Tell a Friend, Save a Life:

The Breast Cancer Prevention & Detection Kit

NATIONAL FOUNDATION FOR CANCER RESEARCH

Research for a Cure

About the "Tell a Friend, Save a Life" Breast Cancer Prevention and Detection Kit

Breast cancer affects us *all*, because we all have mothers, sisters, daughters, grandmothers, and friends who are at risk of developing this pervasive disease. This Kit is your chance to do something about it. Follow the tips and suggestions listed here, and share this kit with the women, and even the men, in your life, in the hope that it might help save and extend even one more life. Visit the National Foundation for Cancer Research website at www.NFCR.org for more information on how you can help.

Breast Cancer Overview

Despite an increased global effort to end breast cancer, it continues to be the most common cancer and the second leading cause of cancer deaths in women in the United States.

In 2011, an estimated 230,480 new cases of breast cancer were expected among women in the United States. The number of victims of this deadly cancer can reach 40,000 or more each year.

These troubling numbers are a constant reminder that we desperately need new ways to detect and treat this disease, as well as increased education about ways to help prevent it in the first place.

Prevention

How Do People Get Breast Cancer?

Cancer starts with a single cell or a small group of cells. A healthy cell replicates itself then dies off. But some cells experience unusual mutations or changes in their DNA, and instead of dying off, as the natural cell normally dictates, these mutated cells continue to multiply. This is what leads to cancer.

Some of these changes or mutations in our genes are inherited – for instance, BRCA1 and BRCA2 are tumor suppressor genes -- they keep cancer tumors from forming. When they are changed (mutated), they no longer cause cells to die at the right time, and cancer is more likely to develop. Most breast cancer DNA changes occur during a woman's lifetime and are not inherited. So far, the causes of most of the DNA mutations that could lead to breast cancer are not known.

Who is getting breast cancer?

Breast cancer occurs most often among women age 55 and older. About 5% to 10% of breast cancers occur in women with a family history of the disease. Having a mother, sister, or daughter with breast cancer just about doubles a woman's risk. A woman who has already had breast cancer is also at increased risk of developing some other types of cancer (which is different from having the same cancer come back as a breast cancer recurrence). Women who have had certain kinds of benign breast tumors are also at higher risk of later developing breast cancer.

White women are slightly more likely to get breast cancer than African-American women. But African-American women are more likely to die of breast cancer. It is possible that this occurs because these women seem to have faster growing tumors, but some research suggests that access to quality health care may also play a role in treatment outcomes among African-American women with breast cancer. Asian, Hispanic, and Native-American women have a lower risk of getting and dying from breast cancer.

Women who experience or are exposed to the following also have an increased risk of breast cancer:

- Early periods (before age 12)
- Late menopause (after the age of 55)
- Administered DES (diethylstilbestrol) during pregnancy to lower chance of miscarriage (affects both recipients of DES and daughters in the womb)
- Not having children or having them later in life (after the age of 30) *
- Use of birth control pills (this risk is eliminated after extended time off the pill) *
- Use of post-menopausal hormone therapy (PHT) to help relieve symptoms of menopause and osteoporosis
- Not breast-feeding for 1½ to 2 years *

**These are thought to increase risk of breast cancer because the actions do not lower total number of menstrual periods.*

Women with unhealthy lifestyles increase their risk of breast cancer. Consumption of more than one alcoholic beverage per day increases the risk of breast cancer. Overweight and obese women also face an increased risk, especially if the weight was gained during adulthood and/or if the excess fat is located at the waistline. An overall lack of exercise adds to an unhealthy lifestyle and increased risk of breast cancer.

Other lifestyle choices decrease overall health, which may lead to increased risk of breast cancer; these unhealthy choices include high-fat and low-nutrient diets, exposure to tobacco smoke, and unnatural work hours such as night shift work.

How Can I Prevent Breast Cancer?
Treat your body like the treasure that it is!

