancer is the 2<sup>nd</sup> leading cause of cancer death among American women, following lung cancer. According to the American Cancer Society (ACS), about 39,620 women will die from breast cancer in 2013. Death rates have been declining in the past 20 years, especially in younger women. This is thought to be due to early detection screening, increased awareness, and improved treatment. There are more than 2.8 million breast cancer survivors in the United States.<sup>1</sup>



Breast cancer is a malignant tumor that forms in the cells of the breast. It most often occurs in women older than 60 years of age, but can also develop in men and younger women. Most breast cancers develop in the milk ducts, while others develop in the lobules and fatty breast tissue.

Breast cancer can either be non-invasive or invasive. Non-invasive breast cancer (also known as ductal carcinoma in situ or DCIS) means the cancer is localized in the ducts of the breast tissue. While DCIS is not life-threatening, it may require treatment to prevent the condition from becoming invasive. Invasive breast cancer breaks away from the breast and travels to other parts of the body through the lymphatic system. The axillary lymph nodes are the first place the cancer is likely to spread, but advanced stages can metastasize to the liver, lungs, bones and brain.<sup>2,3,4</sup>

1. American Cancer Society [Internet]. Atlanta: American Cancer Society, Inc; c2013. What are the key statistics about breast cancer?; 2013 Sept 11 [cited 2013 Sept 20]; [about 1 screen]. Available from: <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-key-statistics>.
2. American Cancer Society [Internet]. Atlanta: American Cancer Society, Inc; c2013. What is breast cancer?; 2013 Sept 11 [cited 2013 Sept 20]; [about 1 screen]. Available from: <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-what-is-breast-cancer>.
3. Susan G. Komen [Internet]. Dallas: Susan G. Komen; c2013. What is breast cancer?; 2013 July 3 [cited 2013 Sept 20]; [about 1 screen]. Available from: <http://www5.komen.org/BreastCancer/WhatIsBreastCancer.html>.
4. Mayo Clinic [Internet]. Scottsdale: Mayo Foundation for Medical Education and Research; c1998-2013. Ductal carcinoma in situ (DCIS); 2011 June 23 [cited 2013 Sept 20]; [about 1 screen]. Available from: <http://www.mayoclinic.com/health/dcis/DS00983>.

## **Screening and Staging**

Screening for breast cancer is important for early detection of lumps or other abnormalities.<sup>2</sup> Detecting breast cancer at an early stage of development is the overall goal. Several screening techniques may be performed including self-breast exams, annual mammograms, breast ultrasounds, cell biopsies, and magnetic resonance imaging (MRI).<sup>2</sup> Breast exams and mammograms are routinely performed first at annual physician visits to identify any lumps or abnormalities in the breast. An ultrasound of the breast is performed next if abnormalities are felt during the breast exam.



According to the National Comprehensive Care Network (NCCN), a breast exam should be performed in patients 20 to 39 years old every 1 to 3 years.<sup>1</sup> Monthly breast self-examination is recommended by the ACS. A mammogram is an X-ray of the breast routinely used to screen and diagnose breast cancer. Based on the NCCN guidelines, patients at least 40 years old should receive a mammography annually.<sup>1</sup> If genetic testing has found a BRCA mutation (a mutation located on genes BRCA1 and BRCA2 that is linked with breast cancer) or there is family history present, patients at 25 years old should receive a mammography annually according to the ACS. An ultrasound exam uses sound waves to help distinguish between a solid mass and a fluid-filled cyst.<sup>3</sup>

If breast cancer is suspected, a cell biopsy sample is obtained to determine if cells are cancerous.<sup>2</sup> Biopsy procedures are also useful to help determine the aggressiveness of the cancer as well as if hormone receptors are present in order to target the best treatment options.<sup>3</sup> Lastly, a MRI may be used as a more specifically targeted imaging method. It uses magnet and radio waves to create pictures of the inside breast tissue if diagnosis of breast cancer is uncertain.

Once the diagnosis of breast cancer is confirmed, the next step is determining the stage of the cancer. Establishing a stage will help determine treatment options and strategies; stages include 0 through 4. Other tests and procedures that can assist in staging breast cancer include: blood tests, bone scans, computerized tomography (CT) scans, and positron emission tomography (PET) scans.<sup>3</sup> Stages of breast cancer are determined based on the size of the tumor within the breast, the number of lymph nodes affected, and signs indicating whether or not the breast cancer has spread to other organs in the body.<sup>1,3</sup> The table below lists the stages of breast cancer.

1. Therault RL, Carlson RW, Allred C, Anderson BO, Burstein HJ, Edge SB, et al. Breast cancer treatment: NCCN clinical practice guidelines in oncology [Internet]. 2013 Mar. [cited 2013 Sep 20]. Available from: [http://infoonco.es/wpcontent/uploads/2011/10/breast\\_cancer\\_2.2013.pdf](http://infoonco.es/wpcontent/uploads/2011/10/breast_cancer_2.2013.pdf)

2. Mayo Clinic Staff. Breast cancer: test and diagnosis. The Mayo Clinic. <http://www.mayoclinic.com/health/breast-cancer/DS00328/DSECTION=tests-and-diagnosis> Published July 2013 [cited 2013 Sep 23].

3. NBCF: breast cancer stages [Internet]. Texas: National Breast Cancer Foundation; c1991-2012. [cited 2013 Sep 20]; [about 3 screens]. Available from: <http://www.nationalbreastcancer.org/breast-cancer-stages>

4. ACS: American Cancer Society recommendations for early breast cancer detection in women without breast symptoms [Internet]. Georgia: American Cancer Society; c2013. [cited 2013 Sep 20]; [about 2 screens]. Available from: <http://www.cancer.org/cancer/breastcancer/moreinformation/breastcancerearlydetection/breast-cancer-early-detection-ac-recs>

STAGES OF BREAST CANCER	
Stage	Description
0	Cancer that is non-invasive
1	Small invasive tumor without lymph node involvement
2	Tumor that involves lymph nodes
3	Large tumor that involves lymph nodes
4	Spread of cancer to different organs

Created from: Therault RL, Carlson RW, Allred C, Anderson BO, Burstein HJ, Edge SB, et al. Breast cancer treatment: NCCN clinical practice guidelines in oncology. 2013 Mar. [cited 2013 Sep 20]. Available from: [http://infoonco.es/wpcontent/uploads/2011/10/breast\\_cancer\\_2.2013.pdf](http://infoonco.es/wpcontent/uploads/2011/10/breast_cancer_2.2013.pdf)

## **Risk Factors**

### Modifiable

- ✓ Non-childbearing women
- ✓ Giving first birth after age 30
- ✓ Women who do not breastfeed
- ✓ Oral contraceptives or Depo-Provera® use
- ✓ Hormone replacement therapy after menopause
- ✓ Being overweight after menopause
- ✓ Physical inactivity
- ✓ Alcohol intake

### Non-modifiable

- ✓ Female gender
- ✓ Increasing age
- ✓ Genetic mutations
- ✓ Family history or personal history of breast cancer
- ✓ Caucasian women (more likely to develop breast cancer)
- ✓ African American women (more likely to die from breast cancer)
- ✓ Benign breast conditions
- ✓ Early menstruation (before age 12)
- ✓ Late menopause (after age 55)
- ✓ Previous chest radiation

### Emerging

- ✓ Low levels of Vitamin D
- ✓ Unhealthy diet (high fat, low fruits and vegetables)
- ✓ Exposure to chemicals
  - Cosmetics (parabens and phthalates)
  - Sunscreen
  - Lawn and garden products
  - Plastic (BPA)
  - Water
  - Grilled foods
- ✓ Exposure to tobacco smoke