- **Know your family history of breast cancer.** Talk to your doctor to see if you or your loved ones should consider genetic counseling.
- **Give your body the nutrients it needs.** Visit www.NFCR.org to access our Recipe Box, a collection of simple, tasty, and very healthy recipes to help ensure that your body has the weapons it needs to fight off cancer.
- **Get moving!** Studies have conclusively shown that exercise can help cut down your breast cancer risk and even help breast cancer survivors live longer. So get out there and dance, run, bike, walk, just break a sweat!
- **If you're a smoker, quit!** Otherwise avoid second hand smoke. Tobacco exposure may be linked to increased risk for breast cancer.
- **Stay informed.** Cancer research breakthroughs are constantly introducing new findings. Be aware of the most up-to-date prevention information by visiting forums such as www.NFCR.org.
- **Support cancer research.** Without funding, we will not be able to sustain our efforts to find a cure.
- **Limit your alcohol intake to less than 3 drinks per week.** New studies suggest that women who drink 3 to 6 drinks per week of any type of alcohol, have a 15% increase in their risk of breast cancer.

Detection

The earlier breast cancer is diagnosed the better the chance of recovery. Women world wide can take proactive steps to knowing their bodies, family history, and risk level, in order to prevent and detect cancer early.

Screening and Early Detection Chart

Screening Type	Description	Frequency	Risk level
Self breast exam	*Self examination of the breasts to feel for any lumps or irregularities (see instruction panel).*	*Monthly, starting after puberty*	*Average*
Clinical breast exam	*Healthcare provider physically examines the breasts to feel for any lumps or irregularities.*	*Annually*	*Average*
		*Once or twice a year beginning at age 25**	*High*
Mammogram	*An x-ray image of the breast that can reveal irregularities and help to detect cancer early when it is most treatable.*	*Annually, starting at age 40*.*	*Average*
		Annually, starting at age 30	*High*
Predictive Genetic Testing	*Usually several blood samples are taken for laboratory tests, to identify changes in DNA.*	*At time determined by individual's physician**	*High*
MRI	*Uses radio waves and a magnet to create detailed images of the inside of the body.*	*Annually, starting at age 30**	*High*

**These are suggested screening schedules for high risk individuals regardless of the risk factors. Please consult your physician for a specific screening schedule tailored to your risk profile.*

Self Breast Awareness and Examination

Women 20 years of age and older should be proactive about detecting breast cancer. Self breast awareness and examinations are easy and free! Follow the instructions below to use your **senses** to examine your breasts:

1. **Feel**—Be familiar with what your breasts normally feel like, such as tenderness levels and firmness.
2. **Touch**—After the age of 20, females should perform monthly self breast exams.

I
Lie down on your back, place a pillow under one shoulder, and place the pillowed arm behind your head.

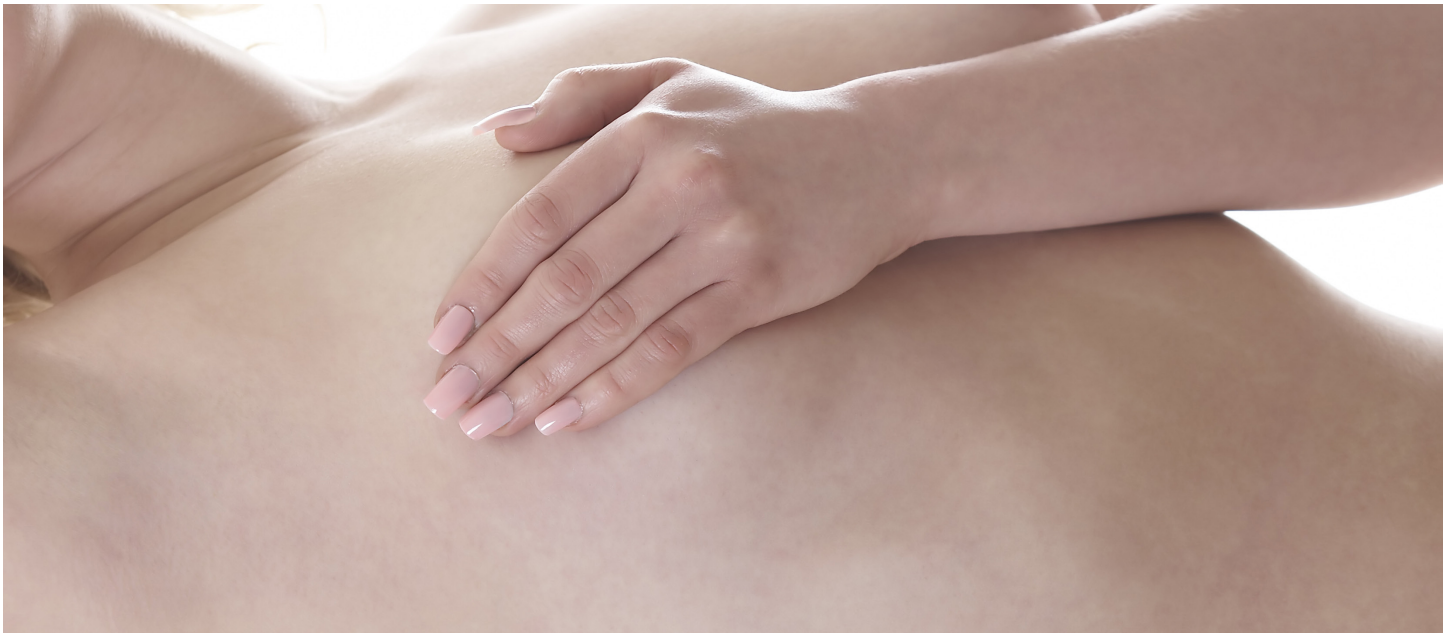
II
Place the pads of the three middle fingers of the opposite hand on the breast and rub in small circles. Start from the bottom far side of the breast.

III
Apply enough pressure to feel the breast tissue in each spot.

IV
Maintain contact with the breast while moving up and down, working your way across your entire breast, making sure to feel all of the tissue.

3. **Look**—Stand in front of a mirror with your arms at your side. Practice holding your arms over your head, then at your side, then placing your hands on your hips, and finally bending forward from the hips (It's okay to feel as though you are dancing, we encourage you to make this a fun exercise!).

If you notice any changes, swelling, discoloration, or abnormalities contact your doctor for a clinical examination.



Treatment

When breast cancer is identified and confirmed by a physician and/or laboratory results, several other tests may be performed in order to further classify the cancer and determine the optimal treatment strategy. Based on the stage of the cancer and the results of these tests, treatment of breast cancer is personalized for each individual. Treatment may involve one or several of the following:

- **Surgery**- Nearly all patients with cancer will have some kind of surgery. Surgery may be used to perform a biopsy for an accurate diagnosis, provide local treatment of the cancer, and obtain other information to help determine whether additional treatment is necessary.

- **Radiation therapy**- Damages the DNA in the cancer cell, thereby disabling the cancer cells from reproducing and growing. The objective is to kill enough cancer cells to maximize the probability of cure and minimize the side effects.

- **Chemotherapy**- Considered a systemic treatment, consisting of single drugs or combinations of drugs circulating in the blood to parts of the body where the cancer may have spread; can kill or eliminate cancers cells at sites great distances from the original cancer growth.

- **Targeted therapy**- Unlike radiation and chemotherapy, this option is designed to treat only the cancer cells and minimize damage to normal, healthy cells. Cancer treatments that "target" cancer cells may offer the advantage of reduced treatment-related side effects and improved outcomes. Each of these new treatments targets cancer through various mechanisms including antibodies, inhibitors, and vaccines.

- **Hormonal therapy**- Blocks or prevents hormone receptors on the surface of breast cancer cells from being exposed to hormones that cause the cells to grow and multiply; however, the therapy does not directly kill the existing cancer cells.