Tables created from: NBCF: breast cancer stages [Internet]. Texas: National Breast Cancer Foundation; c1991-2012. [cited 2013 Sep 24]; [about 6 screens]. Available from: <http://www.nationalbreastcancer.org>

Picture taken from: <http://www.clipartsmart.com/rosie-the-riveter-clip-art-rosie-the-riveter-breast-cancer>

## Treatment Strategies

- ✓ **Surgery:** first line option for patients to remove the tumor and surrounding tissue
    - Patients with stages 2 or 3 usually receive chemotherapy first (neoadjuvant chemotherapy) to reduce tumor size.
  - ✓ **Radiation Therapy:**
    - Patients with stage 0 or stage 1 that have had a previous tumor removal will usually have radiation following surgery.
  - ✓ **Chemotherapy:**
    - Medications are based on tumor status of type, grade, size, lymph node involvement and receptor type status.
  - ✓ **Hormone Therapy:** decreases the amount of hormones available to the tumor.
    - Premenopausal Women:
      - Hormone receptor blockers→ tamoxifen (Soltamox®), raloxifene (Evista®), toremifene (Fareston®), and fulvestrant (Faslodex®).
    - Postmenopausal Women:
      - Hormone production inhibitors→ anastrozole (Arimidex®), letrozole (Femara®), raloxifene (Evista®), or tamoxifen (Soltamox®).
  - ✓ **Targeted Therapy:**
    - Targets cancer cells verses all cells and usually has fewer side effects than chemotherapy.
      - Trastuzumab (Herceptin®) targets human epidermal growth factor receptor 2 (HER2), which may be over-expressed in breast cancer.
      - Bevacizumab (Avastin®) and Lapatinib (Tykerb®) are also used for targeted therapy.
1. Lower Your Risk [Internet]. Ardmore: breastcancer.org; c2013. Breast Cancer Risk Factors; 2013 May 5 [cited 2013 Sept 19]; [about 2 screens]. Available from: <http://www.breastcancer.org/risk/factors>
  2. Learn about Cancer: Breast Cancer [Internet]. Atlanta: American Cancer Society; c2013. What are the risk factors for breast cancer?; 2013 Sep 11 [cited 2013 Sept 19]; [about 5 screens]. Available from: <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-risk-factors>
  3. About Breast Cancer [Internet]. Frisco: National Breast Cancer Foundation; c2012. Treatment; [cited 2013 Sept 19]; [about 2 screens]. Available from: <http://www.nationalbreastcancer.org/breast-cancer-treatment>

## Myths vs. Facts

**Myth:** Finding a lump in your breast means you have breast cancer.

**Fact:** Only a small percentage of breast lumps turn out to be cancer. But never ignore a persistent lump. See a physician for a clinical breast exam.

**Myth:** A mammogram can cause breast cancer to spread.

**Fact:** Breast compression while getting a mammogram cannot cause cancer to spread. Mammograms require very small doses of radiation, but the harm to this exposure is extremely low.

**Myth:** Men do not get breast cancer. It only affects women.

**Fact:** Around 2,000 men are diagnosed with breast cancer each year. Men should periodically do a breast-self exam and report any changes to their physician.

**Myth:** If you have a lump but your mammogram is normal, you're done.

**Fact:** You may need more tests, such as an MRI, ultrasound, follow-up mammogram, or biopsy to take another look at the lump.

Created from: NBCF: myths [Internet]. Texas: National Breast Cancer Foundation; c1991-2012. [cited 2013 Sep 24]; [about 2 screens].

Available from: <http://www.nationalbreastcancer.org/breast-cancer-myths>

WebMD [Internet]. New York City: WebMD, LLC; c2005-2013. Breast lumps: 8 myths and facts; 2013 Sept 10 [cited 2013 Sept 24]; [about 1 screen]. Available from: <http://www.webmd.com/breast-cancer/features/breast-lumps-8-myths-and-facts>.