To access more information about breast cancer treatment, visit the **NFCR Treatment Information**.

Research Breakthroughs

Cancer patients deserve to have access to the most immediate and effective treatment available. Recently scientific research funded by NFCR has contributed to revolutionary advancements in early detection and cancer treatment, especially related to this most common cancer faced by women. Notable breakthroughs from NFCR research include:

1. A new technology that could replace mammograms. Advanced Molecular Imaging Technology could enable doctors to detect breast cancer at an earlier and even more treatable stage. Using mammograms to detect cancerous cells can be like finding a polar bear in a snow storm. Mammograms are simply not able to "see" those cells clearly. This new technology may help to refine doctors' hunting abilities, catching cancer in its beginning stages, even before tumors have formed in the breast, and preventing unnecessary hardships and treatments.

2. Determining a breast cancer patient's sensitivity to Taxol. Although Taxol is one of the most effective anti-cancer drugs currently in use against cancer, some patients have tumors that are resistant to it or soon develop such resistance. NFCR scientists are confirming if an altered cell-building protein makes tumors insensitive to Taxol. If so, a diagnostic test could confirm the presence of the protein in a patient's cancer cells, allowing doctors to prescribe other treatments.

3. Identifying breast cancer patients who are resistant to hormone therapy. It is imperative to detect cancer at its earliest stages and complete pre-treatment testing to understand the most about each patient's cancer type and genetic make up. A NFCR scientist has identified genes that may cause patients to be resistant to hormone therapy. Pre-treatment tests could be developed so patients with hormone-resistant breast cancer can be treated with the most effective drug from the outset, sparing them from the potential harm that could be caused by less appropriate treatments. Drugs that target these genes may be potentially beneficial as therapies for these patients.

4. Developing new therapies to keep the spread of breast cancer under control. Breast cancer is most difficult to treat once it has spread or metastasized to other parts of the body. Targeted treatments are needed for women that can prevent metastasis or keep it under control. NFCR scientists have discovered two metastatic suppressor genes, *KISS1* and *BRMS1*, that are found in metastatic breast cancer. The scientists are determining how the protein products of these genes function to keep cancer cells from spreading. By designing molecules that partner with the metastatic proteins or mimic them, they can develop novel anti-cancer therapies that can prevent breast cancer metastasis from happening in the first place or keep it inactive.

5. Fighting breast cancer on a global scale. The Tissue Bank Consortium in Asia (TBCA), established by NFCR, is a group of biorepositories or state-of-the-art tumor tissue sample preparation and storage facilities in China. Fresh frozen and preserved tumor tissues are collected and both types of tissue are suitable for research with all the cutting-edge molecular techniques. The TBCA currently contains more than 21,200 high quality cancer tissue samples, including more than 6,100 breast cancer samples — one of the world's largest collections of breast cancer tissue. With this international research facility, collaborative efforts on genomic studies and tissue microarrays have already improved the classification of breast cancers and produced early diagnostic tests and more effective cancer therapies.

How You Can Help

These NRCR-funded research projects, and many others, offer real hope that scientists can develop more effective detection methods and much more effective therapies for patients with breast cancer. With more funding, however, NFCR could enable these scientists to ramp up their efforts and accelerate their research progress to save more lives!

Take action to cure breast cancer! Start now by visiting us at **www.NFCR.org**. From there you can click on the following tabs to learn more about how to get involved:

- Share this **prevention and detection kit** with a friend or family member.
- **Donate** through NFCR programs to support our scientists in accomplishing important research to develop better cancer treatment and prevention strategies.
- **Volunteer your time** to raise awareness of NFCR's research mission and support cancer research:
  - **Start your own event** for NFCR
  - **Start your own fundraiser webpage**
  - Sign the **World Cancer Declaration**

We encourage and invite you to join the millions of individuals around the globe who are helping NFCR save lives through cutting-edge cancer research.

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