## Prevention

- ✓ Ask your doctor about breast cancer screening
- ✓ Become familiar with monthly breast self-exams
- ✓ Drink alcohol in moderation:
  - <1 drink/day for women and <2 drinks/day for men
- ✓ Exercise most days of the week:
  - 1.25 to 2.5 hours/week of brisk walking may reduce risk by 18%
- ✓ Limit postmenopausal hormone therapy
- ✓ Maintain a healthy weight of a body mass index of 18.5 to 25 kg/m<sup>2</sup>
- ✓ Preventive medications and surgery
  - Current U.S. Preventive Services Task Force recommendations:
    - Tamoxifen (Soltamox®) and raloxifene (Evista®) are recommended for prevention of breast cancer in women ≥35 years old that have not been diagnosed with breast cancer who are at an increased risk for breast cancer and at a low risk for adverse medication events.
    - Tamoxifen (Soltamox®) and raloxifene (Evista®) are not recommended for prevention of breast cancer in women who are not at an increased risk for breast cancer.

Created from: Mayo Clinic Staff. Breast cancer: prevention. The Mayo Clinic.

<http://www.mayoclinic.com/health/breast-cancer/DS00328/DSECTION=prevention> Published July 2013. [cited 2013 Sep22].

U.S. Preventive Services Task Force. Medications for Risk Reduction of Primary Breast Cancer in Women: Clinical Summary of U.S. Preventive Services Task Force Recommendation. [Internet] AHRQ Publication No. 13-05189-EF-5. September 2013. [cited 2013 Sep 25]

<http://www.uspreventiveservicestaskforce.org/uspstf13/breastcanmeds/breastcanmedsum.htm>

## Helpful Links

- |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ✓ <a href="http://www.nationalbreastcancer.org">www.nationalbreastcancer.org</a> <ul style="list-style-type: none"><li>○ About breast cancer</li><li>○ Breast cancer programs</li><li>○ Fundraising opportunities</li></ul> | ✓ <a href="http://www.nbcam.org">www.nbcam.org</a> <ul style="list-style-type: none"><li>○ Screening locations</li><li>○ Collaborating organizations</li></ul>                                                                                                |
| ✓ <a href="http://www.cancer.gov">www.cancer.gov</a> <ul style="list-style-type: none"><li>○ Types of cancer</li><li>○ Research and funding</li><li>○ Clinical trials</li></ul>                                             | ✓ <a href="http://ww5.komen.org">ww5.komen.org</a> <ul style="list-style-type: none"><li>○ Research and grants</li><li>○ Fundraising opportunities</li><li>○ Getting involved</li><li>○ Merchandise</li></ul>                                                 |
| ✓ <a href="http://www.breastcancer.org">www.breastcancer.org</a> <ul style="list-style-type: none"><li>○ Symptoms/diagnosis</li><li>○ Treatment/side effects</li><li>○ Financial assistance programs</li></ul>              | ✓ <a href="http://www.menagainstbreastcancer.org">www.menagainstbreastcancer.org</a> <ul style="list-style-type: none"><li>○ Breast cancer programs</li><li>○ Events</li><li>○ Fundraising opportunities</li><li>○ Membership</li><li>○ Merchandise</li></ul> |
| ✓ <a href="http://www.cancer.org">www.cancer.org</a> <ul style="list-style-type: none"><li>○ Breast cancer in men</li><li>○ Mammogram reminder</li></ul>                                                                    |                                                                                                                                                                                                                                                               |



<http://www.scoop.it/t/breast-cancer-awarenes/p/4004225613/clip-art-smart-breast-cancer-tree-of-hope-free-pink-ribbon-clip-art>



### **The last “dose” ...**

*“I look at my cancer journey as a gift: it made me slow down and realize the important things in life and taught me to not sweat the small stuff.”*

*~Olivia Newton-John  
[Recording Artist and Actor, 1948 -]*

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